

**THE PROVISION OF HEALTH SERVICES IN THE
CENTRAL REGION OF GHANA:
A NEED ASSESSMENT APPROACH**

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THE PROVISION OF HEALTH SERVICES IN THE CENTRAL
REGION OF GHANA: A NEED ASSESSMENT APPROACH

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SUBMITTED FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
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A B S T R A C T

This work is an attempt to suggest an appropriate approach to the provision of services in a developing country like Ghana. The objective was to explain the pattern of diseases as these are related to the existing services and to suggest ways of reducing them.

The study is in two parts. The first deals with the theoretical underpinnings of health care provision, and examines the influence of three factors - sociopolitical, historical and financial - on the system of health care. The second part deals with the nature of the system in one of the regions in Ghana - the Central Region.

In the provision of health care in Ghana, the predominate practice is to concentrate on curative care. Preventive care is neglected with the retardation of the possibility of bringing under effective control the infective parasitic diseases. An inadvertent vicious cycle of infection-cure-infection is set up in which infected people receive treatment only to be reinfected as they continue with the normal lifestyles.

This study is approached from the angle of health need assessment, the basic position being that health care is a basic human need hence any provision made for it ought to be based on the welfare principles of equality and social justice. It is an interpretation of data from three different sources, official Ministry of Health reports, hospital statistics and the results of a community surveys.

Conceptually, it identified the spatial unit within which health care could be appropriately provided. This is the ecological community considered as the fundamental primary level. Here, with the enlisted participation of the people themselves, there is the possibility of breaking the cycle of infection.

Furthermore, it could help bring an awareness of healthy life styles with possibility of reducing the quiet build up of degenerative diseases in the country. As a study, it stresses tha need for a normative approach to health care provision.

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PART ONE

HEALTH CARE STUDIES: AN INTRODUCTION

This part of the thesis introduces the study of health care. As an area of study, it has developed only over the last 20 to 25 years, and various approaches have been developed, some of which are considered in Chapter One.

The main driving force behind the bulk of health care studies is the visible state of ill-health and diseases amongst the world population today in spite of the unprecedented advances made in the sciences relating to medicine and health and also health technology. The problem, it was surmised, might lie not so much in the advancement of knowledge in illness and health, but in the extent to which that knowledge was translated to care for all people. A survey conducted by WHO in 1973 showed that there were flaws in the provision of care for the world's population (WHO, 1973). There were vast areas where modern medical science and health care had not touched. People simply did not have access to care, and where this was available only treatment of illnesses was focused on. Little or no attention was paid to people's real needs especially at the community level with its local environmental conditions that have an important bearing on health. Not much care was paid to ensuring that a balance was achieved between curative, preventive, promotive and other types of care. It is in an effort to find ways round this problem that several academic disciplines have turned their attention.

Chapter One focuses on the various approaches to health care studies; while Chapter Two considers some of the possible principles that should be used to guide policy and practice in health care provision. Chapter Three focuses specifically on the objectives and methods used to examine the Ghanaian situation as typified in one Region - the Central Region.

Chapter Four which lies as a bridge between the two parts, discusses the historical dimension of health services and their introduction in the country as a whole. This is followed by a detailed study of the health care situation in the Central Region which completes the second part. Attention is paid to the community and the care it receives, the delivery of primary health care and the possible strategies for re-orientation of the system to suit local conditions.

CHAPTER ONE

INTRODUCTION TO THE STUDY

The purpose of this chapter is to introduce the geography of health and also to consider briefly other social science approaches to the same. It is divided into two main sections. The present section introduces the study itself, it defines the problem elaborating on a justification for it. The second section considers some of the other academic disciplines that have shown an interest in health care.

This is a study in geography of health which focuses on health services provision in one Region of Ghana, the Central Region. The reason for undertaking this research is born out of an awareness of and some disquiet towards the present state of general health services in the country. In Ghana, despite increases in the health budget over the past years, the major health problems of the population have not yielded appreciably to the control measures adopted. What is more, it is becoming increasingly expensive to provide the basic services, let alone expand them. There has been pressure on the government to do something about the situation which is attributable to a number of factors. The first of these is that the nature of the existing health care is such that substantial resources as well as time are required for the establishment and maintenance of the services. The resources include capital for providing the fixed assets - building, equipment, vehicles - and time is required for the training of the staff to run the hospitals and provide the services.

Secondly, the above problem is compounded by the fact that many of the inputs required for the provision of the services can only be obtained from overseas markets and this puts an additional strain on an already over-stretched government budget.

Thirdly, the registered increases in the population from 4.5 million

in 1960 to the present 14 million has consequently over-burdened the services despite efforts to expand them.

The Problem

Faced with these constraints, and in the absence of any clear methodology to guide policy, it was considered appropriate to attempt to develop a suitable framework which would suggest ways of dealing with this situation. Obviously, this involves looking at a wide field, the whole of which would be problematic to study on a small scale. Thus, for expediency, the objectives used had to be qualified and the area of research limited.

Specifically, this study examines the provision of health services in one region of Ghana in terms of needs and suggests strategies for improvement.

The prevalent communicable diseases which are either endemic or appear periodically in epidemic form have proved problematic for the population of the developing world. Their persistence represents a drain on scarce government resources. Since the above pattern seems to prevail in many developing countries, the question that arises in this:- Why has there not been a appreciable and successful control of these diseases despite the resources devoted to them?

Obviously, there must be certain basic conditions within the population living in the various communities which ensure not only the survival of the causal agents, but also provide avenues for their spread. These conditions could be inherent in the local environment in which the people live. Hence the need for a study which will focus on the peculiar situation of the local environment of a community.

Specifically this study revolves around three sub-problems and will therefore attempt:

1. to examine the health services in the study area;
2. to assess the health needs of the population;
3. to suggest a strategy for the improvement and extension of the services within the region.

Need for Research

There are two main reasons underlying the carrying out of such research. First, as a geography of health study, its focus is rather epidemiological in that it seeks to find out the determinants of and the type of communicable diseases that plague the population living in the Central Region of Ghana. It is important to concentrate on the inherent condition within the area which contributed to the prevalence of the diseases with a view to either completely changing them, or at best reducing their impact.

In the persistence of this group of diseases, most health workers agree that the main factor that perpetuate their existence is the domination of the parasites within a favourable environment. In other words, the ecological set-up of the community - the people's living conditions which arise within the natural environment - contribute to the persistence of the health problems related to communicable disease.

The second main reason which makes such research a necessity revolves around policy. Since the ecological aspects are important the people's habits and ways of life need examining and improving upon, and it is only if a specific policy is developed to this end that some changes could be effected. In view of the World Health Organisation (WHO) declaration on 'Health for all by the year 2000', it has become an urgent matter to fix a policy towards a primary level of care that could help involve the people more consciously in efforts to improve their health. This necessarily means a shift from policy previously placed on the

provision of health centres and hospitals, discretely located over the area but with their concentration in urban areas, to one that emphasises community health care. Members of a community need to cooperate meaningfully with the professionals to improve the health situation in a holistic manner, rather than relying largely on a therapeutic approach to health care.

It is necessary to both promote and prevent ill-health whenever possible. At this point, it is appropriate to consider how such a change could come about either in a gradual reformative manner or in a radical and all embracing way. It appears that the nature of communicable disease agents requires that the latter method of change be adopted. This means action-health education and disease eradication measures should be undertaken concurrently in all areas within the region.

The rationale for focussing on the community also centres on the following:

- (a) the need for equal distribution of services to both urban and rural areas;
- (b) many minor ailments can be taken care of at the community level, even at the level of the home given the proper orientation, thereby reducing the journey to care;
- (c) the successes that have accompanied various experiments in community approaches to health care provision.

Countries where this approach has been attempted include China, Niger and the Philippines.

Data

The data for the above study comprised interviews with people in the communities and also as patients waiting to consult at a health institution. Secondly, any relevant information concerning the health institution were also collected.

A third category of data source came from the records kept by the institutions themselves, or from the Ministry of Health which is charged with directing the affairs of the health institutions. Some historical materials, mainly from libraries, were also used.

The data on the people proved easier to obtain than the other two. The records from the institutions were not readily made available and there were gaps in some cases. The search for records from libraries, though eventually made available, proved time consuming. A more detailed discussion follows in Chapter Three.

Academic Interest in Health Provision: Social Science Approaches

Studies relating to health care provision have primarily in the past been taken by medically qualified people. During the last two to three decades, however, disciplines within the social sciences have shown increasing interest. This latter involvement centres on the fact that in the provision of the services, the central focus should be on the population to be served. Hence the need to pay attention to the social milieu, and to study the peculiar characteristics and needs of the people living in particular areas. Interest in health care provision has therefore been shown by psychologists, sociologists, anthropologists, economists and geographers. Since all these consider the social milieu, there is a possibility that there might be some conceptual overlaps. To avoid these, some consideration is given to each.

It is inevitable that social science should become involved in health care, given the fact that the latter is inseparable from the general organisation of society. The first of these to gain recognition is sociology (See Table 1).

Though a sociological perspective was brought to bear on medical problems at the time of Durkheim some 80 years ago, it was not until the

Table 1.1

SPECIFIC APPROACHES ADOPTED (AS INDICATED IN RESEARCH PAPERS APPROACHES)

A P P R O A C H E S

Social Science discipline	Disease oriented/ Case Study Approach	Health Services Provision	Health Promotion & Behaviour	Utilization approach
Social Science combined	Illness/Disease study per se. Example heart disease, malaria etc.	Health Services provision - all inputs- staff, drugs, equipment.	Cognitive behaviour- Knowledge; Personal awareness & experience	Various factors, Influences
Epidemiology	Symptom identification & also Risk factors. Search for control measures	Effects of services on Community's health.	Behavioural influences on health, e.g. effects of smoking by pregnant women on foetus	
Geography	Identification of social & spatial Risk factors	Spatial location of facilities and Distribution	Emphasis on individual behavioural practices	Factors of Utilization stressed: Distance, Health facility characteristics.
Economics	Measures of cost/ Benefits, Cost Effectiveness & Efficiency of Disease intervention.	Same principles Cost-Effectiveness of Health Care inputs	Measure of Health Status & Health State	Demand Factors/Concept of Elasticity/Inelasticity.
Sociology	Socio-cultural, Environmental, Influences on Illness. Role Playing by patients	Professionalism Role playing etc.	Measures of attitudes ideas, beliefs on health & illness stress on Cognitive behaviour and health.	Social and Psychological influences.
Anthropology	Derivation of Typologies of illness Stigmatisation	Political economic approaches, Constraints on Provision of pluralism of medical systems.	Modernity Versus Traditionalism Social changes in Ideas and Behaviour	Personal characteristics of utilizers & Extent of Influences of ones Perception and illhealth

middle of this century that Parsons and others established medical sociology. Today, the sociologist is reputed to be given access to the hospitals, clinics and other settings where he may directly observe medical services in action (Illsley, 1975). The subject matter includes health and disease, illness behaviour and also the care dimensions.

The main area of research concerns the social aetiology of disease using epidemiological methods to analyse statistical data. According to Illsley, the early effort approached health studies from a biomedical point of view which was more or less thrust upon sociologists by the medical organisation.

Medical sociology also focuses on what Parsons calls the 'Sick role' and deviancy which describes the action that has to be taken if recovery is to be achieved (Parsons, 1951). This sick role concept isolates and insulates the person whilst at the same time exposing the deviant. In this aspect the health care system is viewed as acting as a control on the sick person and forcing him to return to normal life.

In recent years these perspectives have come under some criticisms. McQueen maintains that there is a need to develop minor level theories to explain the multifactorial relations that the discipline studies (McQueen, 1981). Also, it has been said that value judgements should be admitted into research. Medical Sociology also needs to question the role of medicine in the broader socio-economic and political context (Stacey et al, 1979) of health care studies. These comments may well be made of medical geography which indeed confirm the opinion that sooner rather than later the social scientists need to provide perspective for the solution of health care problems. Indeed similar comments can be made concerning medical anthropology, which is considered below.

Medical Anthropology

In this social science, the apparent parallels between health and health care and the cultural perspective of anthropology make it a relevant discipline to engage in health care studies. Like medical sociology, medical anthropology has also had interest in clinical medicine, though in recent years more concern is being shown in the socio-economic characteristics of the cultures studied. One must agree with Janzen (Janzen, 1976), that this is useful in that such studies show up the nature of the political system which has a direct influence on the health care system (Doyal, 1970). A further interest in this discipline concerns 'medical pluralism' - the different medical systems that exist in any one country. This of course is a more prevalent feature in the developing countries where former colonial rule introduced the modern health care system, alongside the traditional one.

Medical Economics

This discipline, which made its debut to health care studies relatively recently, appears to have originated in the United States where the first conference was held in 1962 (Klarman, 1970). It was only in 1980 that the first world congress was held in Leiden (Soc. Sci. Med., 1980).

Somewhat divorced from the biomedical point of view, in health economics (as the present day practitioners prefer to term their discipline rather than the former medical economics), a fresh approach is brought to bear on medical issues. Needless to say, the usual economist's stock-in-trade feature prominently - cost benefit; cost effectiveness, the concept of market system of supply and demand which determine prices of health care elements such as staff, drugs, hospitals (Culyer, 1980; Montford, 1981). Cost benefit analyses of drugs,

emergency services and even of the treatment for certain illnesses have been undertaken (Culyer et al, 1981).

Another area of interest for health economists is that of measurements of health status and health need (Sintonen, 1981). This has been necessary considering the importance attached to concepts of efficiency and effectiveness. If the various inputs of health care are to function effectively and be productive, then the outcome of product of the services must be commensurate with the inputs. Hence the interest in allocation of resources and the measures of health status (West, 1973). Ironically, this concern with measures had led economists into the supposedly subjective area of making value judgements.

The result of this has been the effort at articulating theories relating to the provision of public, non-profit making goods as against that of an industry for which the main motive is profit maximization. Consequently, such intangibles as 'equity' defined as 'equal opportunity for all', and 'fairness' are becoming important factors for consideration by those interested in the allocation of resources. In fact, some ten years ago Culyer et al (1972) wrote that value judgements cannot be swept aside. Dunlop (1975) also drew attention to the possible danger to health care when he wrote that consideration of 'cost benefit' in health care system threatens the criteria and machinery of decision-making in health care. Thus even though 'cost-benefit' analysis is still important in economic health care studies, there is this growing tendency to extend the framework of rational action to analyse values and goods within economics of health care. These developments, which hold exciting promise for a real social science contribution to health care provision, must be encouraged particularly by the other social science disciplines. This is in view of the current state of health care provision in many countries both developed and developing. The nature of

health care is such that countries, societies and governments cannot but make value judgements on what care to provide at the nation's expense and what to leave to the vagaries of the free market economy. Objectives and priorities therefore have to be set and one cannot but agree with Mooney (1981) when he wrote that it is up to social scientists to make the policy makers aware of the need for national explicit value judgements. Having said that, it is of course important to heed the cautionary word of West (1981). He wrote that the phrase 'equity in health' could easily become the catch phrase of the 1980's so that one needs to be wary of employing it too frequently.

Geography of Health

This particular study falls within what was known as medical geography but is now referred to as the 'geography of health'. As a sub-discipline, interest in health related problems has been shown by geographers for many years. Even though such interest in environmentally related diseases and ill health can be traced to the Greeks, in their theories of miasma, four humours and temperature (Barrett, 1980), actual geographical work in this area dates back only to the last century. During this time, German studies were carried out in medical topography and medical landscapes in which environmentally related diseases were mapped out (Hirsch, 1883).

Similar work has been done in the USSR (Shoshin, 1962). In Western Europe and America, physicians used mapping and other geographical techniques to study diseases Haviland (1968). The discovery of germs as causal agents of diseases, led to a lull in the pace of such studies, but during the 1950's fresh interest was shown.

A French physician, Jacques May, helped set the scene for this new interest. In 1950, he wrote: 'we recognise that disease is a multiple

phenomenon which occurs only if various factors coincide in time and space'. The focus of interest widens to encompass the relationship between various factors of this complex and their respective geographical environments. This can be called Medical Geography (May, 1950). This emphasis on relationship between various factors and their environments gave medical geography an ecological perspective. This has proved useful in studying relationship that may exist between different elements of the environment and disease (May, 1950; Pyle, 1979).

Later developments in social science in general and in geography in particular helped eclipse the ecological approach in medical geography. These developments are discussed briefly below.

The first was the concern with the respectability of geography as a science. This required the adoption of the positivist approach coupled with quantification. Regional science, location theory and spatial systems were developed, pushing geography towards a new frontier. Furthermore, statistical and mathematical techniques were especially collected and collated for geographers, the use of computers making analysis much easier.

The effect on medical geography was that an impetus was given to the consideration of health services delivery, the spatial patterning of facilities, and their utilization by people. Some of the earliest work in this area was completed in Sweden by Godlund (1960), who modelled an optimum regional location pattern of hospitals. This was followed by others, notably the computer-based analysis of hospital provision in the Chicago area of the USA (Morrill and Earickson, 1978; Morrill and Kelly, 1979).

Even research on diseases per se often employed some of the spatial science techniques; some of these include an analysis of cholera diffusion (Kwofie, 1975), river blindness and its cyclical advance and retreat (Hunter, 1966), schistosomiasis and its spread (Disu, 1976); pancreatis

and water supply in Nottingham (Giggs, 1979). Some of these studies were important in that they helped discover some of the variables associated with certain illnesses.

Another development which influenced the course of medical geography was the behavioural perspective adopted in mainstream geography to counterbalance the positivist approach. As many saw the latter, it was merely producing trite and spurious conclusions which did not match reality (Harvey, 1973; Guelke, 1971, 1975). The result of this dissatisfaction was an emphasis on people's behaviour, motives, goals etc. The reflection of this trend in the geography of health can be seen in the focus of research interest on the people who used hospital facilities. There was a search for predisposing and enabling factors in the utilization of health services which made it necessary to examine patients' personal characteristics - age, sex, income, occupation, education (Stock, 1982; Anderson and Arday, 1972). These researches failed to produce any fresh insight into certain basic problems inherent in health services provision, much less an understanding of what brings about differences in the level of health amongst people of a given area. If the geography of health was to focus attention on health services, what should be done about the differences that exist in the availability of the services for different groups of people?

As these and other questions were being asked, there was also a growing dissatisfaction and impatience in mainstream geography with the inability to consider relevant issues and pressing human problems. Chisholm and others began urging that it was time geographers began to indicate which normative choices or options governments should take to solve identified problems (Chisholm, 1971).

Also, it was indicated that merely studying what was relevant did not necessarily provide useful explanation (Shannon, 1980; Bradshaw, 1976).

People, it was held, are often constrained by social, economic and political systems which also need to be considered. Calls were made to adopt 'ethical' and 'welfare' views in assessing social activities (Smith, 1970). Eyles also urged that the focus for relevant research should be on some of the social and spatial inequalities in society (Eyles, 1971). Later, Smith also insisted cryptically that, as geographers interested in social issues, consideration should be given to "who gets what where" (Smith, 1973, p.276).

The relevance of these calls for geography of health cannot be disputed and several studies focussing on inequalities in health care provision attest to this (Buttimer, 1971; Tarlo, 1980; Stimson, 1979). However, studies which relate the actual system of care to patterns of ill health are few. Occasional comments on the American system of provision show that there is the recognition of such a constraint (Pyle, 1979). Elsewhere, research has concentrated on discovering sources of inequality and deprivation in the provision and use of services within certain areas (Phillips, 1981).

Furthermore the changing approaches have meant that research effort in the geography of health has been quite diffused. So many variables are incorporated and analysed, with very varied research topics. It has even been necessary to employ classificatory schemes in discussing medical geographic research (Pyle, 1977; Phillips, 1981). Some redefinitions have been offered (Hunter, 1974; Phillips, 1981).

Also, for a while, the two approaches seemed to be drifting apart. Learmonth, for example, asked if there were two medical geographies (Learmonth, 1979) and Shannon pointed to the lack of convergence and philosophical unity between the two (Shannon, 1980). However, Phillips maintains that since both streams deal with human health, it is misleading to dichotomise them (Phillips, 1981). Pyle suggested that any apparent

lack of philosophical convergence between the two streams may be "an expression of the sociology and psychology of medical geography in different geographical locations" (Pyle, 1982). The truth of this observation lies in the different forms of research workers in USSR and the USA. In the former country, health care is not exactly considered as being in the ambit of geographical research. In the latter, the USA, the present confused state of health care planning makes it a particularly attractive area of research (Shannon and Denvers, 1975, ix - x).

More recently however, Mayer has come to the conclusion that as long as it is recognised that links between the two exist, "there is no need to develop one medical geography. Its strength may in fact lie in its eclecticism (Mayer, 1982 p.227). The position of this study is that it is possible to have one geography of health if only the discipline is prepared to go full circle and agree with Hare that: "We must reassert the old, essential truth that geography is the study of the earth as the habitat of man and not some small subset of that gigantic theme" (Hare, 1977, p.269).

Conclusion

It will be useful to conclude this chapter by considering any relationship that might exist between geography and health care. To do so, a brief delimitation of the two areas will be made to find out which are the overlapping areas.

Health care can be regarded as a comprehensive package of services constituted to take care of the sum total of human health. The services mainly provided by professionals must be in direct answer to specific health needs of a given population. Over the years, it has been found that health needs range from everyday minor complaints which required perfunctory treatment to complaints which are beyond the present limits

of scientific knowledge and which are therefore simply managed till the person dies. In effect, health needs are just as difficult to define precisely as is the concept of health itself. Like health, it could also be considered as a continuum along which five points have been identified though there are some overlaps here and there (See Fig., 1.1).

These points could be seen as having correspondence with illness episodes for which care is provided. At one end of the continuum are the facilities provided for the promotion of good health. Activities at this point are geared towards the environment - both physical and social - to ensure that fewer pathogenic organisms are harboured in the local community or individual homes if possible. The second point, which is also geared towards good health, involves the prevention of specific illnesses; for example, immunization against some of the communicable diseases; the addition of fluorides to water for the prevention of dental caries and regular physical check-ups to ensure normal functioning of various organs of the body. Where these two types of care are provided, actual illness ought to be avoided. However, this is not always possible and minor ailments or major ones may develop, requiring different kinds of care. The minor ailments require simple care with simple medication to halt the pathological process. This represents primary level care. Where the illness is severe and critical, hospital care is necessary and this represents secondary level care. There is also the fourth points on the continuum which is care of cases where the patients need to recuperate after a long illness and to regain the use of the different parts of the body which may have gone out of use. This kind of care can be considered as tertiary care. The final point on this continuum is the care that is given to those patients whose conditions cannot improve irrespective of the attention given it. This has been called socio-medical care (Kleczkowski et al, 1984).

Figure 1.1

Schematic Representation of Health Care Continuum

Individual Communities			Groups of Communities	
Primary Level Care				
Health Promotion	Disease Prevention	Curative Care	Rehabilitative Care	Socio-medical Care
		Secondary Level Care		
		Tertiary Level Care		

In every population health needs vary, from the simple ordinary needs requiring simple measures to those that are complex and demand more involved measures. This natural gradation of the health needs calls for a corresponding gradation of the facilities. This graded system of services also has a spatial dimension in which the services for health promotion, disease prevention and curative care are distributed to cover every community whereas those of rehabilitation and socio-medical care would be provided for groups of communities. Chapter Five focusses on the empirical aspects of these services.

Geography, as a discipline, has had a long standing concern with the environment both physical and social, focussing on the relationship between the two. Stemming from this is the ecological perspective previously discussed. There is also the spatial perspective which during the 1970s appeared to be the focal point of the subject, though certain

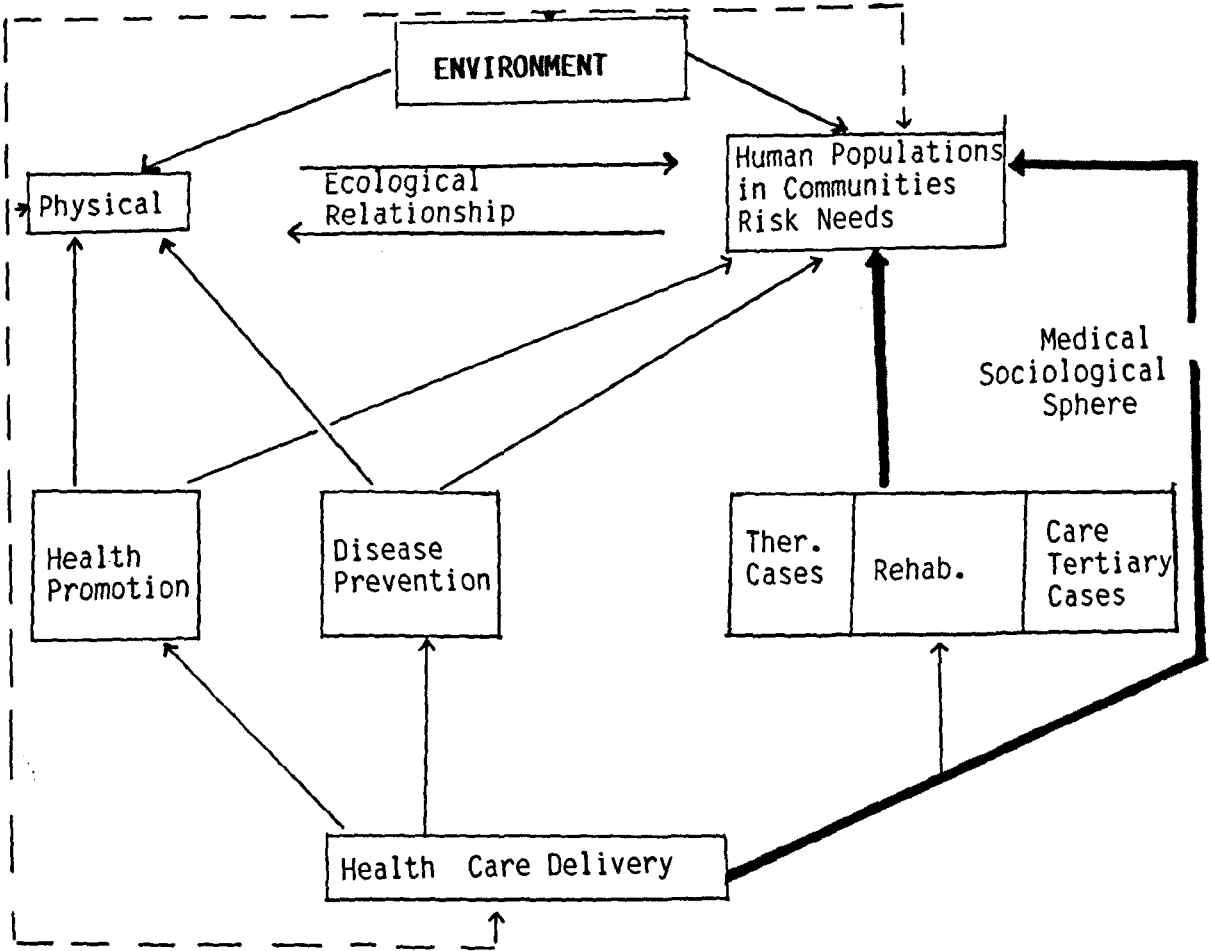
aspects of it had been researched into several decades earlier - viz, the Central Place theory crystallized by Christaller but dating to the mid-19th century. The more recent widespread concern with welfare and justice also gives geography another important facet for tackling certain social issues.

Against this background, what can one say is the relationship between geography and health care provision? In the schematic representation in Fig. 1.1 and Fig. 1.2 above, we see that health promotion forms the first point on the continuum. Activities here are not relating to institutional health care directly, being more directed at the local environment and at the people and their behaviour. Considering its overriding concern with the environment, geography can be said to indeed exhibit a functional interrelationship with health promotion and disease prevention. Certain diseases, particularly those communicable diseases related to the environment, must be studied in an ecological context and geography can contribute to this. The onset of certain diseases, for example, guinea worm infestation, malaria and others appear to be synchronised with certain seasonal environmental changes, and both disease prevention and health promotion can proceed from this context. An elementary way of presenting the confines of geography of health care is presented in Fig. 1.2. The broken line which goes round and touches the major components which also form part of the main Health Care system represents the geography of health.

Methodologically, it can be said that there is unity between the ecological studies of disease and health care since the idea of ecology embodies area, place or community of living and non-living element of an environment, and the effort of the former to adapt optimally to that environment. The idea of adaptation within a given environment more or less gives us room to manoeuvre for within any ecological unit, the living

Figure 1.2

Geographical Sphere of Influence
in Health Care System



----- Geographical sphere of influence

————— Medical and Sociological Sphere

organisms will offer each other opportunities to increase or limit their population sizes. In the case of man, this could be seen in terms of availability of adequate food supply and in the numbers of other living organisms that present a threat in the form of disease-causing agents. Any effort on the part of man therefore towards self preservation is an attempt to adapt optimally to conditions within that ecological unit. Some of the measures of such an effort are the provision of health facilities and services aimed at curtailing the harmful effects of the organisms that exist within the given ecological area. What is essential is an interface where man can confront all other elements of the environment in a purposive manner in order to be fully adapted. Such an interface could be the community. The importance of the idea of ecology to the geography of health makes it necessary to discuss it in detail. This is done in the second chapter where disease ecology and the concept of community are examined to see if the latter could provide a framework for the provision of health services. Secondly, there is also some complementarity between the spatial perspective of geography and the spatial dimension of health care provision. At what levels must which care be provided? The focus here is indirectly on fairness and social justice. The first three points on our health care continuum in Fig. 1.1 for example, must be made available for all areas, that is if fairness in the provision is to prevail. Geography's concern with territorial welfare and the need to deliver an equitable service, make the two complementary. It is at the community level that a meaningful consideration could be given to the question of equality, social justice and fairness.

The Ghanaian situation and indeed other developing countries stand to benefit from an application of the geography of health framework and this study will attempt to elucidate some of the problem areas that need to be overcome before a smooth system of care that answers need could be provided.

Summary

The purpose of this chapter has been to put the question of health care and geography into some perspective. In addition to considering other social science disciplines there have been attempts to look at the past contribution of geography in health care studies. The ecological relations between the environment and vectors of many communicable diseases force us to consider approaches to dealing with these diseases other than by curative care. The type selected must link up with the nature of the causation; hence the appropriateness of promotive and preventive care, and geography comes into its own since both physical and cultural co-ordinates must be considered - the nature of the seasons, availability of surface water, people's behaviour. It is these two types of care that could lay a proper foundation for the necessary changes in the health status of the population. It was also stated that the spatial arrangements of care especially at the primary community level ties in with the ecological perspective and makes geography a complementary discipline in health care studies. This theme is considered in detail in the following chapter concentrating on theoretical underpinnings which justifies its use in this study while Chapter Seven provides an empirical evidence of the same in the Central Region.

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CHAPTER TWO

HEALTH CARE PROVISION AND THE GEOGRAPHY OF HEALTH: SOME THEORETICAL CONSIDERATIONS

The previous chapter considered the inroads that social science disciplines have made into the study of disease and health care - an area traditionally taken by medical science.

The aim of this chapter is two-fold. First an attempt is made to lay the foundation of health care provision compatible with the tenets of the geography of health care mentioned in Chapter One, and secondly to consider other influences, for example, the socio-political structure of the country and the historical antecedents on the character of the health system.

The aspects of the geography of health which are considered essential here are: the ecological framework with its inbuilt concept of the community which could prove germane to health care; the spatial organisational aspects which will be considered in relation to the delivery of health care.

These are coupled with the idea of territorial welfare, an essential requirement for equal distribution of facilities. We begin this section by considering the traditional approach to health care focussing on the contributions of May and others and follow this up with a plea for the consideration of this framework for the provision of health care.

The Ecological Approach: Traditional Viewpoint

In the past, ecological consideration were restricted to disease studies, showing the extent to which organisms interacting with each other and with the environment could create conditions leading to ill-health and disease. The leading researcher here was Jacques May, the French physician whose monumental, nine-volume work focussed on different aspects of nutritional geography using this ecological approach. Other workers

favouring this approach included Learmonth whose detailed study of malaria in South Asia brought out the dynamic aspects of mosquito breeding and subsequent infection (Learmonth, 1957). Others are Phillips, Pyle, Anderson and Arday. More recently, Phillips in a review work on ecological studies cautioned about the risk of committing what has been called ecological fallacy, where studies on individual cases would be generalised to cover groups (Phillips, 1980). For the study of diseases, especially for developing areas, it certainly is a fruitful framework and hence it is often recommended (Meade, 1979).

In this particular exercise, the ecological framework is not being recommended solely for the study of disease, but as the framework for the provision of health care. The emphasis is on the concept of the community which is considered as an appropriate basic unit for the provision of a first level care.

Geography of Health, Disease Ecology and Health Care Provision

In much of the developing world, health services especially hospital facilities have been provided for urban populations who consequently have a choice either to use a facility or to avoid one. Such a choice is denied the rural dweller, for in the rural areas the availability of health facility is the exception rather than the rule. Of course, efforts are being made to extend the facilities to the rural areas but the expense involved retards the rate at which the facilities can be provided and also limits the quality of the staff who would be used to man these. Even in the developed countries, not all rural areas are covered. It has been estimated for example, that in the U.S. some 11,000 communities with population of 1,000 do not have any facilities for emergency care (Kay et al, 1982).

Added to the non-availability of facilities in the rural areas of

many developing countries is the nature of the prevalent diseases. It is a fact that people in these areas suffer commonly from parasitic diseases, and the possibility of their control and perhaps eventual eradication lies in the way the latter are tackled within the local environment where the people and other organisms, including parasites, interact.

The Traditional Approach

As May indicated, disease ecology focusses on man, who lives in an environment which has both physical and biological components offering all living things a medium of life. As such interactions occur, leading to the development of disease in the human body and threatening human health. The persistence of such diseases as malaria, schistosomiasis, yaws, leprosy, cholera, to name a few, is as a result of the interactions between man and the various causal agents which are also part of the environment.

The traditional approach can be understood by briefly considering some of the earlier studies in the advanced countries of the western world and from USSR. The works of May, Audy and Pyle from the former and that of Pavlovsky, and Vorono from the latter. Jacques May and Pavlovsky both of who worked during the 1950s, appear to better exemplify the disease ecological approach.

It was during the 1950s that Jacques May, the French physician, did pioneering work on disease ecology. In a paper published in the Geographical Review in 1950, titled "Medical Geography: Its Methods and Objectives," May explained that two factors were important in medical geography. These are environmental stimuli and the response of human tissue. According to him, illness was the response of human tissue to environmental stimuli of which there were three kinds: in-organic, organic

and socio-cultural. The first includes health, wind, humidity, water, mineral traces in soil etc. May further explained that in certain cases, temperature, humidity and the drainage system would be favourable for the development of particular parasites which vectors could carry to infect man. The organic elements could be found in plant and animal life which also depend on the in-organic to produce what he called geogens - pathogenic niches if they can be so considered. This would also include all socio-cultural variables which could act concurrently with the other two to produce geogens.

This was the framework used to explain the medical geography or geographical ecology of many diseases (May, 1961). The work of Learmonth, Fonaroff and MacDonald on malaria are examples of such studies. More recently, Pyle (1979), has suggested that it is better to focus on small local areas where any disease hazard related to the natural conditions and to particular vectors could be studied.

The Soviet school considered landscape epidemiology which viewed diseases, especially the zoonotic ones, as being localised in a specific habitat. Pavlovsky advocated the delimitation of disease foci by analysing the associations of vegetation, soils, animals, climate and other pertinent factors of the environment. Such an analysis would be useful to explain current diseases and perhaps predict some future ones (Pavlovsky, 1955). The approach also allows an analysis of areas with varying sizes from very small areas, micro-focus, to large land-masses and could also be the basis for preventive measures. The Soviet viewpoint however does not emphasize the role of man. Voronov summarises this as follows:

"When it comes to man, we can only speak of the ecology of the individual, but not of the ecology of the population or the community because changes are determined by social rather than biological laws" (Voronov, 1977).

Human ecology is thus treated separately from medical geography.

Current research has paid attention to socio-cultural and economic variables - the gross national product, infant mortality, and spatial manifestations of disease (Learmonth, 1978, Waddell et al, 1977). Meade (1977), also proposed that medical geography should adopt the human ecological approach. According to her, the work of Pavlovsky, May and Audy firmly connected the geography of health to the findings of other disciplines concerned with human ecology (Meade, 1977, p. 393). The role of ecology for the study of the geography of health has been recognised particularly for providing a basis for the analysis of pathological processes in their environmental context (Mayer, 1982, p. 269). These diseases could include those that are sickle cell disease (Edington, 1952), genetic in origin for example, as well as many of the chronic-degenerative disorders in which no vectors are involved (Smolensky, 1977). Perhaps the sedentary life, minimal physical exertion and the very rich diets, mostly features of prosperity, could be regarded as part of the socio-cultural component of environment. It is also possible to include under this category, diseases relating to stress, accidents and poisoning. As for mental health, the ecological underpinnings have been long recognised (Srole, 1972). It must be noted that as a mode of inquiry the ecological approach to the study of disease in the geography of health has not been without its problems. At the heart of it, is the question of the nature of the data used; should aggregate data or individual cases be used? The ecological approach is in favour of the former, which provides insight into the broad patterns of association. As Phillips (1982) indicates, it is not on this scale that information for policy making becomes meaningful. A further problem that was shown to be connected with ecological studies was that the approach fails to show the distribution and regional delimitation of a given disease. As such, it was necessary to use spatial perspective as well.

This latter viewpoint was made easier to undertake with the versatility of the computer. In this study, the use of ecological framework both for the study of diseases, especially in view of the persistent nature of the parasitic and communicable ones that prevail in certain individual communities.

Furthermore, since the idea of community is embodied in the ecological framework, it offers the possibility of combating the diseases within a given locality itself with the co-operation of that group of people. In other words, the provision of care will take place within the context of a community and the ecological framework could help operationalise what Titmus called "territorial welfare justice" which is an important element in the move to improve the quality of human life (Titmus, 1976). It is within this framework that the geography of health can get rid of the problem of the supposed two medical geographies.

The Territorial or Community Approach to Health Care

The term 'community' covers such a wide spectrum of application that its definition is fraught with difficulties (Plant, 1974). In this context, however, its use embodies both the physical, biological and social components. It is seen as the local area in which both man and other prevalent living organisms interact with each other and with the given physical components of the environment. Since the interest is on human health, it is important to consider the local people and the way they manage their health problems. Thus the framework allows an assessment of the actual health needs that exist in any given area.

During the last two decades, the term community has been frequently used in relation to health care. Examples include community physician, community medicine and community health. Community medicine, a speciality of epidemiologists and administrators, focus on the broad question of

health and disease in particular geographical and occupational sections of the community (Royal Commission, 1968).

In some ways, community medicine is a broadened version of social medicine practised after the Second World War (Marshall, 1975). Even though social medicine approached its task from community, it was concerned with the individual and the environmental factors within the community which affected his health. In the case of community medicine, the focus shifted on to the whole population living in a particular community - their illnesses and the therapeutic interventions that can be made. Even though the term has been broadened it is still limited in its scope as it focusses on treatment of sick people, in a given area without getting involved in the everyday lives of the people.

There is also the idea of community in different specialities, for example, medical sociology, epidemiology, statistics and operations research, all of which monitor the health of a community.

There is also the role of the community physicians in the developed countries. Again, this group of specialists though appropriate, may not be the answer to developing countries and their health needs. For one thing, there is the problem of staff, how to train them and deploy them.

Firstly, there is community health care. This is an all encompassing idea which involves every factor that can be enlisted to protect and improve the health of a local community. An individual is regarded as belonging to a whole social and environmental system - the family, neighbours and other members of the population who live within a given locality. For a person to be healthy, there is a need to be well physically, mentally and even socially and the meaningful context within which this can be achieved is that of the community. Health and well being can belong together and hence the need to combine all the agencies providing facilities for health care (hospital, clinics etc.) and well being (water supply, refuse disposal adequate food, personal hygiene). It was

in recognition of this that the U.K. co-ordinated the activities of the National Health Services along with that of the Local Governments to provide for both health and welfare (Working paper, 1972 - 73).

In the peculiar context of developing countries, the unavailability of universal safe water supply, clean surroundings, coupled with a low level of personal hygiene are well known. Hence the appropriateness of the community health perspective for both the provision of services and the study of the prevalent illness.

Community health care has been defined as the part of medicine which is concerned with the health of the whole population and the prevention of disease from which it suffers (Wood, G. H. et al, 1981, p. 12). To arrive at the health problems, there is a need for community diagnosis of the important preventable diseases and the setting up of suitable control measures. Obviously, the crucial step involves the articulation of health need which can then be ordered in terms of priorities from which strategies could then be evolved.

In most developing countries, the governments have assumed some responsibility for the health of the people. Therapeutic services are provided through Ministries of Health but the communities per se are taken care of through local governments and urban councils who provide certain facilities and services. These vary from country to country as does the level of commitment to the provision of these to the population. The services rendered deal mostly with the environment though some attempts have been made at providing personal services.

In the developed countries, certain services are an integral part of community health care, for example the provision of adequate housing for the people, the protection of public food supply, town and village planning. In fact, an experiment in Hoensbroek, a coal mining centre in the Netherlands, where both health and social care was provided by a team

was successful in discovering underlying causes of many of the peoples' illnesses (de Groot and Maetens, 1975). In the developing countries such integrated community care is minimal or absent. Personal health services such as ante-natal care, health care for school children and handicapped people are also scantily available in the urban areas, but not in the rural areas. These services should be available for all the people to use in order to improve their health status. Given the current financial difficulties under which most governments are operating the community health care approach, which seeks to enlist the participation and involvement of the local population must be given recognition.

In this study, the territorial nature of a community which embodies the environment with organic and inorganic components is a further justification for its adoption as an appropriate framework for the provision of health services in a developing country, having the ultimate aim of identifying and helping to modify the social and environmental factors that contribute to health problems.

Factors Impinging on health care provision

There are several factors that underpin the provision of services in an effective manner. In this section of the Chapter, two of these are highlighted and the extent to which they exert an influence on some health systems in existence in some countries are considered. Furthermore, a suggestion is also made that the concept of need should be a major determinant of health care provision.

Health services can simply be regarded as an organised system of services designed specifically for the care, protection and maintenance of people's health in a given area. As stated in Chapter One, the services, which should be comprehensive and co-ordinated in nature, could be regarded as existing in a spectrum ranging from the basic environmental

protection through prevention and therapeutic care, rehabilitative care, and what is referred to as socio-medical care. Environmental protection comprises sanitation, water supply and vector control. Primary prevention include maternal and child-welfare services, immunization and vaccination programmes while primary therapeutic services would comprise medical care provided comprehensively - laboratory, pharmacy, X-ray and other such branches. Rehabilitative care include both medical and social interventions, while socio-medical care relies on social handling of terminal cases.

The aim of most providers of health care who undertake to organise and make available the services to their populations is to improve the latter's health, which is part of a unified plan to improve the quality of life. However, the extent to which this aim has been realised varies from country to country and this seems to be determined largely by an inter-play of three factors - sociopolitical, historical and financial. In much of the developing world, the historical factors of colonialism seem to have been initially important in the introduction and establishment of modern scientific medicine. Though its influence is no longer obvious, in developed world some past events helped shape the present systems.

In much of Europe, for example, the epidemics of past two centuries which used to rage through the towns and villages, leaving thousands dead were the original focal points for the definition of health care. In United Kingdom for example, the initial threat of cholera from Turkey in the early 1800s caused such a stir and produced a flurry of activities. These were designed to prevent cholera from entering the country and if it did, measures curtail its spread were established.

Of a greater influence on the nature of services being provided and the corresponding achievement of the goal of improved health of the people is the sociopolitical factor. This determines the amount of resources, or the finance that would be set aside for health care provision.

The Sociopolitical System

Basically, all sociopolitical structures are characterised by the guiding values and ideals (ideology) which subsequently guide and influence social as well as exchange relations.

It is possible to identify three main trends in the sociopolitical set up each with its peculiar system of health care provision. There is firstly the free market system. Even though most governments recognise the need to protect the health of the population, the countries which accept the capitalist mode of production maintain that individual members of the population should work hard and take care of themselves and their dependents. The Government's role in the provision of services should be minimum. The United States of America appears to be a good example of this system.

The second sociopolitical path pursued by some countries is the socialist one (Roemer, 1977). In this system, unlike the capitalist system, there is the general belief that private enterprise has in-built tendencies towards injustices and inefficiencies: Governments should properly assume responsibilities for the people and reduce private enterprise as well as the use of privately gained wealth to a minimum. This is the best way of ensuring that people's health needs, not only their demands, would be catered for. Countries pursuing such policy include the USSR and Cuba (Ryan, 1978).

Emanating from these two sociopolitical groups is a third one which provides a middle of the road system. This is the liberal position which accepts that the capitalist system was not entirely satisfactory since not only did it leave many needs unmet, but also the rewards accruing from production were unequally distributed. However, as far as the production of goods was concerned, the capitalist system was the most appropriate. The solution therefore lay in separating provision of social

services from production of goods. The state ought to take responsibility for the former and ensure that needs are equitably and efficiently met without the individuals having to suffer deprivation due to lack of means.

These three sociopolitical points of view, underpin the different systems of health care provision in existence today. However, within the capitalist and liberal systems, there seems to be an undercurrent of popular opinion which finds expression in what is termed social policy. The latter aims at increasing the welfare of the majority of the people, if not all. This position is not too dissimilar to the socialist system in which the state accepts full responsibility for a minimum standard of welfare for all the people.

Under all three systems planning is required though the extent of this is circumscribed by the different predominant characteristics of the sociopolitical structure. In the developed countries, there are the so-called welfare states which accept responsibility for the provision of social services, the aim being to transform the wealth obtained from the free enterprise economy into welfare for the people.

In three countries especially those of Western Europe - U.K., France, Sweden - a predominant objective in national life seems to focus on the maximisation of welfare in which the major criterion as pointed out by Marshall is the satisfaction of particular needs (Marshall, T. M., 1979). Unfortunately, in spite of the impressive edifice of social policy designed to plan for equitable distribution of the rewards of free enterprise, welfarism seem to be facing a crisis in the West (Myrdal, 1972). In the developing countries of West Africa, the operation of any of these sociopolitical structures is hazy as most of them are still in the throes of defining for themselves the form of political system most suited for their peculiar circumstances. For the provision of health services, the generality which has been inherited as part of the colonial legacy, seems

to be quasi-governmental responsibility for the provision of a limited number of services for some members of the population. A number of the services including medical care has until recently been available mainly in the urban centres where less than 40 per cent of the population live. This situation has been documented for many countries (Okafor, 1982; Lasker, 1981; Orubuloye, 1981). Yet if there ever was a need for a meaningful social policy to be formulated for health services provision many of the developing countries qualify for such a policy.

The sociopolitical factor influences the health care system in two ways. First in the determination of priorities for the population's health care. In today's world, many governments recognise the need to protect the health of the population through the control of some of the environmental hazards. Public health measures such as sanitation, refuse disposal, sewage control, provision of safe drinking water and the protection of sources of drinking water are well recognised as requiring collective and centralised effort. Furthermore, the sociopolitical structure also influences the way in which action is taken to protect people's health from hazards caused by man's activities such as the pollution of water and the atmosphere through industrial production. In many countries stringent regulations exist to ensure that pollution is minimised and where possible cleaner environments reinstated through various campaigns and clean up measures. Where the sociopolitical structure is developed, and the people are aware, such measures are easier to undertake than where the structure itself has no mechanism for introducing important changes.

Another way in which the sociopolitical structure influences the system of health care provision is value placed on the health of the population and the subsequent need for planning for that population. Indeed, one could say that the value of the individual to the society

determines the extent to which his needs would be catered for. As an example, it is an established feature of the medical care system in Ghana that many regional capitals have clinics set up for government officials and their families. Similar facilities exist in other countries of West Africa, Nigeria for example.

In many countries, however, the majority of the population have to pay directly for medical care. Under these circumstances, the free market system interferes with the possibility of achieving an equitable distribution of public services. The difficulty encountered by many people in the United States, particularly the aged and the poor, to obtain reasonable care made it necessary for the United States Government to introduce the State financed 'medicare' and 'medical' schemes. Not unexpectedly, the benefits that accrue from these schemes are limited in terms of the number of people provided for, more so as some of the medical professionals seem to be gaining financially from the scheme (Knowles, 1977).

In contrast, in the centrally planned economies, only the leadership determines the priorities and charts the course of developments of all services. The people's preferences are not regarded as vital. It appears that in the countries where welfare ideology prevails, a measure of balance is reached whereby the people's views are taken into consideration in the provision of services.

In the developing world, greater efforts are required for the planning and execution of services. A more pragmatic approach involving the ordinary people at the local level is necessary especially if meaningful impact is to be made on their health.

In this context, the question of 'need' assumes an important dimension since in many developing countries the health services that were introduced in the 19th century were primarily for the benefit of the colonial rulers and their African workers. For the rest of the

population, the reliance was on local healers and self medication. The planning for subsequent activities to extend the system to cover larger numbers of people has depended on forecasts made on the basis of demand for the existing services rather than on actual needs of the people. Needless to say, many countries of Africa, with the exception of Tanzania and to some extent Niger Republic, are still tied to the sociopolitical system of the metropolitan countries, U.K. and France for example, and their manifestations on the health care system in pre-world War II years. The time has come for a new concept to be formulated for health care provision, which would be severed from the sociopolitical leanings of the government in power.

Finance

Closely tied in with the sociopolitical structure is the level of finance. This has been a very limiting factor in the extent to which facilities could be provided and the quality of staff, supplies and equipment that could be made available for the population.

In the socialist countries and some of the welfare countries, such as the USSR and UK respectively, financing is largely from national resources either through taxation or just governmental budgetary allocation. In other countries, the above operates concurrently with insurance schemes organised privately or jointly with the government in which interested individuals contribute a regular sum to a general fund for health care. This operates in countries such as Belgium and Sweden. Whereas in the USSR the health personnel might resort to accepting bribes and their UK counterparts have recourse to strike action, illegal in the USSR, in the USA the medical professionals have built up an empire of entrenched practices which suck money from both private and public sources (Ryan, 1978 and McLachlan, 1982).

The picture as regards financing of health services in the developing countries is also gloomy. In nearly all finance of the services is through government allocation. In Ghana, despite increased budgetary allocation, finance still remains the biggest problem of the health services. In 1980 for example, the public expenditure on health care amounted annually to about \$10 per person. Though this compares favourably with many of the developing countries where expenditure amounts to \$5 per person per year, Ghana still faces great difficulties in providing adequately for the health care of the people. In 1983, in the budget allocation there was an increase for health care; total of \$17.1 million was set aside which amounted to a little over \$12 per person. Though this sum was higher than in previous years, the high cost of drugs, suppliers and equipment meant that very little could be achieved. In the 1984 budget therefore, it was necessary to increase this by nearly 400 per cent - to \$69.8 million. Obviously, with the shortage of funds in the previous years, the problems that the provision of health care had to grapple with were enormous not the least being the shortages in drug suppliers and equipment.

Thus, this question of finance remains the most thorny one in nearly all countries. In UK, it has been a problem for a long time. Since the service is mainly financed through taxation, there are often complaints concerning money. As was noted by one Health Minister in 1966 that "one of the most striking features of the National Health Services is the ... chorus of complaint interrupted when someone suggests a different system might be preferable, which would involve the money coming from some less palpable source" (Powell, 1966). The more recent problems facing that services also concerns finance. In the USSR, financing of health services is also from national resources which according to Ryan has from 1958 to 1974 remained at about 4 per cent of the net material product (an equivalent of gross national product). As pointed out by Roemer, this percentage

applies to the increasing national income and therefore does not remain static (Roemer, 1977). However, problems still exist with finance for the construction of new facilities and the upgrading of existing ones.

Furthermore, the recourse of health workers to corrupt practices such as accepting bribes before attending to patients have been recently recorded.

In contrast to state finance of the health services through taxation is the health insurance system where mandatory contributions to the health care system ensures that services are provided for all. This system is particularly prevalent in Latin American countries and the Eastern Mediterranean countries. An interesting variation of this method of financing is the Yugoslav system which allows individual health institutions to finance themselves. Though initial funds for the provision of the facilities are provided from contributory health insurance paid to the individual communes, the health institutions themselves are required to pay for the day to day expenditure (Parmlee et al, 1982). This is achieved through a system of contracting between local organisations which provide services for the workers mainly on a mutual exchange basis.

Also, there are local health insurance associations which specifically finance health services capital development as well as day to day running costs. In Yugoslavia, the health institutions employees like all the other workers participate in the control and management of the institution and can employ or dismiss workers. In some ways, this reduces the pressure of demand for increased pay which seem to characterise other systems.

Even though in all countries, there is some governmental acceptance of responsibility for the financing of health services particularly with regards to capital developments, in nearly all countries, the people are also expected to make some payments, very minimal in some countries, for services received. In the UK, for example, although there is no payment at the point of delivery for all health services provided by the government,

patients are required to pay a standard prescription charge for all drugs received. This is irrespective of the actual cost of the drug. One must add however that 50 per cent of the population are exempted from paying even this minimum and the cost is fully met by the service. Then there are also those who have actually contributed to some private insurance. This covers some contingencies but not the costly conditions or common occurrences such as pregnancy. In the USSR, no payments is made at the point of delivery or even for drugs, but in certain health institutions payments are made directly by the higher party officials and other top government employees. In China, even though the state finances a large percentage of health care in addition to some health insurance for state employees, some workers and farmers are required to pay a proportion of hospitalization cost (Sidel and Sidel, 1972; Smith and Adey, 1974).

In other developing countries such as Ghana, minimum payment is required from patients at the point of delivery. Though drugs are paid for owing to chronic shortages, the current practice is through prescription for the patient to go and search for the drugs. In contrast, health care in Tanzania is completely free and patients do not need to purchase drugs from the private sector unless they wish to (Orubuloye et al, 1982).

Finally, it is important to point out that in many developing countries, even though scientific medical care is partly free there still remains what Roemer calls 'the lion's share of health expenditures' as coming from purely personal sources for self medication, traditional healers and private doctors. According to him, such expenditure reanges from about 50 per cent in Guatemala and Colombia, 65 per cent in Thailand and 87 per cent in South Korea (Roemer, 1977). The model of financing of health care is therefore very varied despite the efforts made by many countries to institute a public system in which people would be spared the expense. Classification of the various health care systems on the basis of source of finance is thus a difficult problem with the risk of over simplification

as in the case of the typology suggested by Terris (Terris, 1980).

The Concept of 'Need' in Health Services Provision

From the above discussion, it can be seen that the question of finance ties in with the sociopolitical systems which vary from country to country. It has also been shown that the Global economic crisis has made it easier for some governments to justify cuts in expenditure for health care. In Africa, the ubiquitous shortages in drugs, supplies, equipment and staff attest to this.

On account of these and other problems, it appears there is an urgent question to be considered. This concerns the appropriate stand that governments should take on provision for care. Is there a normative stance, which is philosophically and pragmatically sound and is universally acceptable? If it is accepted that health care is a human 'need', necessary for survival of man, then facilities for such care must be provided regardless the costs. The following sections of this chapter consider the concept of need in some detail and spells out some of the basic tenets which make it a useful idea in the provision of services for health care or maintenance. It is important to indicate at the onset that the idea of need is not wholly absent from governmental planning for health care. In several cases, it influences the way in which such basic necessities as food, clothing, shelter and medical care are met.

Where the social and political system recognises that collective responsibility is more valuable and better than individual responsibility, health and medical care along with the other needs mentioned are planned for. Priorities for care are determined on the basis of needs of the population. In contrast, where a free system exists and each individual is free to decide how best to meet his needs and desires in a competitive world, health and medical care have to be left to their own devices, so

to speak. The market mechanism through the interplay of demand and supply determines the priorities and sometimes even the forms that these should take. The individual is free to choose care from the sources which have also developed either purely on humanitarian and philanthropic or on commercial lines, the choice being circumscribed by ability to pay. However, in this day and age, no civilised country allows its population to bear the full cost of medical and health care, though there still exist variations in the system of provision. The market mechanism under the *laissez-faire* system has failed to provide an equitable service for all. Therefore we need to be clear about principles and objectives that would guide non-market enterprises. Herein lies the urgent notion of demand. Unfortunately, it seems to defy definition and so attempts made so far appear classificatory. Need however can be regarded as a necessity or a requirement the satisfaction of which is important for man's survival. Some of the classifications suggested include the one provided by a French Study and also by Bradshaw (Bradshaw, 1978).

The former, quoted by Coates et al, identified three types of need. These are elementary needs such as food, clothing, toiletries; environmental needs which include housing, leisure, transport; and personal needs which are related to the person such as education, health and culture. There could be some re-arrangement of these categories; housing, for example, could be regarded as an elementary need as a classification of basic needs supplied by ILO included shelter (ILO, 1977).

In the French Study for each of the three categories attempts were made to aggregate expenditures on them from private and public sources. It was found that the share of expenditure on personal needs falling on public provision was more than that on private provision (Coates et al, 1978 p. 14).

Bradshaw's classification of need is in four types - normative, felt,

expressed and comparative. Normative need corresponds to that which is administratively determined, which caters for the minimum level. Felt needs are those which a patient might present at a health centre. This is distinguished from expressed need which is seen as the lack of something which will lead to a request for its provision. Finally, Bradshaw also considered comparative need which introduces an element of equality whereby what is available for one group of people should be equally available for all other groups.

Though there are other classifications on need, these two are considered sufficient for our purpose. Two main points can be made from them. One is that of public funding of services. The French Study confirmed the view that in the provision of personal services, for example health care or education, public funding was crucial and indeed it is the case that more people expect it to be so. The second point evinced from Bradshaw's classification is that needs should be equally satisfied. One group's level of satisfaction should match all other groups. A further point is that it is necessary to have both an administrative or professional assessment of need and the opinions and involvement of the people for whom services, geared towards the satisfaction of those needs, would be provided. It is important for the people to articulate their own needs and also that ways and means should be found which will allow these needs to be discovered. In the case where the sociopolitical system permits the operation of the free market system, advertisements and other forms of subtle inducements are used to stimulate demand, some of which may answer needs. These therefore constitute the main strands of the arguments which will lead to a prescriptive or normative standard for health services provision in particular and for public services in general. We can conclude this section by considering one conceptual framework which is not only philosophically appealing, but is also considered appropriate here.

This is a modification of liberal egalitarianism, referred to as radical or communal egalitarianism. The reasons underlying this choice are as follows.

First, egalitarianism, put perhaps superfluously, allows for equality amongst all human beings. This basic equality is considered as a safe assumption about all human beings. Classical liberal thinkers such as Locke, Kant, Bentham and James Mill, considered that all men have capacities for passion and rational behaviour (Warnock, 1962). In contemporary times, this basic equality has been given another look by Rawls, who presents a case for distributive justice (Rawls, 1973). One must indicate that it is not only the liberals who recognise basic human equality, the Marxists also do, though for reasons considered below, the liberal approach in this case seems germane.

The second reason concerns the way in which the people's views and opinions are made public and subsequently taken into consideration when making decisions on issues which affects all. In an egalitarian framework this democratic process is acceptably operative. Put differently, an egalitarian position allows a certain measure of decentralisation. This it is possible for people to get involved in the provision of health services geared towards meeting their specific needs. As mentioned above, a modern philosophical treatment of the question of equality and decentralisation has been provided by Rawls, focussing more on equality. A brief discussion of Rawls is thus considered appropriate here and it can only be brief since a detailed discussion of his work, 'Theory of Justice' is beyond the scope of this work. The area that is of interest to us is as follows: Given the basic assumption that human beings are equal, and the fact that there are inequalities in the satisfaction of human needs, Rawls maintains that it is necessary to arrive at a just distribution of the goods and services there are in a given population

in order to achieve an equal end result. He derives principles of justice from an understanding of individual interests and he argues for welfare rights and redistribution of wealth. We are particularly interested in Rawls' stance on 'distribution', an area of enduring concern for geographers. As indicated earlier, geographers' adoption of a welfare approach to the discipline is confined to the focus on "who gets what, where" (Smith, 1975). Rawls' view on the question of distributive justice is that for there to be equality the distribution of basic human services should be based on equal treatment of needs. This forms the pivot of our interest - the satisfaction of human health needs. He also takes a second view which concentrates on sharing out residual goods (money) equally amongst individuals provided the poor gets an amount which levels him with all others. He makes use of two principles to arrive at this. The first one concerns liberty. Rawls believes that liberty should be guaranteed to each man as is consistent with that of all others. The second principle has to do with equal benefits. Here he maintains that social and economic inequalities should be arranged in such a way that they are;

- (a) to the greatest benefit for the least advantaged,
- (b) attached to offices and positions open to all under conditions of fair equality of opportunity (Rawls, 1971 p. 61).

Based on these principles, it can be said that facilities and services for health care must be distributed according to need. This allows comprehensive planning for the provision of health services as well as a co-ordinated effort that would avoid duplication and over-supply to more affluent areas while poorer areas are left unserved. In this way, also, needs would be more clearly defined and people can expect as a right to have health care needs satisfied by the state.

Even though Rawls' focus was on the affluent industrial countries, the content is no less significant for developing countries. Applied to

Ghana for example, one can see how useful it would be if the services could be distributed according to need. Rural areas, which have been grossly neglected in the provision of services would have to be heavily compensated if their health status is to improve and attain the level of the population living in the best parts of the towns and cities.

As mentioned earlier, there is one area that is not made explicit by Rawls, which is considered important in the context of a developing country like Ghana where some 65 per cent of the population still live in small rural communities. This concerns the extent to which the ordinary people could voice out their opinions as regards their needs and their satisfaction. In other words, to what extent can people participate in a democratic manner in the provision of services. Since Rawls is not explicit here, we must turn our attention to Guttman who has provided a modified version of the liberal egalitarian stand, which is termed 'communal egalitarianism'. Guttman maintains that the latter views "equality as good for society taken as a whole independently of how equalizing distribution will satisfy the interests of individual citizens" (Guttman, 1980 p. 219). Even though the common good is being appealed to here, the collective participation of individuals is also necessary if felt needs are to be properly expressed and addressed. In the Rawlsian egalitarianism these are not adequately dealt with hence the preference for the modified liberal egalitarian approach to the provision of services.

It must be indicated that there are other philosophical positions also focussing on egalitarianism and the question of need, but for reasons discussed below are again considered not wholly satisfactory. There is for example, the Marxian position that attempts to explain the importance and role of 'need' in a society. Marx recognised that there were socially produced needs which could only be satisfied by the creation of social institutions specifically designed to meet them. These may

include schools, hospitals and others, the funding of which should be from the gross income of labour (Karl Marx, See Heller, 1977). This position is not too dissimilar to the communal egalitarian viewpoint, but there is an important criterion missing in the Marxian position. How will decisions be arrived at concerning the social needs and their satisfaction? An answer to this may be evinced from the practices of the modern socialist state of USSR. There consistent use is made of the bureaucratic machinery to change decisions on need. The problems of centralised decision making need no elaboration.

Furthermore, there are some peculiarities in the African situation which make it difficult to depend on the bureaucracy. For one thing, the relatively recent independence from a colonial system of government still limits the bureaucratic machinery to a few areas of life. It is not sufficiently developed to adequately assess and satisfy the needs of all the people. Secondly, there is the peculiar characteristic of Africans which manifests itself in a desire to personalise relationships whenever possible.

People, for example, will often try to claim some kinship ties with those in authority ("my nephew is so and so who can help me"). This is an indication of the strong communal ties which exist and the ease with which people wish to identify with others. On account of the above, it appears that the communal egalitarianism would offer a more fruitful philosophical background for advocating a locality - based health care provision rather than the normal hospital service. Furthermore, such a health scheme might prove cheaper to provide since there is the possibility of self-help and self-labour for some of the activities that would otherwise be provided by paid labour. However, such possibility would not be easily available for a centralised administration body that plans from a city office, located hundreds of kilometres away and socially

distanced from the people for whom the services are being planned. It is in this light that the communal egalitarianism is found particularly appealing for the situation in Ghana, rather than the Marxist socialist position.

From the geographical point of view, the tenets of this approach seem to tally with the views of Kropotkin, the 19th century European anarchist whose work has been already referred to in Chapter One. His insistence on the need to decentralise the authority and allow popular involvement in administration at the community level has given credence to the communal egalitarian approach (Kropotkin, 1912). Thus if this approach is acceptable, then there can be a normative standard or prescription for health service provision in which countries can participate. It will be possible to make egalitarian alterations in the present existing systems of provision in which people can express their needs and also help provide for the services.

Current Approaches to Health Care Provision

Having considered some of the factors which more or less set limits and constraints on the system of health services provision, it is possible now to examine the approaches adopted to the same.

Three approaches can be evinced from the different systems that exist. These can be classified as the co-ordinated comprehensive approach, the piecemeal approach and the community based approach. The second classification, the piecemeal approach, can be regarded as positivist in outlook in which health care provision is seen as a response to people's demand for services. The co-ordinated comprehensive approach and the community based approach are normative in nature. In this case, health services are provided as a means to the solution of a basic human need - to improve human health and the quality of life. Furthermore, health care

provision is designed to tackle health problems in a purposive goal-directed manner.

The Piecemeal Positivist Approach

This approach characterises many of the systems existing in developing countries where the factor of historical antecedents played a role in the nature of services provided. In many of these countries, the services inherited at the time of independence, or adopted since then, are provided on a fragmented selective basis. Often, the population for which care is provided is limited to the immediate locality of the services which are few and far between. Large numbers of people are therefore left unprovided for. In this approach it is not possible to deal comprehensively with illness and other health problems. Thus in recent times, the tendency has been to select target diseases and focus attention on these. The main reason for this stance may be due to the nonavailability of the means and the mechanism for a comprehensive co-ordinated system. Hence the need to adopt an economical approach, in which any resources expended on health care is expected to yield the maximum benefit.

Specific measures using this approach include the selection of the most troublesome diseases, i.e. those which cause the greatest morbidity and mortality within the population of a given country, and concentrate effort on them with a view to control or eradication. This method, called selective primary health care, has been tried in the rural areas of Haiti, for example. Here, diseases which were selected as targets included tetanus, measles, diarrhoea, pertussis, poliomyelitis, tuberculosis, nutrition and diphtheria (Berggren et al, 1981). According to the report on this project, within four years of such activity, over 40 per cent reduction in mortality was recorded.

This approach combines with the epidemiological methods of finding

the population groups at risk and concentrating on them specifically. The underlying reason for advocating such an approach is that in many developing countries there are many health care problems that must be solved, and yet as stated previously the resources might not allow an immediate comprehensive system to cover all the activities. In the interim it ought to be possible to concentrate on the few which are the priority diseases. Against these there would have to be some control measures - the most feasible and least expensive - which could be used. According to Walsh and Warren, the health problems are ranked according to the composite value obtained from the two measures. As an interim method, it could be used in areas where no health care facilities are available and, since it is for a population at risk, it is believed that lay people could be minimally trained to follow the programme.

Since Walsh and Warren published their paper, a number of comments on the suggestion have also been published (Berman, 1981; Gish, 1981 etc). Some have considered it as nonfeasible and an 'oversimplification' of the real issues.

There are two main issues which require some examination. Firstly, the strategy that diseases should be targeted and programmes drawn up to deal with the priority ones is not an entirely new idea. In Ghana, for example, this was the main approach by the colonial government in dealing with myriad of health problems. Diseases that were targeted included malaria, smallpox, yellow fever, yaws and trypanosomiasis. Of all these, only smallpox has been fully controlled, through concerted international effort. The case of yaws, for example, gives some indication of the success that this approach could have. Following an onslaught of control activities involving whole villages, the prevalence rates were reduced drastically. However, within five years marked increases began to occur as a result of a relaxation in the campaign effort when attention was

focussed on the then new outbreak of cholera. Its resurgence after control effort in many countries of the developing world is a case in point. Perhaps one shortcoming with these methods which the advocates of the interim strategy would point to is that there was an initial failure to adopt the right measures. Warren points to the project in Haiti where this approach has proved successful. Here, according to the progress report, 40 per cent reduction has been recorded in disease prevalence already. Secondly, policy makers have become cost conscious stressing the need for benefit analysis. In Ghana, for example, a planning unit set up within the Ministry of Health has worked out a model framework for establishing disease priorities. It is based on cost-benefit ratios which calculate the impact of disease in terms of the days lost. The process is a lengthy one which yields results not dissimilar to an analysis that simply employs averages and percentages of disease prevalence computed from hospital records.

In a similar vein, a report on a health project situated at Danfa, north east of Accra, Ghana, indicated that one of the goals of the project was to

Undertake cost analysis so as to provide hard data useful to economic and health planners to guide the allocation of resources and to help maximise the return to investments made (Neumann et al, 1972).

Clearly, the disadvantages of the piecemeal approach are self-evident. As one disease is controlled, another rears its head and progress towards real improvement in health is retarded. Overly concern with diminishing resources and prohibitive costs characterise this cost effective and piecemeal approach and in a recent article, Bermann and Gish criticised these (Berman, 1982; Gish, 1982).

Studies adopting the positivist stance tend to look at the different systems of health care available in a country. In the developing countries, there are traditional and modern systems which must be considered plurally.

In Ghana, Twumasi's 'Medical systems in Ghana', proceeds in this fashion, examining some of the factors which have contributed to the persistence of traditional medicine even in the wake of the advancing current of modern medicine (Twumasi, 1975). In Geography, the suggested framework by Armstrong for the study of health services provision is also in a similar vein since he suggests that the study should proceed from a survey of the health problems in the area to the responses that have been worked out for those problems. To what extent can the provision of health services pursued in terms of specific problems and responses contribute to the total population's health? In the developing countries and under the present stringent circumstances not much fresh insight can be gained from research employing this approach. It is in view of these shortcomings of the positivist approach that researchers and policy makers are turning their attention to the normative approach with the expectation that some purposive action and methods would be worked out, which would then be distributed according to the same. In this way, the possibility of improving the quality of life for all becomes a reality rather than the rhetoric which appears at present. Also the current cutbacks in financing health care, the crises and shortages which seem to be plaguing the health service in different sociopolitical systems would be minimised if not done away with. The adoption of such an approach in certain countries is portraying such a trend. The Republic of China for example, recognised the human potentials shortly after the revolution and has utilised a community approach. Participatory programme in health care provision has been in existence for some decades now (Horn, 1969). There was another common feature - the involvement of the local people in the activities and their enthusiasm and motivation with which projects were undertaken.

The Co-ordinated Comprehensive Approach for the Community

In all the countries where services are provided in this fashion, the purpose is to improve the overall health of the population. In many European countries, the improvement in the provision and delivery of these services has meant that fewer babies die, and those who survive, live longer than before (the improvement in standard of living also has some effect on this). In the co-ordinated system, the approach adopted is based on needs which include health needs which are considered universal, hence requiring a comprehensive solution. The full complement of health care ranges from basic sanitation to family care. It covers environmental health, primary preventive care and primary therapeutic care. Needless to say, the provision of such a system requires considerable expense and it is this which perhaps prohibits many countries from adopting it.

It is on account of the costs however that certain governments and voluntary agencies focussed on the small community with a view to engaging its individual members to provide some co-ordinated services for themselves. This is also in addition to the failures of the piecemeal approach to health services provision to produce lasting changes in the high status of the population. During the 1970s, a series of small-scale activities were undertaken in different parts of the developing world in particular designed to bring about improvements in the health and living conditions of the rural inhabitants where these activities were undertaken (Berman, 1982; Berggren et al, 1981; Newell, 1975). These isolated cases had one thing in common, success at changing some of the existing conditions which contributed so much to ill health.

The effect of these successes was that it contributed to clinching world opinion (which has been fomenting for several years) (Wito, 1979) about the contribution which people and their governments could make to their health situation under proper guidance and leadership. In 1977 at the 30th Assembly of the World Health Organisation, it was decided that

a target should be set by all governments and by the World Health Organisation itself for the attainment by all citizens of the world for a level of health which will permit them to lead a socially and economically productive life.

In 1978, this was officially adopted as a policy and at a conference in Alma, USSR, a declaration was made of 'Health for all by year 2000'. In 1979, a set of guidelines for achieving the objectives were laid down, followed in 1981 by a global strategy for health for all by year 2000. The declaration insists that there should be a clear national policy and each country should define, in the light of its socio-economic and health characteristics, a number of factors:

- (a) the extension of health services coverage and upgrading of the environment;
- (b) community organisation and participation;
- (c) development of intersectoral linkages;
- (d) development of research and appropriate technologies;
- (e) available of critical supplies and equipment;
- (f) manpower training and utilization;
- (g) financial and international co-operation.

The implementation of these processes within the community was to be through learning by doing. Coupled with the above, there should be primary health care for communities at the basic level and the activities of which should include the following:

- (i) education concerning prevailing health problems and methods of preventing and controlling them;
- (ii) promotion of food supply and proper nutrition;
- (iii) an adequate supply of safe water and basic sanitation;
- (iv) maternal and child health care including family planning;
- (v) immunization against major infectious diseases.

However, as observed by the Director General of WHO in 1984, only a few countries appear to have developed a well defined plan of action (Mahler, 1984). An underlying reason for the slow response could be finance as indicated by Mach (Mach, 1985). There have been critics of the declaration. Mburu for example, thinks it is a mere rhetoric, at least for the developing countries which might not be able to afford the costs, not to mention the existing vested interests amongst the medical professionals and the elites (Mburu, 1980). Be that as it may, it appears that most of the factors that are to be defined by each country are the crucial ones necessary for any improvement in the health situation of most countries. Hence their consideration below:

- (vi) prevention and control of locally endemic diseases;
- (vii) appropriate treatment of common diseases and injuries;
- (viii) provision of essential drugs.

There is an indication that "an important move has been made towards basic needs strategy, coupled with a public recognition of some of the causes of ill health" (Mahler, 1977).

Furthermore, the field of health care has certainly been broadened particularly in the less developed countries. Here, many governments have in the past been used to planning and organising health care along the lines of health facilities and their location at discrete points for all and sundry. Questions of fairness, social justice and equity are being raised all the time and a constant plea is being made for rural areas to be given priority attention. How are these governments going to cope, in the face of these new demands? Indeed, are the Ministries of Health around the world, especially in developing countries, adequately equipped to cope? Whatever answers are given to the above, an acceptable viewpoint is that of Byrant which notes that the declaration is a "move towards a basic needs strategy, coupled with a public recognition

of some of the causes of ill health" (Bryant, 1980 p. 385).

Conclusion

From the standpoint of this study, it appears that the task in hand revolves around the specification of each country's health needs coupled with an urgency to make people aware of the cause of ill health. As was observed by Oberteuffer some two decades ago: "The more man can learn to use the knowledge accumulated from scientific investigation, the greater facility he will have for understanding and solving his problems" (Oberteuffer, 1980 p. 4). There is no better framework to achieve the latter than in the context of the community where the members will help in the everyday task of changing their set opinions about health and disease.

The central question that this chapter has addressed pivots around the social and financial control of the services. We considered that the individual members of society have a right to assume that control as they best know their problem areas. The philosophical position that seems to underpin this viewpoint can be found in liberalism. Here Rawls theory of social justice that placed a value on the individuals' integrity and worth, appeared to be germane. This is particularly so in the context of a developing country where, due to the recent colonial history, health care provision has been paternalistic, gratuitously rendered for an ignorant and an apathetic people. The attainment of independence did not change the set up whereby a small group of people continue to plan and provide services which are inadequate for the total population. The question which arises from the Rawlsian position is this: to what extent can the individual plan and provide his own health services? Considering the fact that the health service is a wide ranging package, involving technical and scientific know-how an individual cannot ever hope to

adequately cater for his own needs by himself. Other individuals must be involved. It was on this issue that communal egalitarianism, as expounded by Guttman, was considered.

Despite the appeal of justice and fairness that liberalism has, it appears that the crucial question of finance might prove to be a thorn in the flesh. Health services provision costs money, and an adequate system in which all derive benefits, as is being suggested by the Declaration of Health for all, involves an even greater financial outlay. The question then is whether the social structure that exists under liberalism would permit that kind of heavy expenditure to be made. As we have tried to show, it is largely the totalitarian governments that have an administration that is willing to undertake extensive social spending, but under these systems the individual freedom to decide and choose are much curtailed. To this end, this study agrees with the suggestion made by Campbell that countries could have a framework which embodies three principles - freedom, equality and fraternity within which decisions of health care can be taken (Campbell, 1978).

If such a central administration can be created, then it might be possible for a country to have a system of health care provision that is characterised by the following:

- (i) The peculiar health needs are defined for and by particular groups of people living within a given community. This is the primary level of health care. Here the individual at the family level is taken care of. There is the possibility for the individuals to articulate their own needs and suggest measures at this level. It is also at the level that several basic health promoting, disease preventing and basic treatment facilities and activities can be put into operation, preferably by locally trained people working in conjunction

with the members of the community and using, as much as possible, local resources. This would help cut cost considerably.

- (ii) In view of the ever escalating costs of health services provision, a more realistic attitude should prevail particularly with the provision of secondary and tertiary care. Smaller facilities could be made the rule as Illich was at pains to portray that the medical profession appears to expropriate people's health as the latter becomes dependent on medical care, and their capacity towards self help and ability to cope decreased. Hence the need to limit the growth of what he calls the medical industry (Illich, 1974; 1977).
- (iii) In many developing countries the ubiquitous and ever-present problem of poverty ensures the non-endurability of many pieces of equipment expensively imported which cannot be properly maintained or even serviced when they break down.

For the purpose of this study, the choice of the community as the primary level of care also rests on the accepted concern of geography with ecology. It is in this context that the diseases as well as strategies for their management and control can be studied and adopted. The stand of many contemporary human ecologists, notable Hawley, is considered appropriate and a premise he frequently employs seems particularly germane. Hawley maintains that a population improves its chances of survival in its environment when it develops an effective organisation for the same. In the field of health care, it appears the time has come when the ordinary people themselves must organise a system that answers their needs (Hawley, 1971).

Perhaps in adopting such an ecological approach to this study, some effort will have been made to revive interest in the ecological approach

to this study, of disease and health in the geography of health.

The attempt is made in Chapter Five and Six to examine some empirical material in the light of the above theoretical considerations focussing on individual communities in the region, while Chapter Three provides background information on the broad aspects of the environment in the Central Region prior to methodological considerations.

Before we run away with the impression that as long as a community approach is adopted for health care provision, the people in the communities will automatically co-operate and work, willing to make changes, we must end this section with a note of caution. It must be recalled that the purpose of urging a community approach to care is to bring about some changes of transformation in the health attitudes of individuals of a given community. It necessarily expects that there should be collective action amongst the people. However, one must be over optimistic since it is known that groups of people are often incapable of mobilization, especially where the individuals hope that the others would shoulder the responsibility for the necessary actions. This characteristic of collective action has been referred to as 'latency'. The people may have the capacity and the desire to attain a goal, but they still are unable to be up and doing (Olson, 1978). The effect of this latency ranges according to the size of the community. Small communities are able to mobilise themselves better than the large ones. Indeed this aspect holds out some hope for the improvement of the small rural communities that are found in the study area. The problem will be with urban communities, some of which have several thousands of people. The task clearly lies in appropriate delimitation of the larger communities and in sufficient motivation of the people to start acting themselves.

In summary, this chapter has concerned itself with considering the geography of health and the contribution that adoption of an

ecological framework can make to the provision of health care. The concept of a community was focussed up as the most appropriate unit, it being considered that an egalitarian system of health care provision can be ensured if the people are sufficiently motivated to participate in transforming their environment for the better. Such changes can sufficiently reduce or even eradicate the strong influences that the sociopolitical structure of the country and the historical antecedents have on the health system. Furthermore, the versatility of an ecological framework allows the old problem of whether there are two medical geography to easily resolve itself, as both diseases and the care provided to deal with it can be studied in that single context.

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CHAPTER THREE

THE STUDY AREA, METHODOLOGY AND FRAMEWORK

The aim of this research is to find out the extent to which two goals - welfare and local control-operated in the provision of health services. In other words, what would be the effect on the nature of services provided if these two goals were to exert an influence on the services.

The second objective is to suggest some policy which would improve people's welfare and also bring about some local control where these are lacking in the provision.

Considerable attention has been devoted to these ideas of welfare and control by social scientists in recent years (Daniels, 1981). Therefore, this section would limit itself to only a few comments.

Definitions

Welfare embodies the idea that people will, to use the direct meaning, fare well under an existing system. In this way, no matter where a group of people live, there would be an opportunity for improvement in their health status. This goal must be differentiated from that of equity, for example. Though the latter is important in terms of the spatial distribution and even financial accessibility to care, mere equality would not guarantee an improvement in people's health. Welfare, on the other hand, is a broad goal in which provision has to be matched against the people's needs. Thus where welfare considerations are prominent, evidence will exist on the different emphasis placed on the types of care for different needs. Where services are routinely provided in an effort to keep up an inherited practice, as in the case of many formerly colonial countries, services provided purely in response to needs are infrequently found.

The exception is in those countries where there has been some radical rethinking of and some redefinition of priorities.

The second goal, local control considered a crucial factor in the success of any programme, involves making decisions which affect different group of people. It is a truism that where people are in control, however partially, of decision making as well as operating a scheme which exist for their benefit, better and longer lasting results can be achieved (Schrent, 1979). This is more so in systems such as worker-management control schemes than it is in those where the entire control lies in the hands and under the authority of a foreign body.

Thus, where there is local control in the provision of health services, one could expect to find evidence of local participation in the decision making, financing and actual day-to-day operations of the activities.

The choice of these two goals in this normative approach poses two problems. How to define and measure:

- (a) need for a service, and
- (b) local participation.

It has been stated that the concept of need has two advantages. First, it allows the critical examination of the adequacy of service provision, and second it helps to avoid the tendency to solve problems of inadequate services with more of the same (Tarlo, 1980).

As has been pointed out in the previous chapter, value judgements have to be admitted in determining what the needs of a group of people are; the need being related to certain factors or characteristics of the people.

In the case of local participation in certain aspects of the administration and the provision, there is a need for some amount of decentralisation of the services. In this way, it would be possible for people to take decisions on the spot on local matters which arise and require urgent attention.

Prior to a discussion of an analytical framework, some attention is focussed on the study area. As was stated in Chapter Two, it is necessary to consider the environment when studying the geography of health of a particular area.

In this chapter, the broad aspects of the environment in the Central Region is focussed on with some introductory comments on Ghana as a whole. This serves as a useful background to the more detailed consideration of the local environment at the level of the individual communities (See Chapter Six and Seven). Further, it helps put the provision of health services, dealt with in Chapter Five, into a proper perspective.

Ghana and the Central Region - A General Outline

The Central Region of Ghana was selected for use as a case study, though the intent is to consider the country as a whole. Provision for care in Ghana is on a national basis, with many of the features deriving from Central Government's action rather than from regional activities. The choice of the Central Region lay in its size and also the varying range of inhabited areas - large towns and small villages as well as its relative cultural homogeneity. This latter characteristic is considered important as it simplifies the number of factors which have to be dealt with. Greater Accra Region, for example, is also small in size, indeed it is the smallest region in Ghana; but owing to the presence of Accra, the capital city, the population is highly mixed, people having migrated and settled there from different parts of the country, hence culturally heterogeneous, with different languages, food, diet and attitude.

Ghana itself is not very big, compared to Nigeria, for instance, which is about five times the size of Ghana. The total area of Ghana is about 238,537 sq. kilometers (92,100 sq. miles), which is just about a 1000 sq. miles smaller than the United Kingdom.

Lying between latitude $4\frac{1}{2}^{\circ}\text{N}$ and 11°N , the climate and vegetation are wholly tropical, with temperatures relatively stable around 19°C . It is the rainfall which varies both in its periods and in area from the coast to north. In most of the south, there are two rainy seasons, the amounts ranging from 26 to 45 inches, but this decreases towards the north where there is only one period of rain, from June to September.

The country is divided into ten administrative regions. These vary in area as well as in population. Table 3.1 shows the area and population for each region (map 3.1). The delimitation of the regions however, takes into account the nature of ethnic group distribution. With the exception of Greater Accra Region, which is cosmopolitan in outlook, and owes its heterogeneity to the presence of Accra, the capital, and Tema, the port and manufacturing centre. All the other regions are relatively culturally homogeneous.

Politically, Ghana could at present be classified as one of the unstable countries in Africa. Having obtained independence from Britain in 1957, the country embarked on a series of developmental activities to improve socio-economic conditions. However, divisive elements soon brought this period to a rapid end in 1966 and the stage was thus set for a series of coups d'etat and rapid changes of government. The most recent of these occurred in December, 1981. Such rapid changes in government cannot augur well for developments in any sphere. Health care and other social programmes such as housing and transportation networks all tend to suffer.

The greatest effect of these changes has however been on the economy. The changes in policy have meant different emphasis, and coupled with the phenomenal increases in the price of oil, as well as the current world recession, Ghana's economy has suffered. With large debts, both domestic and foreign, to settle and a weakening economic position due to falling

Map 3.1

GHANA : ADMINISTRATIVE

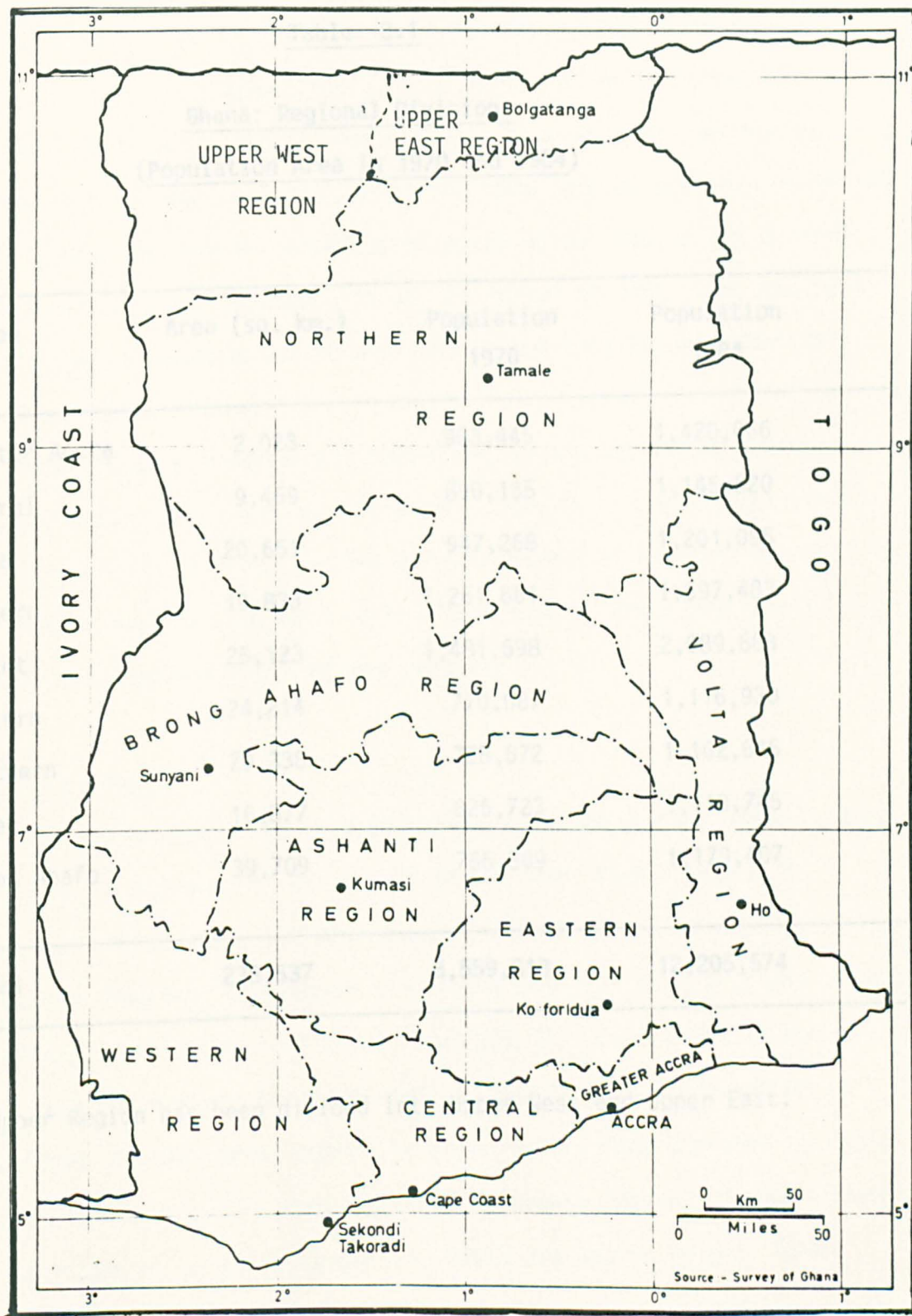


Table 3.1

Ghana: Regional Divisions
(Population Area in 1970 and 1984)

Region	Area (sq. km.)	Population 1970	Population 1984
Greater Accra	2,023	903,445	1,420,066
Central	9,469	890,135	1,145,520
Volta	20,651	947,268	1,201,095
Eastern	19,833	1,261,661	1,697,483
Ashanti	25,123	1,481,698	2,089,683
Western	24,214	770,087	1,116,930
Northern	70,338	728,572	1,162,645
*Upper	16,877	826,723	1,110,745
Brong Ahafo	39,709	766,509	1,179,407
Total	238,537	8,559,313	12,205,574

* Upper Region has been divided into Upper West and Upper East.

prices of cocoa, the major export item, the national resource available for social spending is much curtailed. In 1982, Ghana's domestic debts, for example, stood at 15.7 billion cedis (£2.66 billion), with foreign debts of 1.7 billion cedis (£300 million). This might not be much compared to some Latin American countries, for example; however, when matched against the country's uncommitted gold and convertible foreign exchange of C4,284.3m (£47.7m), then the current problems of carrying out social and economic activities can be appreciated. It was estimated in 1983, that the rate of inflation for example was 96 per cent though many believe that this is a conservative figure.

Under these circumstances therefore, providing social services, including health care, can be a problem. That it is proving more and more difficult is a fact, and the current exodus of hospital staff, coupled with what has become a chronic shortage of drugs and dressings, are only two manifestations of the problems.

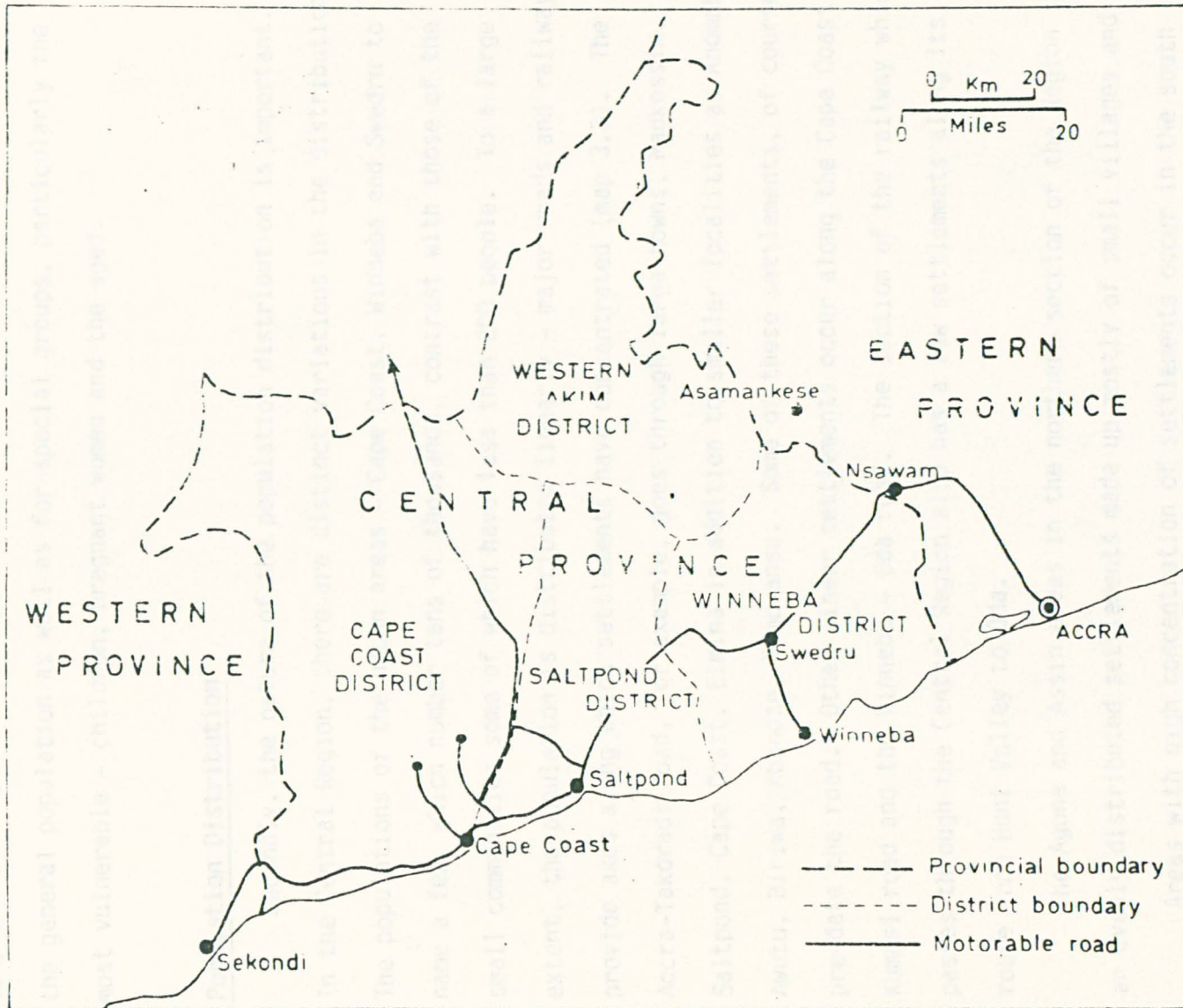
The Central Region

The Region was first created in the 1930s and later joined to the area lying to the west of it to form the Western Region (Map 3.2). During the 1960s, the government created a Central Region separated from the Western Region. The Region is divided into six districts and subdivided into local council areas of which there are 10. Cape Coast is the smallest local council area and Breman Ajumako is the largest. The number of localities in these local authority areas varies from one area to the next. Cape Coast area has 90 communities approximately whereas Breman Ajumako has ten-times as many. Altogether, there are approximately 3,367 communities in the Region.

The population of the Region is 1,145,520 according to the 1984 population census. This size of population is large enough to support a

Map 3.2

DISTRICTS OF THE CENTRAL PROVINCE, 1938



comprehensive system of health care. There can be services provided for the general population as well as for special groups, particularly the most vulnerable - children, pregnant women and the aged.

Population Distribution

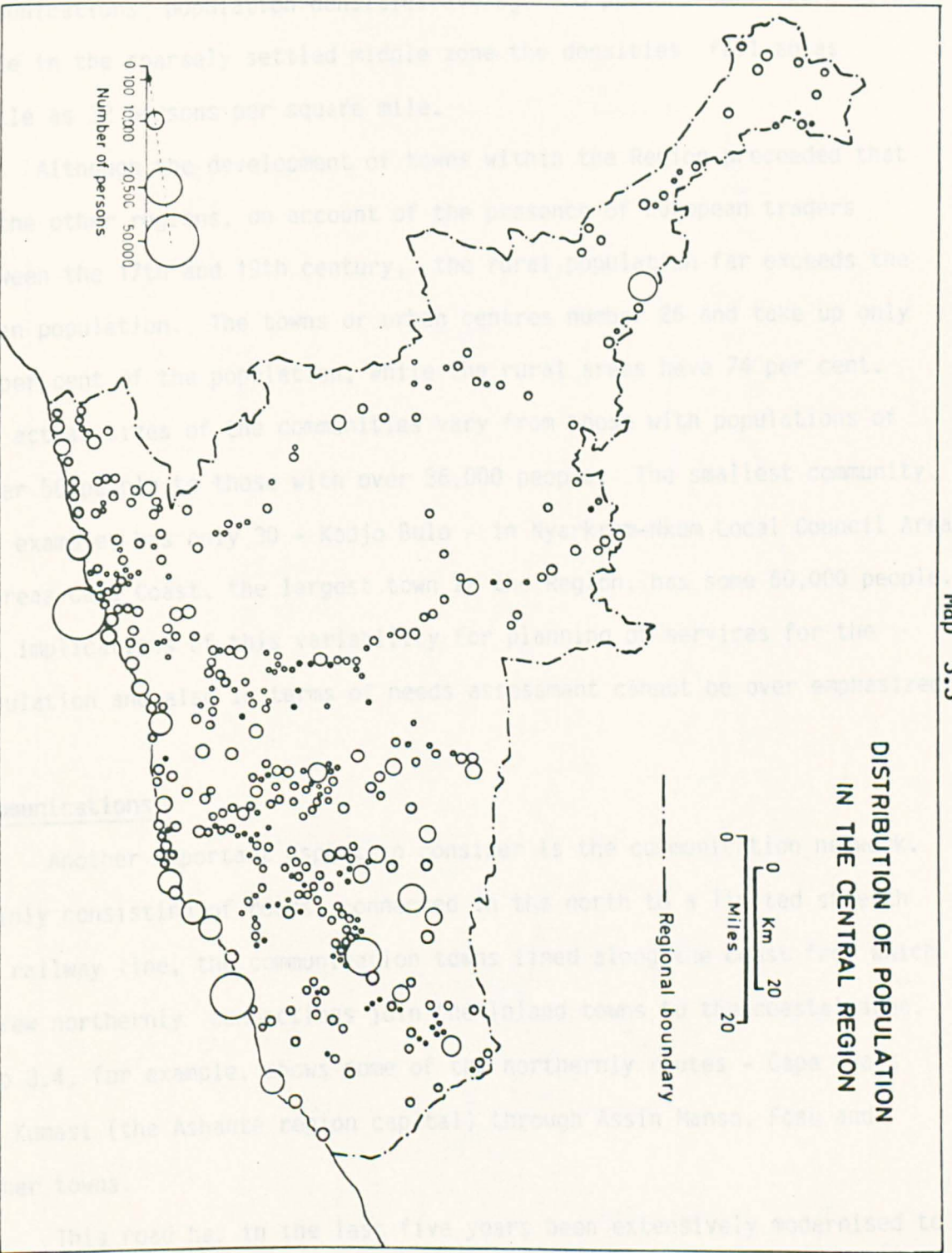
Secondly, the nature of the population distribution is important. In the Central Region, there are distinct variations in the distribution. The populations of the urban areas - Cape Coast, Winneba and Swedru to name a few, which number tens of thousands, contrast with those of the small communities some of which have less than 200 people. To a large extent, the population is distributed linearly - major roads and railways provide axes along which settlements have concentrated (map 3.3). The Accra-Takoradi road, for example, goes through large towns, Mankessim, Saltpond, Cape Coast, Elmina in addition to smaller localities as Anomabu, Awutu, Biriwa, Abandze, Yamoransa. Some of these settlements, of course, pre-date the road. Other linear settlements occur along the Cape Coast - Kumasi road and the Winneba - Oda road. The section of the railway which passes through the Central Region also has a few settlements along its route from Huni Valley to Oda.

The Agona and Assin areas in the northern section of the Region show an evenly distributed settlements made up mostly of small villages and towns.

Areas with high concentration of settlements occur in the south coastal plain, around Winneba, Agona Swedru area, northern Gomua and south-western Enyan. Areas with dispersed settlements occur in south Denkyira, Twifu Heman and Breman areas where the forest reserves prevent people from farming. Also, the cocoa farming region in Ajumako and parts of Agona has dispersed settlements.

The distribution of population seems to be related to the pattern of settlement distribution. The coastal areas have the highest densities

Map 3.3



of between 250 and 800 persons per square mile. Along the lines of communications population densities average 120 persons per square mile, while in the sparsely settled middle zone the densities fall to as little as 32 persons per square mile.

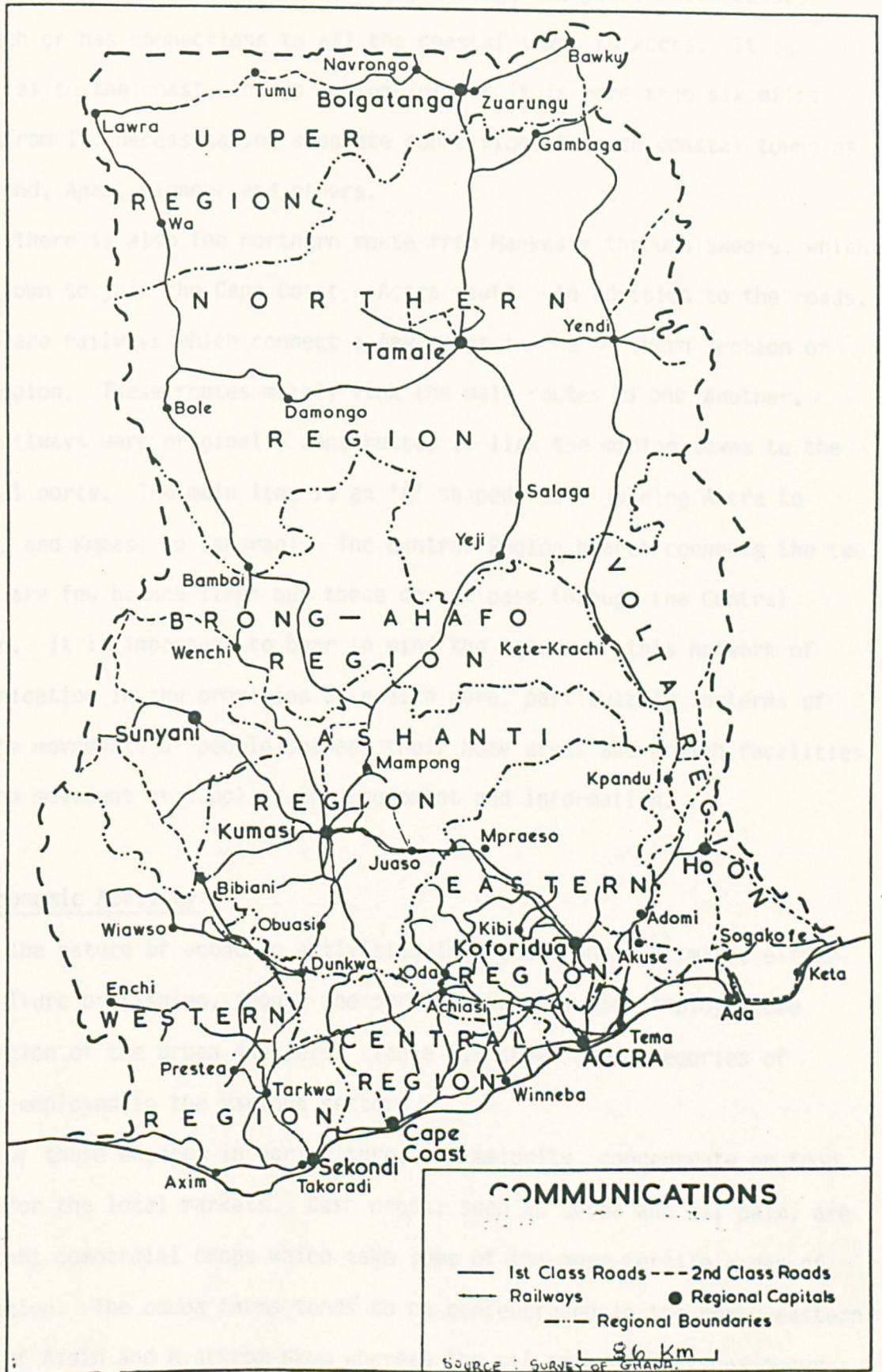
Although the development of towns within the Region preceeded that of the other regions, on account of the presence of European traders between the 17th and 19th century, the rural population far exceeds the urban population. The towns or urban centres number 25 and take up only 26 per cent of the population, while the rural areas have 74 per cent. The actual sizes of the communities vary from those with populations of under 50 people to those with over 36,000 people. The smallest community, for example, has only 30 - Kodjo Bulu - in Nyarkrom-Nkum Local Council Area, whereas Cape Coast, the largest town in the Region, has some 60,000 people. The implications of this variability for planning of services for the population and also in terms of needs assessment cannot be over emphasized.

Communications

Another important aspect to consider is the communication network. Mainly consisting of roads, connected in the north to a limited stretch of railway line, the communication towns lined along the coast from which a few northerly connections join the inland towns to the coastal area. Map 3.4, for example, shows some of the northerly routes - Cape Coast to Kumasi (the Ashante region capital) through Assin Manso, Fosu and other towns.

This road has in the last five years been extensively modernised to make it one of the widest of all-weather roads in the region. There is also a completely new route from Cape Coast to Dunkwa through Hemang, Twifu Praso, Chechewere etc. There are however, few east-west routes, thus limiting lateral connectivity. The one route of importance is the

GHANA: COMMUNICATIONS



Cape Coast - Accra road, motorable all through the year, which passes through or has connections to all the coastal towns to Accra. It is parallel to the coast, though in some places it is more than six miles away from it, necessitating separate connections to such coastal towns as Saltpond, Apam, Winneba and others.

There is also the northern route from Mankesim through Swedru, which runs down to join the Cape Coast - Accra route. In addition to the roads, there are railways which connect a few towns in the northern section of the region. These routes mainly link the main routes to one another. The railways were originally constructed to link the mining towns to the coastal ports. The main line is an 'A' shaped route joining Accra to Kumasi and Kumasi to Takoradi. The Central Region branch connects the two. There are few branch lines but these do not pass through the Central Region. It is important to bear in mind the nature of this network of communication in the provision of health care, particularly in terms of the the movements of people between their home areas and health facilities and the movement of supplies and equipment and information.

The Economic Activity

The nature of economic activities is predominantly primary, either agriculture or fishing, though the service industry also employs some proportion of the urban dwellers. Table 3.2 shows the categories of people employed in the various sectors.

Of those engaged in agriculture, the majority concentrate on food crops for the local markets. Cash crops, such as cocoa and oil palm, are important commercial crops which take some of the more fertile areas of the region. The cocoa farms tends to be concentrated in the north-eastern areas of Assin and Nyarkrom-Nkum whereas the oil palm plantations occur along the coastal plains. The cocoa farms are mainly individually owned,

mostly by rich farmers (more recent trends are towards absentee farmers) who employ labourers to do the farm work. In recent years, many problems have been throttling the industry, not the least being the ageing trees and the lower producer price for cocoa. The oil palm plantations were originally owned by the state farms, though in recent years individuals have shown interest in making these more viable.

Other commercial produce includes the growing of citrus fruits of which an old established firm purchases the bulk of the produce particularly lime. During the past decade, a citrus processing plant has been set up to utilise some of the fruit. Important areas include Asebu, Eguafu, Enyan Abaasa to name a few (see map. 3.5).

Of the primary occupations, fishing also is important. All the coastal towns and villages engage in the industry. Deep sea fishing is particularly important though fishing from lagoons and rivers also supplement the effort. The fishing areas all have a strong female work force who prepare and sell the fish as far afield as the Kumasi and Tamale markets, more than 400 kilometers away.

There are relatively few people engaged in the forestry industry. This includes those who manage forest reserves as well as those engaged in felling and selling timber for export purposes and that used in local saw mills as well as wood for furniture making and some domestic fuel.

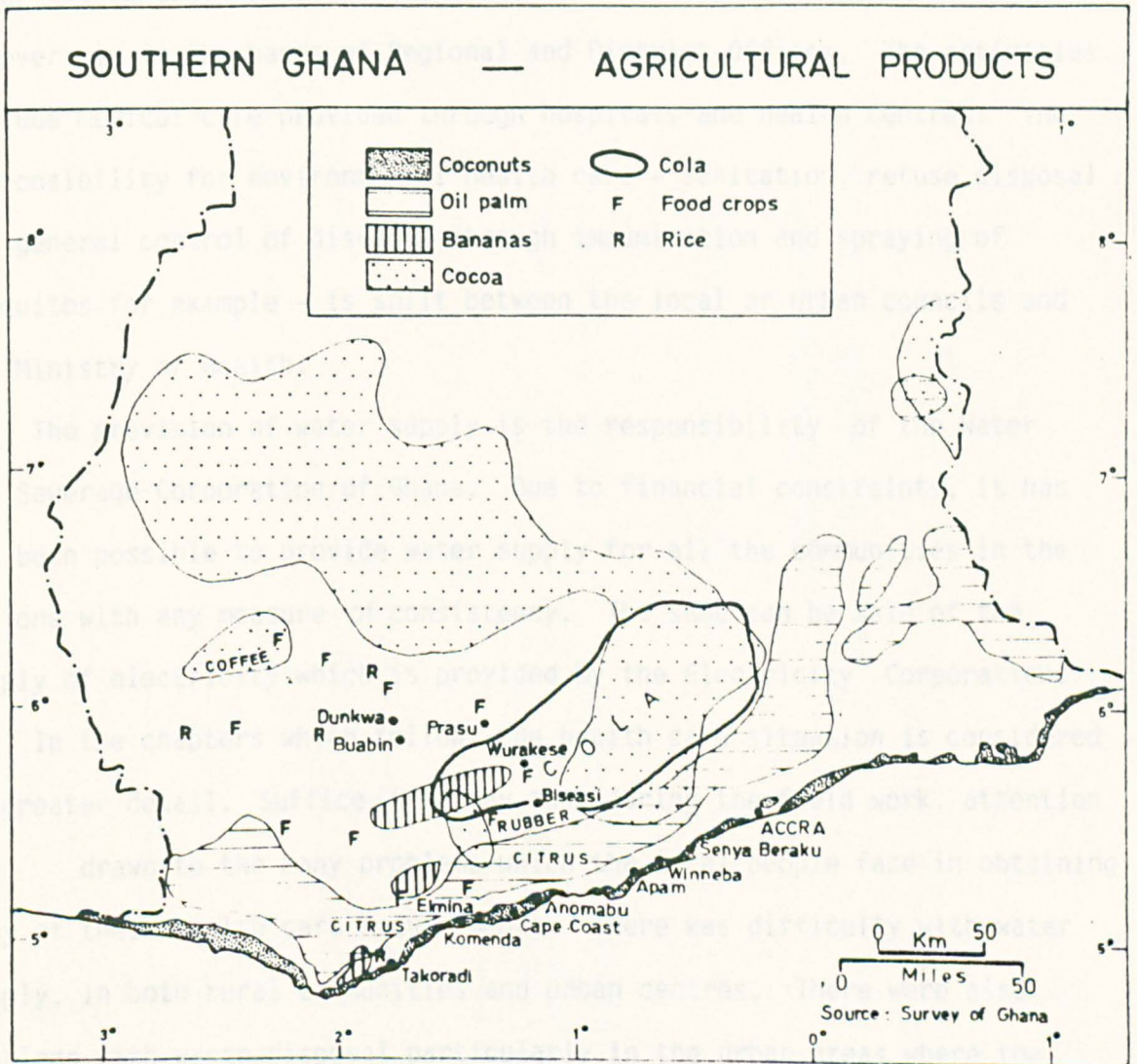
There is also some salt making near Elmina, Akyinim and Komenda. Recent industries, which are few, include ceramic making at Saltpond, some modern pottery at Winneba and the canning of some of the citrus juice - limes and oranges.

However, the informal sector seems more developed. Various products are made, from hurrican lamps to footwear, pottery and basketry. Other economic activities include petty trading, vulcanising, tyre repairs and automobile repairs, tailoring and furniture making, and block

Map 3.5

Provision of Services

Concerning the provision of services in the Central Region, it must be noted that as in other parts of Ghana, health care provision is mainly under the control of central government. In the Volta Region



manufacturing for the building industry.

Provision of Services

Concerning the provision of services in the Central Region, it must be noted that as in other parts of Ghana, health care provision is mainly under the control of Central Government. The day to day administration however is in the hands of Regional and District Offices. The activities include medical care provided through hospitals and health centres. The responsibility for environmental health care - sanitation, refuse disposal and general control of diseases through immunization and spraying of mosquitos for example - is split between the local or urban councils and the Ministry of Health.

The provision of water supply is the responsibility of the Water and Sewerage Corporation of Ghana. Due to financial constraints, it has not been possible to provide water supply for all the communities in the regions with any measure of consistency. The same can be said of the supply of electricity which is provided by the Electricity Corporation.

In the chapters which follow, the health care situation is considered in greater detail. Suffice it to say that during the field work, attention was drawn to the many problems which the local people face in obtaining many of their health care requirements. There was difficulty with water supply, in both rural communities and urban centres. There were also problems with waste disposal particularly in the urban areas where the built up nature of the towns presents a problem of lack of suitable sites, leading to indiscriminate dumping. Environmental health care provision is difficult. The problems with obtaining care when required can be even more acute. The shortages of drugs, dressings and other items need no elaboration.

Table 3.2

Percentage of employed and Different
Sectors in Central Region

(1970 population census)

Area	Total population aged over 15	Primary Sector Agriculture, Fishing, Forestry		Home Maker		Other Professional Labourers, Craftsmen		Unemployed	
	No	No	%	No	%	No	%	No	%
Urban	351,962	226,437	64.3	29,248	6.3	66,328	14.2	18,676	4.0
Semi Urban	215,618	106,471	66.2	2,231	1.0	40,403	18.7	12,204	5.7
Rural	250,596	119,966	62.7	27,017	10.8	25,925	10.3	6,472	2.6

Research Methods and Procedure

As stated earlier, two goals considered appropriate for the study are 'welfare' and 'local' control. As welfare embodies the idea of allocating benefits for the satisfaction of need, the immediate methodological problem arising concern how to measure need.

The normative approach was considered germane for our purposes and hence the study was limited to an investigation of two issues. These are: health needs assessment of the population and the adequacy of the services provided.

The problem of assessing need has been considered by many social scientists (Boulding, 1966; Bradshaw, 1972). Four kinds of needs have been suggested as requiring measurement. These are felt needs, expressed needs, professional or normative needs and comparative needs. Forder sees this fourth need as an adequate measure since if the comparative needs of the highest social group are known, they would serve as reference needs for the rest of the population (Forder, 1971). This, of course, is a receding target. On this issue, George and Wilding have concluded that the comparative approach has the merit of acknowledging openly that there are few scientific answers to the question of need determination (George, 1976).

Concerning the inventory approach to assessing the adequacy of services, social science studies along such lines are few. A study by Bosanac on hypertensive services in West Virginia in the United States is one of the few studies (Bosanac et al, 1982).

The decision in this instance was to base the health needs assessment on judgements concerning the health characteristics of the groups and the adequacy of the services was assessed through the inventory approach.

Health Needs Assessment: Descriptive and Analytic Survey

In order to fulfil the aims of the study stated earlier, it was necessary to collect information from different kinds of communities as well as from the health institutions in the Region. Altogether, there are a total of 44 facilities distributed in 7 districts of the Region. In view of the size of this total, it was decided that all the facilities would be included in the information gathering exercise. The exception was those institutions which were purely privately run.

The second activity involved selecting communities from the seven health districts to study on an in-depth basis to see the extent to which effective care was being provided to meet the needs of the people and resulting in an improvement of their health. Two factors influenced the choice of the survey communities and these are as follows:

That where appropriate services are being provided, the health needs of the population could be met. The types, numbers, and frequency of services provided would give some indication of the particular needs that are being met.

Also, since communities in the region may have peculiar needs, these may require a particular approach, and if a health services is locally available it could be assumed that appropriate measurers could be provided.

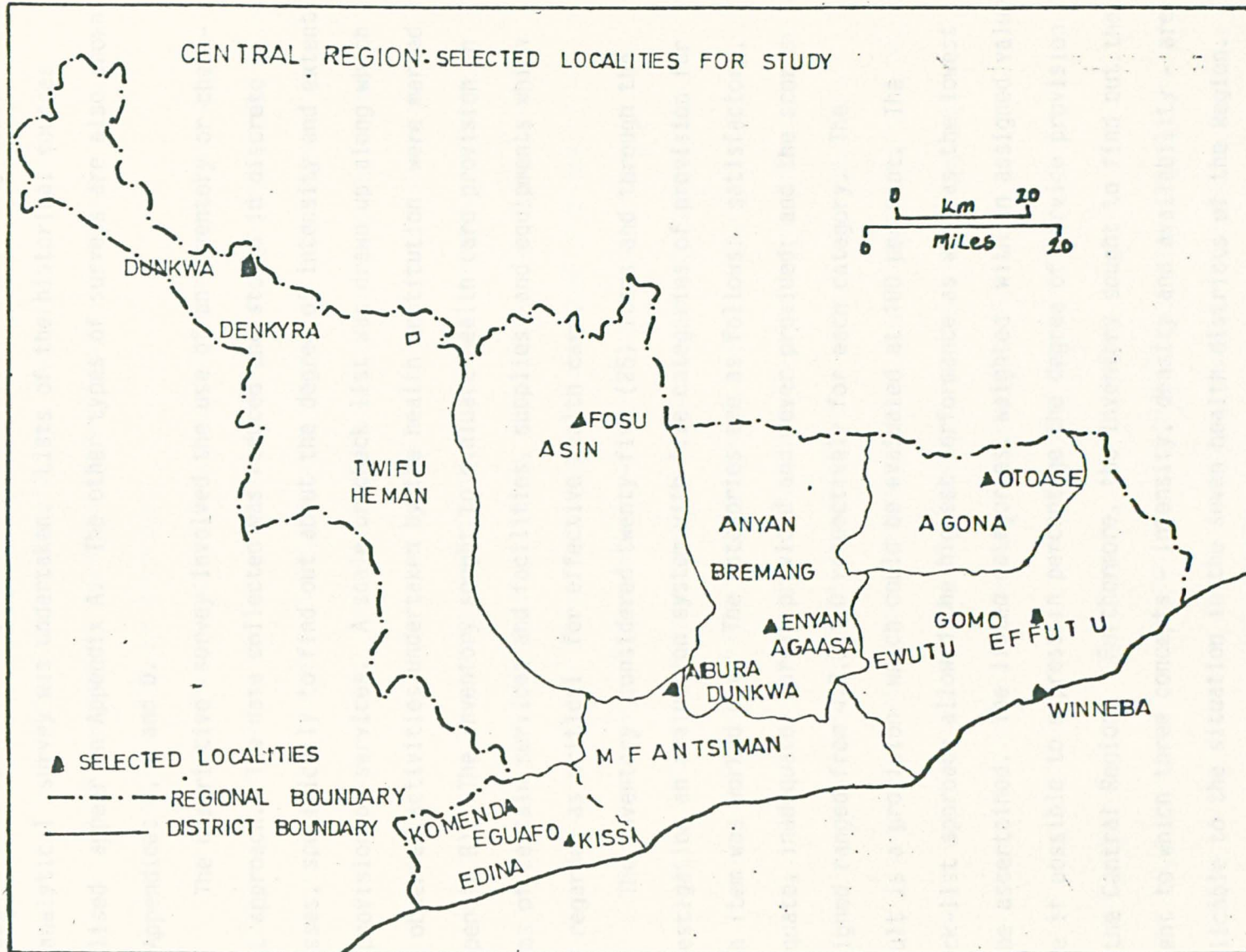
The places selected for the study are Winneba, Dunkwa, Fosu, Kissi Abura Dunkwa (nowhere near the first Dunkwa), Enyan Abaasa and Ofoase.

Finally, there was some information collected from patients waiting at selected health institutions, but this was limited to only one facility in each district.

Methodology

This research to find out about the health needs in the Central Region involved the use of three different methodologies. Concerning the provision of the services, a wide view was taken by looking at past effort

Map 3.6



through a historical survey, while the extant activities were investigated through a descriptive survey. To find out about the community health needs, an analytical survey was undertaken. Lists of the historical sources utilised appear in Appendix A. The other types of surveys are also shown in Appendices B, C and D.

The descriptive survey involved the use of an inventory or check-list approach. The data collected was reduced and stored in discrete classes, specifically to find out about the degree of intensity and extent of provision of services. A scale or check list was drawn up along which the observed activities undertaken by the health institution were marked (Appendix B). The inventory sought to evaluate health care provision in terms of certain services and facilities, supplies and equipments which are regarded as critical for effective health care.

The inventory considered twenty-five (25) items and through the investigation an evaluation system with five categories of provision for each item was worked out. The categories are as follows: satisfactory, adequate, inadequate, rarely provided and never provided; and the scores assigned ranged from 4,3,2,1,0 respectively for each category. The result is a provision which could be evaluated at 100 per cent. The check-list approach allowed the highest performance as well as the lowest to be ascertained. The listed categories, weighted with an assigned value, make it possible to express in percentage the degree of service provision in the Central Region. Furthermore, the inventory sought to find out the extent to which three concepts - intensity, density and availability - are applicable to the situation in the seven health districts of the Region. Intensity is considered as a measure of the units of services or the care that is actually dispensed by the health facility in question. Here, the factors considered include the number of activities performed and the number of sessions held for each activity. Density is deemed as a

measure of the extent of the service. Here, a standard population of 300 was selected and the number of facilities serving this standard was used to estimate the density ratio. Finally, the availability construct is a measure of the proportion of health units offering a particular service as against all others in the district.

The analytic survey considered the community needs and services available. A series of questions with quantified answers were asked with a view to assessing the health need from three angles, all based on the premise that human health is a variable factor. The three angles are as follows:

- 1) The assessment of need from the general community itself. Here, the health needs of the population are extracted from the responses to certain questions designed for the purpose (See Appendix C).
- 2) A second assessment was made by interviewing people waiting at selected health units for consultation (See Appendix B).
- 3) Use is also made of hospital records which give indications of the numbers of people attending the facilities from which hospital attendance were obtained. Also, diseases and illnesses that were presented for treatment during a three-year period were examined (See Appendix Ei and Eii).

Data Collection

The field work was undertaken between 1979 and 1980 and it was carried out in two phases. Phase 1 concentrated on the collection of information on the health institutions of the whole Region from the Statistical Department of the Regional Ministry of Health. Phase 2 was confined to obtaining data from the selected communities on their health situations. The first phase provided basic data on health facilities in

the Region. The methodology employed involved the use of inventory or check-list approach to obtain the data on facilities and services available. (See Appendix A and Table 1.1 - 1.5). A questionnaire survey on the patients attending clinics was also used to obtain information on diseases presented (Appendix B). This was co-ordinated with information from a sample of hospital records. These approaches which entailed collecting information from the different sources - health institutions, administrations, the consulting sections and medical records sections - are justifiable on the grounds that together they provide a holistic view of what happens in the health institutions. It also required the co-operation of all the staff involved, so that all activities relating to health care could be covered.

Since the population in the Central Region falls into different socio-economic classes, it was necessary to use systematic sampling to select the actual places from where data could be collected. In the urban areas - Winneba, Dunkwa and Fosu, the cluster is used. Here, using a base map of 1:125,000¹ the areas were divided into clusters or cells of the same size - 2.5cm square, which represents about 312 metres squared on the ground. From the total, some 5.5 per cent of the cells were randomly selected using a random sampling table. This randomisation was considered necessary as the population in these towns was varied in its composition. So also the areal composition was heterogeneous - schools, markets, play fields, as well as residential units. From these cells, the selection of the houses from where data were to be gathered proceeded on a predetermined sequence. Only even numbered houses were selected, beginning from the

1. Based maps were available for Winneba, Dunkwa, Fosu and Abura Dunkwa. For Kissi, Ofoase and Enyan Abaasa, we depended on planning maps prepared by the Regional Administrative Officers.

northwestern corner and proceeding in a clockwise direction. The number of houses varied from one cell to the other, had unbuilt plots and others contained such public utilities as schools, markets, motor parks, public latrines. In the semi-urban and rural areas, the same procedure was followed.

In the cluster, every house was considered for the data collection-interviewing and observation (Appendix C). This was possible on account of the small numbers of houses contained in the clusters. Table 1.2 summarises the information on the numbers of cells and houses generated for data collection.

Table 3.3

Areas of Data Collection

Area	Total No. of cells	Selected cells	No. of houses for data collection
Winneba	143	9	87
Dunkwa	108	6	53
Fosu	78	4	32
Abura Dunkwa	59	3	23
Kissi	44	2	21
Enyan Abaasa	39	2	17
Ofoase	26	1	10
Total	502	27	248

Secondary Sources

In addition to the above, information was also obtained from the Medical and Sanitary Reports (M & SR) of the Ministry of Health during the colonial period. These reports contain a wealth of information on the health services during this period. Attached at the end of the annual reports were statistical returns of the numbers of cases presented at the health institutions in the country for all diseases.

With regards to the analysis of the retrospective data of the people and the community, certain factors influenced the choice of analytical methods. The introductory chapters of this study spelt out in some detail the usefulness of the focus by the geography of health on the ecological approach to the study of diseases in community. In this instance, the communities range from the urban centres such as Winneba, Fosu and Dunkwa to the semi-urban centres such as Abura Dunkwa, Kissi and the rural areas of Enyan Abaasa and Ofoase. Within these territorial groupings, it is possible that some differences or associations could be discerned about them in the ecological characteristics which give rise to or suppress the environmentally related parasitic diseases. The immediate question then is what framework could one use to analyse these different areal units, using the data in hand.

The data comprised eighteen (18) variables along with other co-ordinates of the respondents (See Appendix C). In order to get some impressions of the full data, the 18 variables were considered as having set up a space of 18 co-ordinates in which each cell in the selected areas is located as a point. The precise position of the 39 community cells for which a full data set is available was determined by measuring along each variable axis, the distance of that community datum on the variable. As such, measuring for all 18 variables places the community in an 18-space. The total points, in this case 39, forms a mass in 18-space. It is

possible to visualise a longitudinal stretch for some of these while others may be spherical, and there might also be some relationship between the variables.

The exercise facing us here is to find the lines in the set space that characterises the data. It is around such a line that the data set could be condensed, thereby reducing the dimension of the space to a smaller number.

A method which permits such an analysis to be carried out is the Principle Component Analysis. It combines all the variables producing a few new ones. A computer programme will be used to find out what the principal components in this data set are.

Information was also obtained from the Statistical Division of the Regional Ministry of Health. Though this proved to be the most accessible, involving the previous returns of diseases from all the health units in the region 1974-1980, it also had problems. There were several thousands of cases that had to be considered.

The total numbers were considered too large for our purposes and a small sample had to be selected. This necessitated setting up a sample frame that would cover each area and each year adequately. Material was selected from 37 health institutions for all twelve months for each of the seven years. The total number of cases for this period stood at 724,583. We hoped to take a 1 per cent sample which would be 7,245, but as it happened, the sample was only 0.85 per cent since we systematically selected two cases per month per health institution for the seven years. This came to a total of 6,216. Some of them did not have a complete set of data and we ended up with 3,724 cases.

Use was also made of population census reports especially Vol. C of 1970. For the earlier period, that is pre-1957, use was made of the medical and sanitary (henceforth M & S) reports, British Parliamentary

papers which had occasional matters on health services, journals and other publications. It would be appropriate to put in a word here on the nature of the medical and sanitary reports. These have so far been found to be the most reliable and consistent reports on the activities and events relating to the health services in the country. As it happened, such reports compiled by the British Administrators were part of their assigned duties and copies had to be made available for the metropolitan government. Indeed similar reports were compiled for other West African countries under the British Administration. Using other secondary sources, such as the British Parliamentary papers, occasional memoranda have corroborated certain sections of the M & S reports.

Data Limitation

As mentioned earlier, the study areas selected were seven, most of which had a health service situated in the locality. With this limitation some bias was introduced into the study. Conditions in the areas where no health institution was available may be quite different from the selected areas. In other words, the study failed to randomly choose towns and villages in the Central Region which might together reflect the nature of the health need in the general population. As such it would not be easy to categorically conclude that the findings from the study areas are actually representative of the whole of the Central Region especially since there are many areas unprovided for. The research would have benefitted from a consideration of other areas that lack a service and useful comparisons could then be made of the two different groups.

Be that as it may, the data obtained from the analytical survey in particular was retrospective in nature and the measures used were nominal and ordinal. The problems to settle with respect to the nominal and retrospective studies was that of accuracy of the information obtained

particularly with regards to the illness reported. This was circumvented by the records on patients interviewed at the health centres and their illnesses at that time.

Data Handling

The bulk of the data was codified and the results were punched on to computer cards for analysis. As always, the computer analysis is faster and reduces the length of time spent on correcting errors often made by manual analysis.

Data Analysis

The historical material was analysed for its time and historical space, as well as the significance of some of the recorded events. Material obtained from the survey on the utilization of services relating to distances were analysed using nearest neighbour analysis. Each health facility was considered as a point or node and the distances between one and its nearest neighbour was measured using the formula devised originally by Clark and Evans $R_n = 2D \sqrt{N/A}$ it was possible to arrive at one figure to describe the distributional pattern of the health facilities. R_n in the formula above represents a more objective description of the distribution. D is the mean distance between the nearest neighbours, A , the area under study and N the number of points in the study area.

The values of R_n occur within a range of 0 - 2.15. If there is total clustering R_n will be 0. If they were regularly distributed throughout the area, R will be 2.15 and a pure random distribution would be 1.0. This allows us to describe any distribution with a minimum of subjectivity. The analysis of this is presented in Chapter Four.

Total number of check marks below the Critical Line

- 2) What does the inventory show about the service that touch on the day to day life of the people which may help to prevent certain illnesses and promote health?

Figure 3.2

INVENTORY CHART 2

Item No.	20'	21'	22'	23'	Total
Satisfactory and Adequate					
Adequate Provision	C R I T I C A L L I N E				
Inadequate					
Rarely Available					
Never Provided					

Total No. of check marks below the Critical Line :

- 3) The final question seeks to find out if the health services provided took notice of special groups in the population and provided for them. The chart below, Fig. 3.3, would be employed.

In all three charts, it can be seen that the most important analytical point is the line marked Critical Line - which here is regarded as the level below which services are inadequate. For it is above or below this line that check marks are to be placed. Thus, marks that fall below the line would show areas of health services that would subsequently indicate a need that require a solution. In order to actually arrive at the performance of the health services provided in the Central Region, the

Figure 3.3

INVENTORY CHART 3

Item No.	24'	25'	Total
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Satisfactory and adequate			
------------------------------	--	--	--

Inadequate Provision			
-------------------------	--	--	--

C R I T I C A L L I N E

Available sometimes			
---------------------	--	--	--

Rarely Provided			
--------------------	--	--	--

Never Provided			
----------------	--	--	--

Total number of check marks below Critical line:

number check marks in the three charts (1.1, 1.2, 1.3) which fall above the critical line will be added up and a percentage score of satisfactory or desirable health care provision by dividing the total by 25.

As mentioned earlier, use was made of the M & S reports in certain chapters of the study. In Chapter Six, information pertaining to the diseases presented at health institutions in the country on the whole and in the Region in particular were used to obtain some idea of the nature of the pattern of diseases from the earlier decades of health services to the present day. We divided this time span into three periods. The first covered a sixty-year period from 1895 - 1955 and it is for this period's pattern of diseases that recourse was made of the M & S reports.

The second period covered a more recent time span from 1974 to 1980 and for this, records were obtained from the Statistical Departments of the Central Regions's Ministry of Health.

The third period was really the survey time for this study and this was from October, 1979 - March, 1980; though several subsequent visits were made to cross check information.

It is recognised that there are problems inherent in all three sources of the data. Concerning the use of the M & S reports for example, we find that there are some limitations not the least being the small proportions of the population that actually used the institution and the subsequent possibility of their being unrepresentative of the general health conditions of that period. There could be problems arising out of the diagnosis of the diseases and the compilation of the figures. However, our purpose is to obtain some idea of the nature of the diseases that used to prevail in the country generally in the past with a view of finding out the extent to which changes have occurred. Perhaps for this purpose, there is no need to go too far back in the past, a period of some ten years might suffice to give some indication of the nature and

trend of the diseases. All the same, in order to concretely establish any changes in the health situation, the longer time span was considered appropriate. The analysis was kept at a general level calculating percentages of various groups of diseases with respect to all diseases reported.

For the second time period of 1974 - 1980, the reliability of the data was more certain, facilities for data collecting, storing and retrieving having been improved over the years. The problem concerning this data however is with regards to the numbers. During the period selected, information available covered some 127,630 cases. With such a size, the main problem here was the sample size to choose from each of the 37 health institutions in the country that would be representative for the seven-year period.

In the end, a systematic sample frame was developed based on days, months and then years. We selected at regular intervals a case from 14 days of the month from each health institution. This gave us 14 cases per unit per month, for 12 months in the year for the seven years. Total number of cases per month amounted to 518, per year it was 6216 and for the seven years, this came to 43512. It was from this sample that our 10 per cent sample was finally selected. This really represents 3.4 per cent of the total which was all that could be conveniently handled and analysed by the use of the computer. Since there are several hundreds of diseases, we can expect to select any one case to represent any of the 800 diseases that there are, ie. there is a probability of about 1 in 800 which is highly significant (See International Classification of Diseases. 1980).

For the analysis of this data, use was made of cross-tabulation to investigate a few relationships for example, disease and age, disease and sex, and disease and outcome of care. Cross-tabulations were used

since the variables were mostly nominal and the diseases, also classified into 10 categories. Two-way tables were obtained in addition to statistics measuring degrees of associations.

The third set of data selected for the investigation of the pattern of disease concerned hospital cases interviewed during 1979 - 1980. Here only seven institutions were selected from each of the health districts and during 3-day visits to the health institutions, a sample of the patients attending the facility were talked to. Of the total of 1,529 cases that attended some 43 per cent were children and of the adults, females outnumbered the males. Of this 500 cases were included in the study.

As in the case of the first analysis, the procedure employed was to work out simple percentages and proportions. It is reckoned that these methods are adequate for the investigation of the disease patterns within the country as a whole and in the Central Region in particular. For a more detailed study of the casual factors that dynamically influence the pattern, an ecological approach is required, and then a cross-disciplinary study involving micro-biologists epidemiologists and geographers to name a few will be necessary.

With regards to the analysis of the retrospective data of the people and the community, certain factors influenced the choice of analytical method. The introductory chapters of this study spelt out in some detail, the usefulness of the focus by the geography of health on the ecological approach to the study of diseases in the community. In this instance, the communities range from the urban centres such as Abura, Winneba, FoSu and Dunkwa to the semi-urban centres such as Abura Dunkwa, Kissi and the rural areas of Enyan Abaasa and Ofoase. Within these areal groupings different ecological characteristics could be discerned. Using the results of the Principal Component Analysis it was possible to regroup the emergent units into five. These had ecological characteristics which give rise to or

suppress the environmentally related diseases.

Organisation of Study

The result of these analysis are presented in Chapter Four, Five, Six and Seven. Chapter Four considers the historical significance and the sociopolitical influence on health services in Ghana as a whole. Due to data limitations, this broader view had to be taken. This is followed by Chapter Five which considers the existing systems of care in the Central Region, an assessment of it is carried out through an inventory approach.

The question of the community health care and their health needs-view ecological approach is considered in Chapters Six and Seven.

Chapter Eight, the final chapter, concludes the study with a consideration of the primary health care in the study area and suggest strategies for improving the provision of health services in the Central Region of Ghana.

In summary, this chapter has set out the dimensions of the study, providing basic information on the study area, the Central Region, and the methodological framework used. Detailed information is also given on the data its collection, handling and presentation.

Further discussions are carried out on the ideas of 'welfare' 'local control' and 'need'. The importance of these ideas for an effective health care system cannot be over emphasised and should necessarily form the guiding principles for any health care system.

The idea set out in Chapter Three are employed throughout the rest of the study.

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PART TWO

Health System: Analysis of their nature and content in the Central Region

It is generally accepted that in any country where all the components are available in adequate numbers, the health needs of the population can generally be met. Where these are inadequate, either in whole or in part, there are bound to be unmet needs. The consideration of these components enables us to assess the health care situation in Ghana in general and in the Central Region in particular. This is done in Chapter Five. It also examines albeit briefly, the assertion that the nature of any health service system is a function of the interplay of three factors - the financial status of the country, the sociopolitical co-ordinates and the historical antecedents of the system under consideration. In the process certain elements are isolated as being contributory to the current problems facing the health services in the region in particular. Chapter Four considers the operation of two of these factors, historical and sociopolitical, in shaping the system that exists in Ghana today. In this section a brief consideration is given to the actual components of any health care system. As indicated in Chapter Two, health services comprise five groups of activities undertaken with a view to promote health, prevent illnesses, cure diseases and rehabilitate those that have succumbed to any pathological condition for a long period of time. There should also be care provided for those whose condition is terminal. The health care system, especially in the context of developing countries, takes care of these activities, but in the advanced countries a further extension is made to cover the institutional care of the severely disabled and those

with incurable disease.¹

A health care system can therefore be regarded as a consistent whole in which all the accepted sections work together to provide care and promote health. There is, in addition to the above, a territorial dimension to the health care system as the activities take place in a given area for a particular population, ideally in the context of a community.

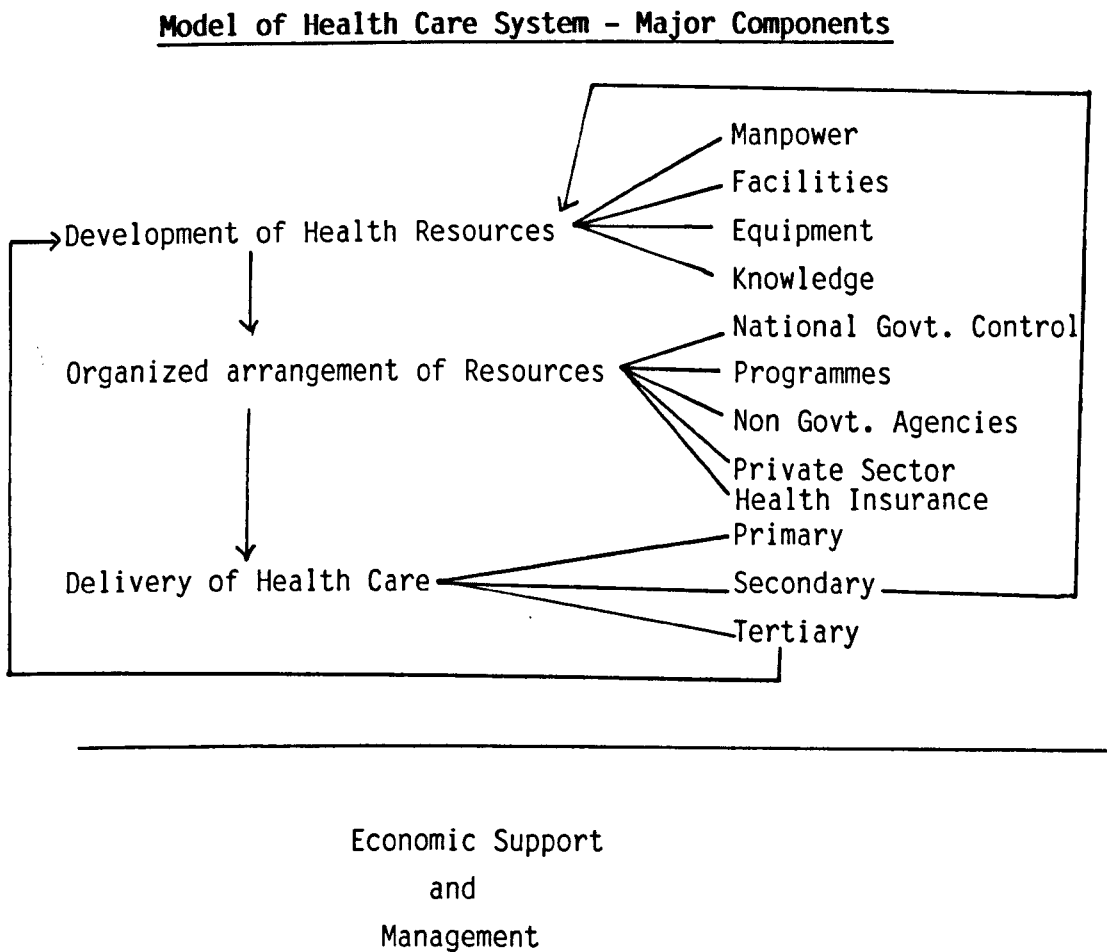
In this study consideration will be given to the structure and functions of the health care system as, well as interrelationship that may exist between them, by employing a model designed by WHO. In 1977, Roemer suggested that five major components constitute what he calls health system but which is referred to in this study as the health care system (henceforth H.C.S). These components are the health resources and their developments, their organisation and arrangements, and the delivery of the services (Roemer, 1977). This has been adopted by WHO and presented below is a modified version of the model, adopted here for the purpose of illustration (Figure, 4.1).

This model is characterised by the progressive movement of health care resources through three stages - the developments of the resources, which follows through second stage, - the organisation of the necessary arrangement needed to keep the resources in operation and ends at a third stage, the systematised delivery of the H.C.S. In addition to this characteristic of progressive movement, there are actual structures physical or administrative, that are embodied by the three components. The health resources, for example, consist of physical, non-physical and human elements. The former include the buildings and other physical units such as large semi - stationary vehicles,

1. For a detailed treatment of this, see Kleczkowski, et al, 1984 "National Health Systems and their Orientation towards Health for all" WHO Public Health Paper No. 77 p. 13 - 16

ambulances, cars and other vehicles; these are collectively known as facilities, the equipments comprising all the technical machines, tools and instruments necessary for treating or rehabilitating the sick. The non-physical element includes health knowledge. This is necessary, if the right procedures and appropriate activities are to be carried out. The human elements of the resources is the manpower necessary to carry out all the tasks of health care provision.

Figure 4.1



The organisation of the arrangement of health resources occurs in an administrative framework; where systems of controls are used to manipulate the H.C.S. The administrative machinery includes national government control, health insurance programmes, nongovernmental agencies and the private sector. It is through the operation of these that the resources are organised.

Third and final stage is the systematised delivery of H.C.S. At this stage, there is a clear spatial dimension. Here, there is the spatial manifestation of the H.C.S. which is again differentiated into three levels of care. Those that occur peripherally and serve even the smallest community necessarily make up the bulk of the system; also known as primary health care, these units provide simple ambulatory care using lower grade personal and a limited range of drugs. These grade into secondary level care provided from hospitals, larger units located at discrete and selected points - here cases are referred from the peripheral levels. The third level care are the specialists hospitals that cater for particular conditions that cannot be dealt with at any of the two levels. As can be seen from figure 4.1, the system is derived from and sustained by the economic support generated by the country and the management expertise brought to bear on the various stages of the H.C.S.

In the study of a H.C.S. therefore, it is crucial that these component parts of the model be scrutinized and examined in order to discover the extent to which the system is meeting human health needs. However, in this particular study, even though a wide view will be taken, emphasis will be placed on specific sections of the model to which our original area of interest - medical geography - is related. Here, we refer to the delivery of H.C.S. The systematised delivery concurs with the ideas of territorial justice, welfare and equality of distribution discussed in Chapter Two, and have become rational concerns of geography

in recent years. The WHO model therefore, provides a useful basis for the analysis of the H.C.S. in the Central Region of Ghana, and several of the variables will be considered in Chapter Five and Seven. The second major concern of this study on the provision of health services in Ghana relates to the purpose for which the H.C.S. is set up. Any such system is to undertake activities and measures aimed at health promotion, the prevention of illness and the treatment of disease. It also provides rehabilitation facilities for people who have suffered under a pathological condition for a long period of time, as well as institutional care for those with incurable diseases and permanent disabilities. Where these activities are incomplete and poor, the people's health status cannot be improved. As indicated in Chapter Two the development of the infrastructure of such a H.C.S. is a function of interplay of three factors: historical antecedents, sociopolitical co-ordinates and financial status of the country; the ramifications of which eventually result in a system that is peculiar to that country. It could be said therefore, that there are as many H.C.S. as there are countries. However, attempts have been made to classify these and results have shown that there are between 6 and 9 classifications (Kohn R. et al, 1976; Elling, 1980; Roemer, 1976).

At the top end of the classification are the advanced affluent countries with a planned and controlled H.C.S., while at the bottom lies the scantily structured health system that is still developing and occurs commonly in the developing countries. In between these two occur the transitional ones. As a poor developing country, Ghana's current H.C.S. can be said to belong firmly to the last class where the system is scantily structured and poorly organised. At this juncture, one is forced to pause and consider the underlying reasons for this poor rating, even though a few decades ago the H.C.S. in Ghana was one of the best in Africa. Here the poignancy of the influence of the three factors

historical and sociopolitical and economic or financial status of the country becomes heightened. As the last, two factors undergo changes, so does the status of H.C.S. in the country; the first factor, the historical factor influences in H.C.S. precisely by way of the introductory antecedents. Hence the need to study and understand the operation of these, particularly the historical and sociopolitical. Health care is a human need and as such in every society ways and means exist concerning how to meet these needs. In the developed countries, the rapid advancement of science and technology has resulted in changing what was essentially an art into a complicated medical science and the revolution still goes on. The current computerisation of the management of pregnancy and child birth in the U.K. and the ensuing debate is a case in point. Also in the developed world the eradication of many communicable diseases and the improvement in the quality of life is also an indication of the advances of medical science.

In the developing world, however, the countries that experienced colonisation, which greatly expanded world interaction, were brought into the ambit of scientific medical care such as it had developed at that time. Its development, following the initial introduction depended on a variety of factors - including the local acceptance of the system, the value that society places on it, vis-a-vis the health needs of the people in the different communities and resources that can be bought to increase the distribution of such care within the country. In order to place the health care system operating in Ghana in general, and in the Central Region in particular, in a proper perspective, the task that this chapter assigns itself is to consider the sociopolitical and historical factors especially and to trace, where the data will permit, the course of development that gave shape to the delivery system in Ghana. The financial aspect, in view of its wide ranging nature, is only briefly considered. The reason for

undertaking this line of enquiry revolves around the way in which the provision of health services has been brought almost to the brink of collapse in Ghana in recent times and the scrutiny under which it came; a scrutiny aimed at finding the source or sources of the problems that seem to plague the system.

There is evidence that the government is not hesistant in pointing to some of these shortcomings, such as the lack of proper integration between rural areas and the urban regional centres, the persistence of many preventable diseases, malaria being the most notable one, the inability to increase coverage to the many rural areas owing to the over-financing of the urban areas health facilities; the list is endless. The recent publication of a report on 'Health Needs in Rural Ghana' indicated that the government health system in Ghana, like many other such services in the the third world, has hitherto been administered but not planned (Inst. of Dev., 1978). A National Health Planning Unit set up in response to that shortcomings, traced the problems of the provision of care to what was termed, model failure (Ghana Health, 1977).

CHAPTER FOUR

THE ORGANISATION OF HEALTH CARE SYSTEM IN GHANA: HISTORICAL AND SOCIOPOLITICAL PERSPECTIVE

INTRODUCTION:

The main thrust of the arguments presented in this chapter is that the health services provided in Ghana in general, have since their inception been based on a wrong set of assumptions and priorities. It also agrees with the conclusion reached by the Ghana National Health Planning Unit which links the problems that brought the H.C.S. to the brink of a collapse with 'model failure' (Ghana Nat., 1977). Details of how this state of affairs has been arrived at and the actual policies pursued by previous governments are provided and supported with some data. It would be beneficial if these details are introduced with a summary of the pertinent facets of the historical and sociopolitical perspectives adopted to examine the problems of health care provision. As was suggested in Chapter Two, health care systems in general are influenced by the three factors which place the care provided into one of three groups. Those that occur under the laissez-faire condition of the free market economy - mostly capitalist system where the concept of 'need' is replaced by the concept of 'demand' as a measure for provision; those that occur in the centrally planned states where health need is considered as one of the basic human needs which must consequently be met as a right, and thirdly, those that occur in mixed economic settings, here there is a certain amount of planning for care but the individual members are also expected to provide for themselves.

The selected option from these three types is as much a result of this country's historical experience as is its economic circumstances and sociopolitical structures. One must point out at this juncture that the historical dimensions of the health care can be more readily unravelled

compared to the sociopolitical, an advantage on which the chapter obviously capitalises. The sociopolitical parameter however, in view of its expansive nature, makes the selection or isolation of pertinent health care elements problematic. As has been previously indicated, certain indices of human rights, justice and fairness lead one to insist on three factors:

- i) That health for all must be regarded as a human right, requiring a high premium to be set on it by society at large.
- ii) Communal egalitarianism or some facet of this (see page), should be the watchword in the health provision - hence the whole community with all members should have equal rights to the same quality of care.
- iii) That accessibility to care is also uniform. Here we have policy of distribution of distribution of facilities in particular and the distances between location of these and population distribution. As it happens other writers have come to the same conclusion. Kohn et al, for example, also isolated three indices which they called, "societal value collectivism" rather than individualism and distributional responsibility. Others such as Press and Terris have identified other criteria, but for our purposes consideration would be given to the extent to which the three items above operate in the health care situation in Ghana today.

As can be seen, not all three elements can be readily quantified and thus some of our conclusions would be necessarily qualitative; but where possible, some attempts at quantification is made. Our emphasis needless to say will be on the factor of distribution of facilities since this is the main geographical focus of the sociopolitical structure which is of direct relevance and which offers the possibility of quantification.

This chapter is therefore divided into two sections. The first section devotes considerable attention to the historical base of the health care

system and from many indications the extant system shows very little variation from what was inherited at independence. That this is so is on account of the operation of the sociopolitical structure which is unable to generate the necessary conditions that would lead to a change in the situation of health care. Ultimately, perhaps one should point to the economic situation as being the major retarding force, but then one could also point to poorer countries who have caused revolutions in their approach to health care provision on the strength of the sociopolitical force.

Historical Antecedents

We start this section by considering the broad features of the introduction of health services in the country in general, and consider specific areas of care provision in some detail in later passages. Hence the search for the underlying reasons for the failures or shortcomings should embrace both the past and the present. The reality which confronts one in many developing countries today is that a genuine health service, answering the needs of all, is yet to be established. A satisfactory explanation of the present characteristics must rest, not solely on the invisible state of affairs in the country at present but also on the historical development. The past remains important until, through the operations of the sociopolitical system, a break is made with the same by reorientating the entire system to serve the needs of all the people.

A consideration of the two major areas discussed above, leads to a logical division of the study on health services provision in the Central Region into four units, each contained in one of the following chapters:

Chapter Four considers the historical and sociopolitical underpinnings of the H.C.S. in Ghana in general. The current status of its provision in the Central Region is considered in Chapter Five. Chapter Six and Seven examine the need for health care by investigating the pattern and

distribution of diseases in the region and at the community level where ecological relationships are observable. Chapter Eight, the concluding chapter considers some of the implications of different facets of the study suggesting strategies for possible orientation of the H.C.S. in Ghana. The missions provide curative medicine and some preventive health care also from health facilities distributed unevenly throughout the country. The commercial concerns include individual physicians who run clinics in various urban centres, large mining companies, banks and manufacturing industries which also provide care for their employees. There are historical antecedents for all these concerns but only a brief consideration will be given these.

Historical Development

As in most historical accounts, the problem always is of where to begin. In this case, the need for brevity makes it necessary to consider only those factors in the development which are of relevance to the present state of health care provision in the country.

As in many parts of the world, the history of medical care is tied to the history of the presence of Europeans during the last two centuries. In Africa, the original interest lay in trade. Many European countries were keen to trade with different countries. The trend which was set in motion in the 15th and 16th centuries on a purely commercial basis culminated in the imposition of political will on the local people by the former trading partners. In West Africa, the European groups which arrived to engage in trade were many - French, Portuguese, Spaniards, Germans, English, Brandenburgers of German origin, Swedes, Dutch, Danish. In Ghana, most of these groups settled along the coast, where they built trading posts in the form of forts and castles. Initially, owing to intense rivalry amongst the different groups, it became necessary to guard these trading posts. Later, the threat of attack from the African trading partners also

increased this need. Each trading post therefore retained an army and each army had its surgeon who saw to the health needs of the people within the fort (map 4.1).

The need for a surgeon cannot be understated for the high mortality of Europeans, especially in West Africa, was a fact which all Europeans, along the coast took very seriously. Though the available statistics on the situation during the 18th century are only approximations, there is an indication that out of every ten European arrivals only four survived the first year. At any one time half of the army would be on admission in the hospital (Gore, 1872).

Indeed since their groups were small, it was difficult to get men to start and carry on missionary activities - most of them died before they had the chance to start (Fox, 1851; see table 4.1). The small dismal story characterised the mining companies. The prospectors arrived and had to hurriedly go through their work and leave the country otherwise they died without accomplishing much. The need for medical care was great.

The only solution was to employ European doctors. This is not to say that African medicine during this time, (17th - 18th centuries), was any less efficacious, but there is always comfort in what is familiar. So European doctors had to be made available in all the forts. In the British forts, small hospitals were set up, and in the 19th century the home government decided to make a subvention to each fort hospital where they were more than six soldiers (Brit. Parl. Papers (BBP), 1816; See table 4:2). At that time there were eight of these hospitals, the largest of which was at Cape Coast and the smallest at Tantum Quarry; both of these towns are within the present Central Region. Thus the introduction of European medicine to Ghana was a necessary pre-requisite to the successful settlements of Europeans in tropical Africa. Indeed the system of hospital treatment was a reflection of what existed in Europe, in this case in

Map 4.1

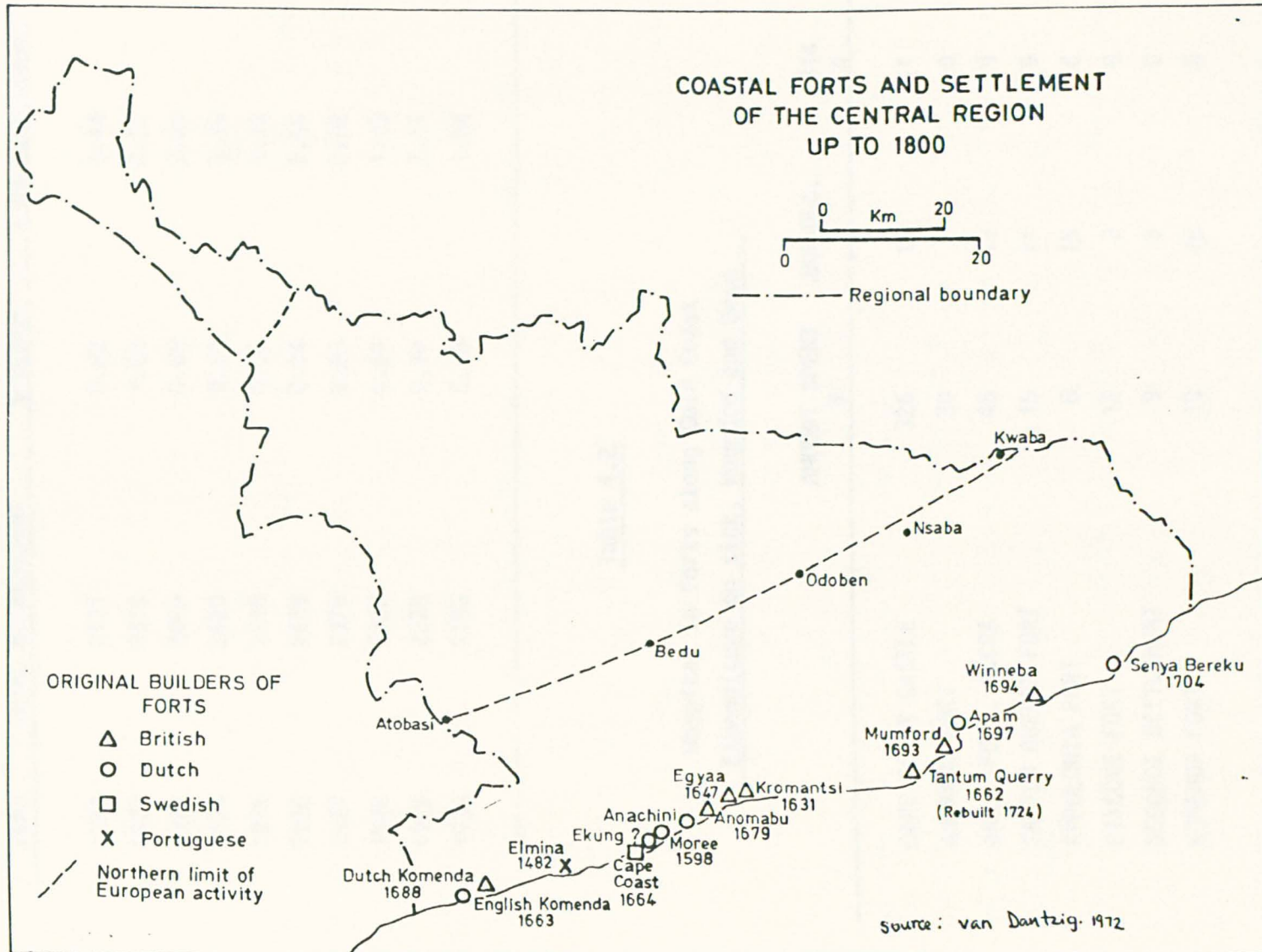


Table 4.1

European (non Officials) Death Rate 1921 - 1930

<u>YEAR</u>	<u>TOTAL NO RESIDENT</u>	<u>% DEATH</u>	<u>% ON SICK LEAVE</u>
1921	2171	0.82	2.44
1922	2019	1.23	2.27
1923	2049	0.68	2.68
1924	2020	0.59	3.26
1925	2110	0.66	3.12
1926	2435	0.94	2.66
1927	2375	0.88	2.02
1928	2328	0.94	1.33
1929	2370	0.80	2.11
1930	2195	0.68	1.54

Table 4.2

Hospital in forts along Gold Coast
Expenditure on sick, Wounded and Dead

	<u>AMOUNT SPENT</u> <u>£</u>	<u>JAN-DEC.</u> <u>s</u>	<u>1814</u> <u>d</u>
CAPE COAST CASTLE	326	15	11
ANOMABU FORT	30	1	0
JAMES FORT, ACCRA	45	13	9
TANTUM QUERRY FORT	15	11	9
APPOLONIA FORT	8	15	6
DIXCOVE FORT	12	2	0
SECONDE SETTLEMENT	9	3	0
KOMENDA FORT	10	16	6
	458	19	5

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Source: BRITISH PARLIAMENTARY PAPERS, 1814 - 1819.

Britain - and as changes occurred in the medical practice in the latter country, these were subsequently reflected in the fort hospitals.

The second factor which helped to bring about European participation in African health care was their employment in the forts to serve as soldiers and augment the number of Europeans. However, since these soldiers (orderlies more than anything else) were also prone to fevers, not to mention worm infestations, hospital facilities were extended to them. There was a second group of Africans employed in the forts, clerks and tradesmen, masons, carpenters, printers. Of this group the clerks seemed to have been most favoured, their tasks involving keeping memoranda, copying letters and accounts and occasionally overseeing the loading and unloading of cargo. These clerks rapidly imbibed European values and attitudes; their use of European facilities raised their status in society so much so that hospital records of almost a century later still had a section devoted to information on African Government Officials. Some of the reports indicated that they had a better health status compared with the rest of the African population.

In addition to these Africans who were treated in the fort hospitals by virtue of their employment, there were some Africans who requested the European doctors for treatment (Skertchly, 1840). There is mention, for example, of a Dr. Paul Isert, a German doctor in the services of the Danish group in Accra, who was widely known, and the Asantehene (King of the Asante) in Kumasi often sent his sick relatives to him for treatment (Debrunner, 1963).

It is clear that, before the beginning of the 19th century, there were Africans who were using the European health facilities but they were very few. Moreover, the majority of them did not abandon their own type of care. Indeed there are accounts which indicate that in earlier years they encouraged their employers to avail themselves of African medicine (Bosman, 1709). Though it has not been possible to discover in detail the reaction of the African medical men to this incipient European

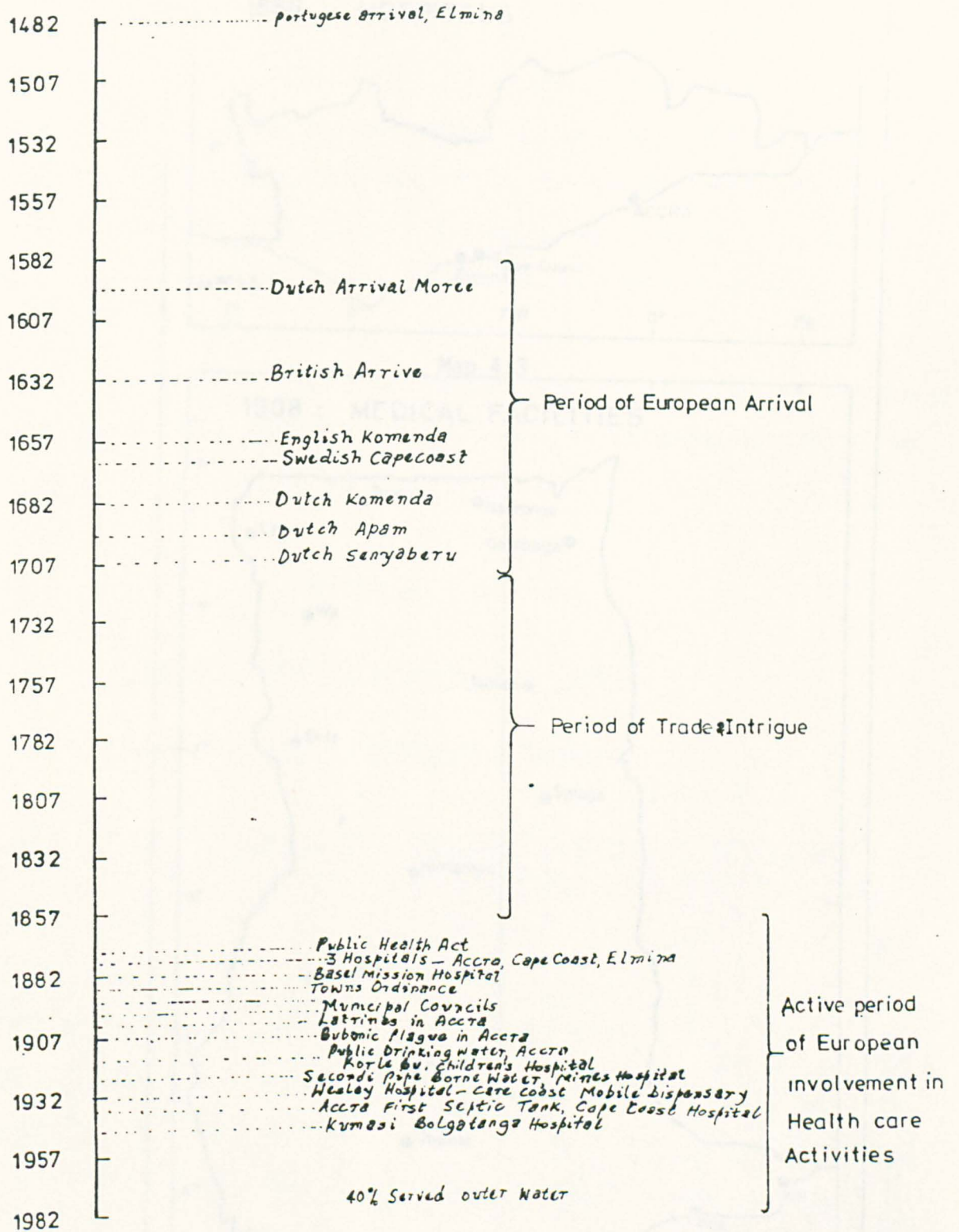
encroachment on their art and livelihood, there is evidence to suggest that some of them felt threatened by it and did not hesitate to show their displeasure (Skertchly, 1840). Indeed even in this century it has not been uncommon for local healers to follow their former clients and patients into hospital and threaten them there (Asuni, 1980). A century has passed and the traditional medical practice is still in existence regardless of the stronger position of modern medicine. In Ghana traditional medicine is now making an even stronger impact than it has done for several years. The high cost of hospital fees coupled with the few¹ facilities have helped traditional medicine especially with regards the use of herbal preparations.

The third factor which acted decisively in the extension of the use of the European facilities was the assumption of political power by the Europeans - British and Dutch - and their subsequent interest and direct participation in African affairs. The first area to come under this political control was the southern coastal area part of which forms the present Central Region. After buying out the Dutch, the British declared the area a colony, called the Gold Coast (Map 4.2). It was in this area that the first makeshift hospital was set up for the Africans who chose to avail themselves of European facilities. Meanwhile, a series of wars with the kingdom of Asante, lasting several decades, finally came to an end with the defeat of Asante in 1901. The Asante Kingdom was quickly annexed to the colony to be jointly administered. After the First World War, the northern lands beyond Asante were also annexed to create what became Ghana in 1957 (See Fig. 4.1).

These were the factors that underlay the introduction of health facilities to this part of the West African Coast. Initially the facilities were small hospitals mainly contained within the forts and castles, their use being confined to those who had access to them. Later, the efforts

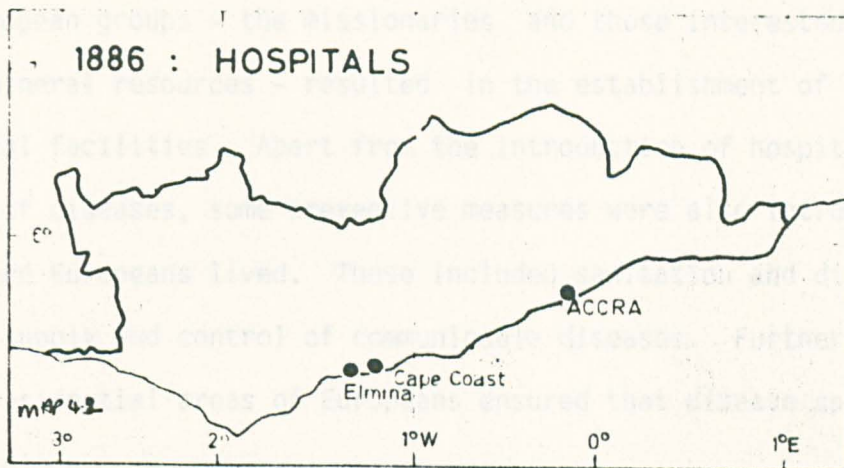
1. See West Africa July 15th 1985 - Hospital fees

FIG.4.2 Chronology of events consequent to European presence in Ghana 1482-1957



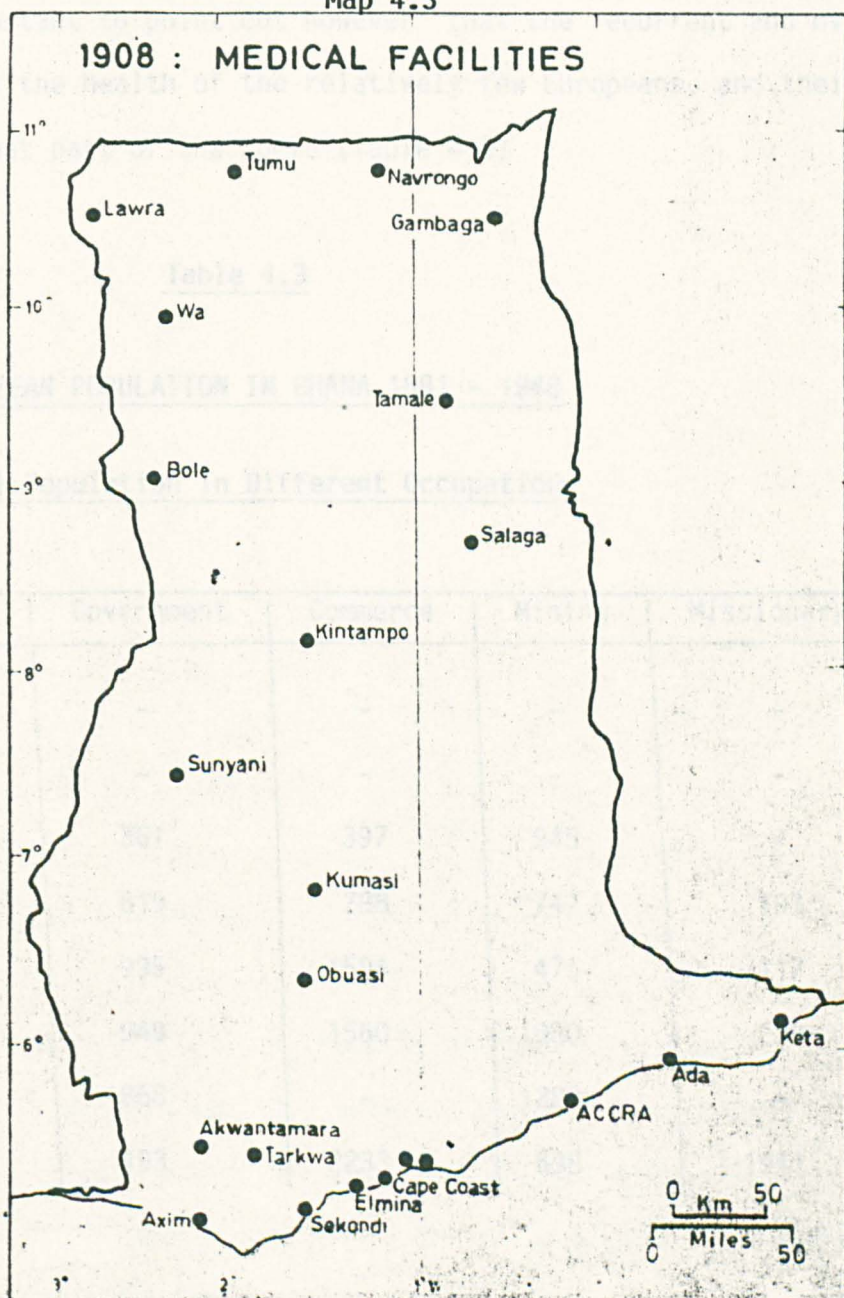
GOLD COAST COLONY

1886 : HOSPITALS



Map 4.3

1908 : MEDICAL FACILITIES



of two other European groups - the missionaries and those interested in exploiting the mineral resources - resulted in the establishment of additional medical facilities. Apart from the introduction of hospital-based treatment of diseases, some preventive measures were also introduced in the areas where Europeans lived. These included sanitation and disposal of waste, water supply and control of communicable diseases. Furthermore, the segregated residential areas of Europeans ensured that disease spread was kept to a minimum.

It is important to point out however that the recurrent and overriding concern was with the health of the relatively few Europeans, and their need to survive in that part of the world (Table 4.3)

Table 4.3

EUROPEAN POPULATION IN GHANA 1891 - 1948

Total Population in Different Occupations

Year	Total	Government	Commerce	Mining	Missionary
1891	493	-	-	-	-
1893	436	-	-	-	-
1900	1806	361	397	945	-
1911	2274	619	788	747	103
1921	3181	995	1594	475	117
1931	3868	949	1560	1080	279
1940	3601	868	-	1280	-
1948	3618	493	2233	698	1941

Their welfare was paramount and their small numbers, coupled with the availability and their control of funds, made provision of services to meet their specific needs possible. Table 4.4, for example, gives some indication of some average daily expenditures on patients - European and African. Meanwhile, scientific research was being carried out to find out about the nature of parasitic and vector-borne diseases.

Table 4.4
AVERAGE COST PER IN-PATIENT PER DAY

' YEAR '	EUROPEANS		' AFRICANS '	
	s	d	s	d
1927	6	4½	0	10
1928	5	4½	1	1
1929	5	5	1	2
1930	5	0½	1	1½
1931	3	6	0	6½
1935	3	0	0	6
1936	3	7	0	4
1937	3	0	0	9
1938	4	6	0	5½
1953	7	2	-	-

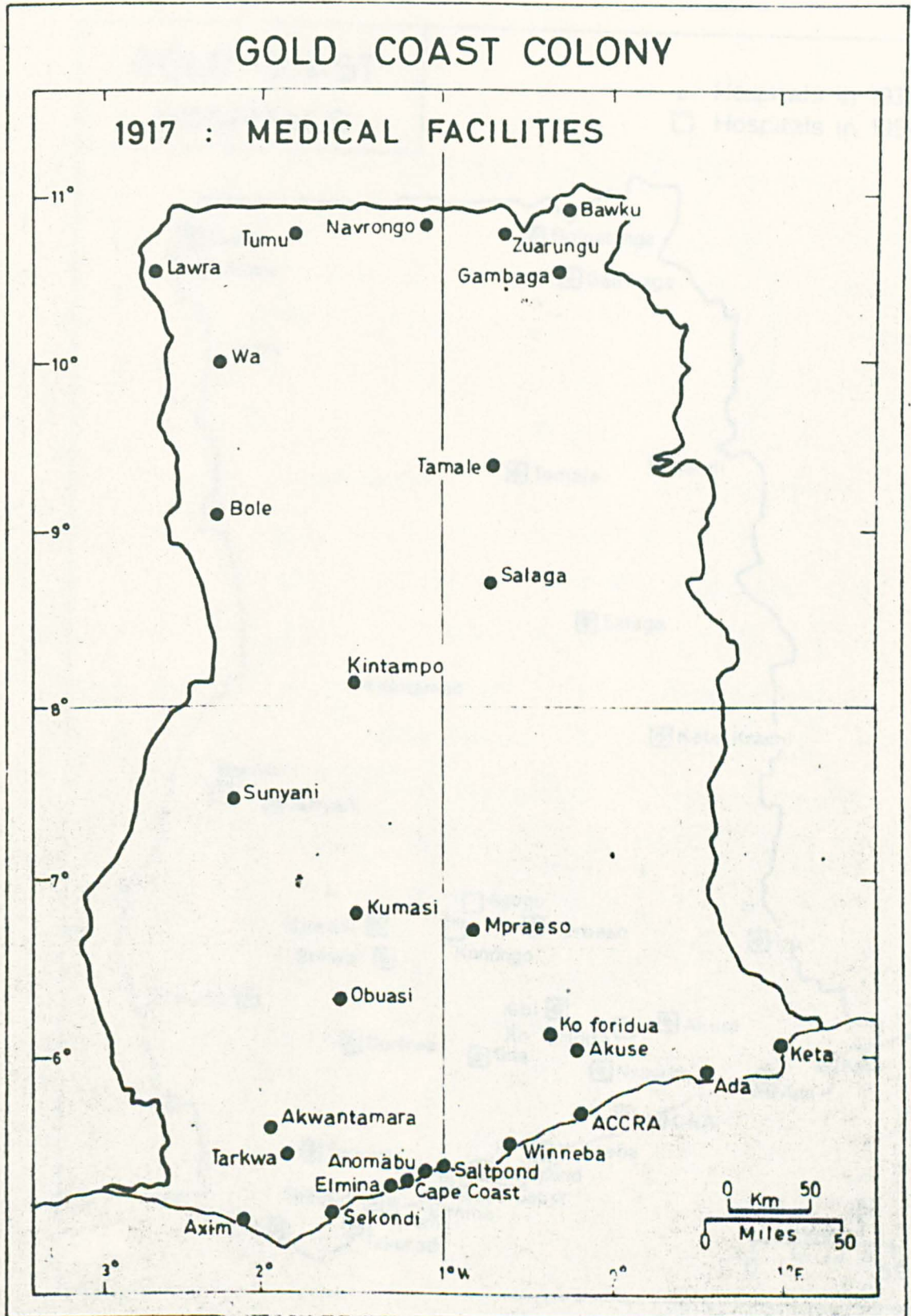
The initial growth of medical facilities and public health in the area known today as Ghana therefore, owes its existence to European effort. In looking at the development of health services, therefore, it is possible to trace out phases of growth from about the 1870s to the 1950s when the country was declared independent.

The Provision of Services

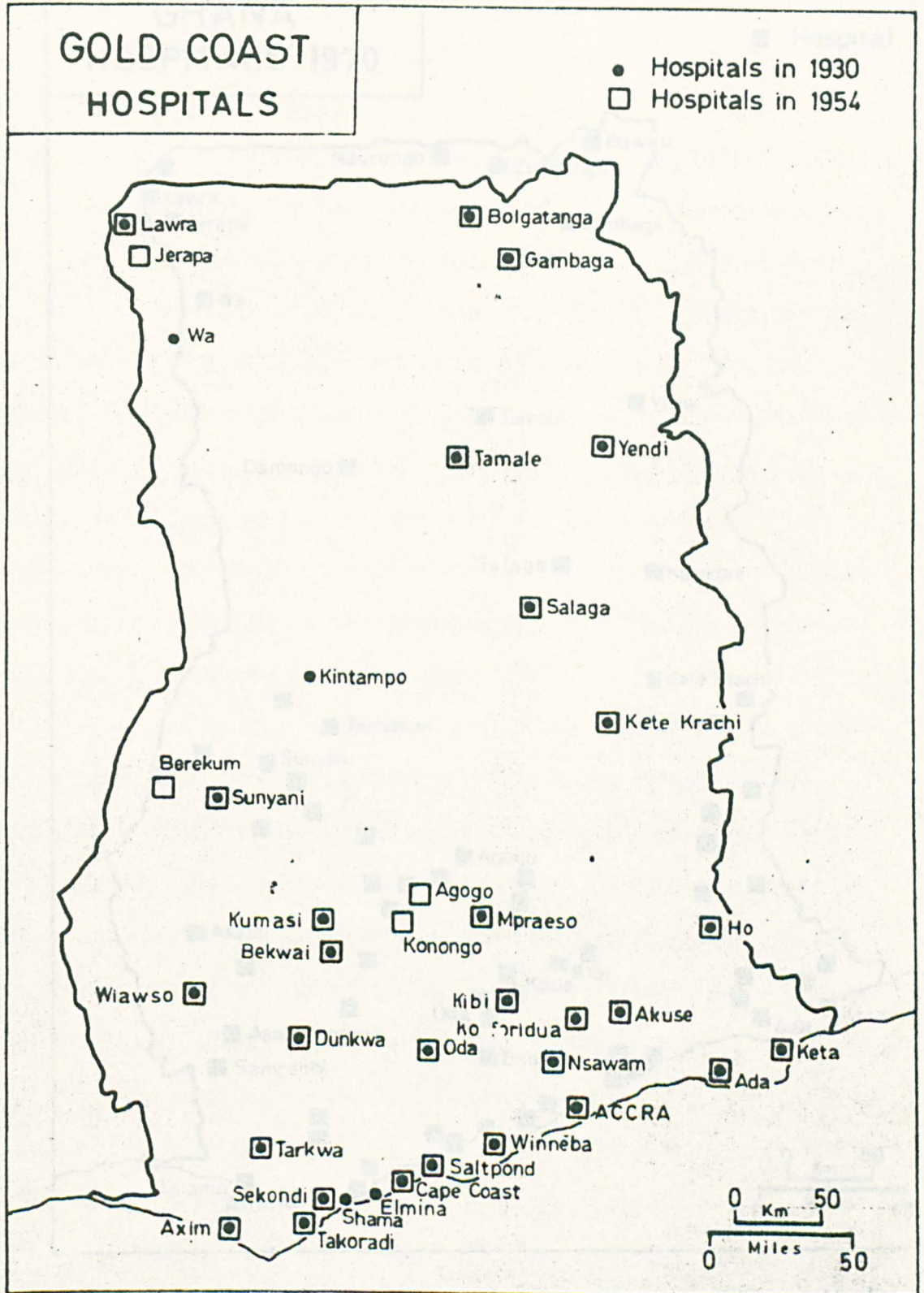
The early period began in 1874 with the building of hospitals in Accra, Cape Coast and Elmina. By the beginning of the twentieth century, more towns had been added to the list of those where European-type of medical care was available. The 1920s proved to be the period of great activity in hospital building, continuing into the 1930s. The outbreak of the 2nd World War interrupted further expansion, though in the early 1950s the pace picked up again, before political changes brought an end to British rule. Maps 4.4 - 4.6 shows the growth in hospitals. On the whole increases in the facilities has been qualitative, the pace being dictated by the resources and funds available to build, staff, operate and maintain the facilities, considering the important fact that most if not all, of the inputs, had to be imported..

The important feature which characterised the provision of these services was that until the end of the Second World War, health care provision was comprised mainly of hospital construction, situated within the towns where Europeans lived. The first departure from this situation was through the arrival and survival of a Wesleyan Missionary, Thomas Freeman, in January. 1833. Though he had no medical training, he started the first African dispensary in Cape Coast. The Basel Mission also had difficulty getting started but following the investigation of health problems in the latter part of the 1880s, a doctor, Dr. Fisch, and some nurses were sent out to start medical work. Their first hospital was set up at Aburi, and later Akropong, in the Eastern Region.(Smith, 1966). Here the climate was agreeable to Europeans, the town being situated on a ridge. Later two more stations were set up, at Christiansborg in Accra and Odumasi in the Eastern Region (Guggisberg, 1927). The Catholic Church Mission did not start until towards the end of the 1800s. The first group to run small clinics for Africans were the Lyons Fathers who concentrated

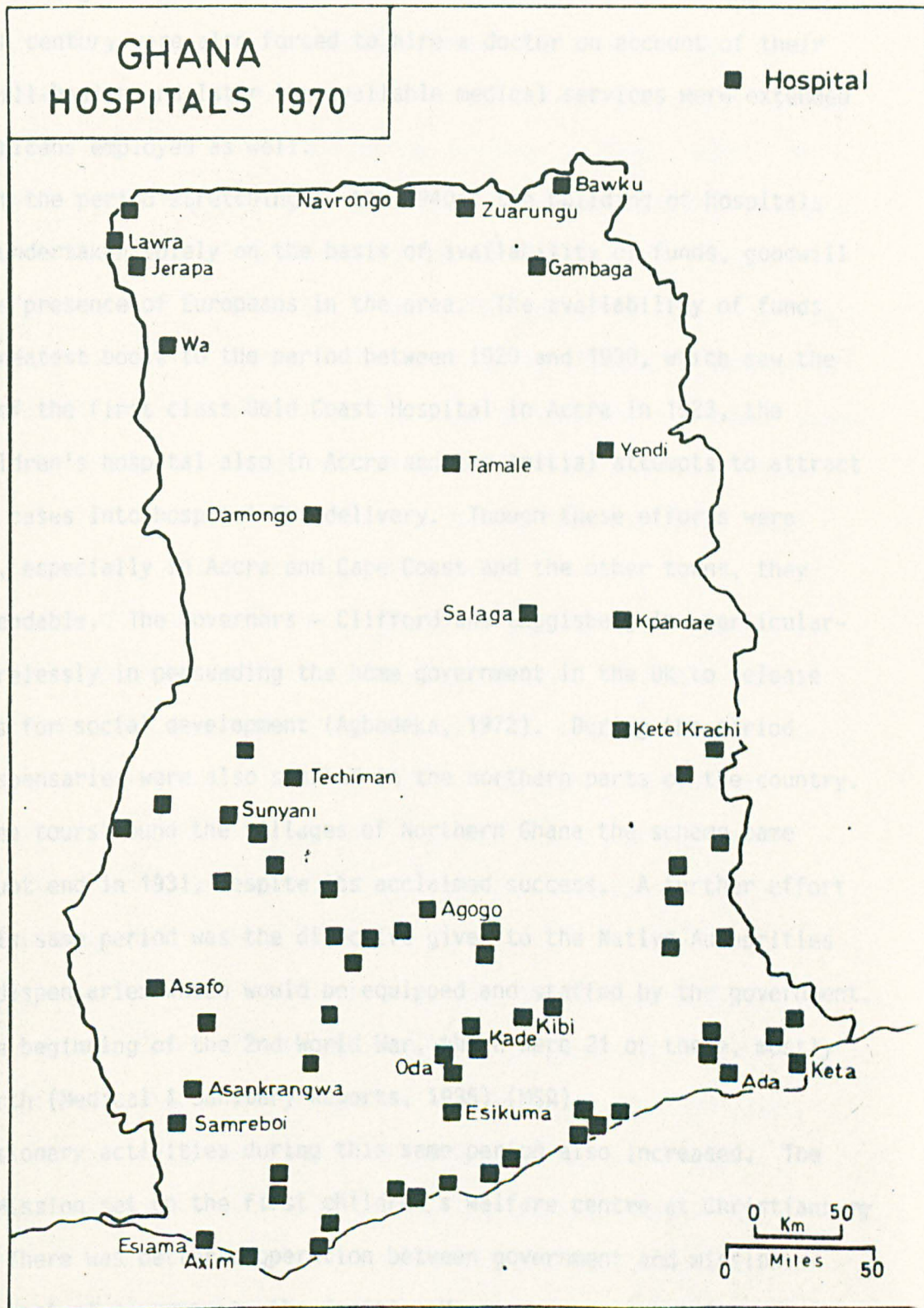
Map 4.4



Map 4.5



Map 4.6



their efforts in the northern lands.

The mining companies which started work in the middle of the nineteenth century were also forced to hire a doctor on account of their constant ill-health and later the available medical services were extended to the Africans employed as well.

Throughout the period stretching to the 1940s, the building of hospitals had been undertaken solely on the basis of availability of funds, goodwill and on the presence of Europeans in the area. The availability of funds was the greatest boost to the period between 1920 and 1930, which saw the building of the first class Gold Coast Hospital in Accra in 1923, the first children's hospital also in Accra and the initial attempts to attract maternity cases into hospital for delivery. Though these efforts were localised, especially in Accra and Cape Coast and the other towns, they were commendable. The Governors - Clifford and Guggisberg in particular - worked tirelessly in persuading the home government in the UK to release more funds for social development (Agbodeka, 1972). During the period mobile dispensaries were also started in the northern parts of the country. After three tours round the villages of Northern Ghana the scheme came to an abrupt end in 1931, despite its acclaimed success. A further effort during this same period was the directive given to the Native Authorities to build dispensaries which would be equipped and staffed by the government. Before the beginning of the 2nd World War, there were 21 of these, mostly in the north (Medical & Sanitary Reports, 1935) (MSR).

Missionary activities during this same period also increased. The Scottish Mission set up the first children's welfare centre at Christianburg in 1922. There was better cooperation between government and mission. At the request of government, the Scottish Mission set up a similar centre at Abetifi in the Eastern Region. A new hospital was completed at Agogo by the Basel Mission. The Catholic Mission also built hospitals at

Fosu in the Central Region, at Battor in the Volta Region and at Eikwe in the Western Region with a few more in the Northern parts of the country.

The mining group further, developed their facilities. The high rates of death amongst the recruited miners was a cause of concern in the UK parliament and so an investigation was ordered (Simpson, 1924). This revealed that the living conditions were appalling, water supply inadequate and polluted; there was a high incidence of tuberculosis and silicosis, together with hookworm infestation. The changes which followed this report included the passing of a Mining Health Area Act in 1925, an extension of hospital facilities to the African Miners, and permission for miners' wives to live in the camps. The last had been expressly forbidden. By 1930, the number of mines hospitals had risen to 12 and other Africans, apart from the miners, were being permitted to attend.

The period of the 2nd World War naturally saw far less activity in hospital building but a few facilities were developed. There was the building of the Cape Coast hospital for example in 1939, another one being started in Sekondi-Takoradi in the same year. However, shortages of materials and staff - all of which come from the United Kingdom meant work had to be interrupted. Furthermore, some of the civilian hospitals had to be taken over for military use.

At the end of the war, new plans were made for further development in hospital construction - Kumasi was to have a big hospital, 400 beds - Bolgatanga, a northern town was to have a 60-bed hospital; other towns included in this surge of development were Hohoe, Tamale and Yendi. Furthermore, several extensions were made to the existing hospitals; an x-ray unit was added on to the Cape Coast hospital for example, new kitchens were built for Accra Mental Hospital.

Table 4.5

POSITION OF STAFF IN HEALTH SERVICE FROM 1891 - 1978

<u>Year</u>	<u>No. of doctors</u>	<u>No. of nurses & Midwives</u>	<u>No of Dispensary & Pharmacists</u>	<u>No. of Dentists</u>	<u>No. of Sanitary Inspectors & Health Workers</u>
1891	18	29	-	-	-
1893	18	29	8	-	13
1895	21	29	12	-	18
1911	67	60	34	-	-
1921	51	79	60	1	-
1925	71	119	-	-	-
1935	76	270	103	2	125
1953	209	2393	-	-	-
1960	141	2692	230	-	-
1964	565	4870	-	36	410
1966	597	4972	-	39	490
1967	533	5054	357	35	516
1970	667	10162	350	41	1015
1976	1224	11776	-	-	-
1978	1338	18216	587	243	67

Source

Annual Report of Medical and Sanitary Department 1891 - 1955.
 Annual Report of Ministry of Health
 Ghana Official Handbook
 Medical Register for Ghana.

On the political scene, things were moving differently. In 1948 following initial unrest started by ex-service men, who had fought on behalf of the U.K government, agitating for pensions, other factions joined in. Finally, it was decided that self-government would be granted, and in 1951 a coalition government was formed between the Africans and the British. Events took on a new pace. A commission of enquiry into health needs was set up, the first of its kind. The commission recommended the building of small facilities or health centres. The first one of these was constructed in Kpandu in the Volta Region and by 1955 there were three more at Tumu, Bimbilla and Effiduasi. To date there are more than 70 of these units in the country in addition to health posts, yet smaller units. Recently it has been suggested that the health posts would be converted into health stations. Table 4.5 gives some indications of the increases in facilities and staff of the health services.

As has been demonstrated, the provision of health services has proceeded in piecemeal, not intergrated, fashion. The urban areas were provided for first, and the Native Authorities were left to shoulder the responsibility for the rural areas. It was not an easy providing hospital and other health institutions. The political situation, coupled with the general attitudes of both the Europeans and Africans - of governors and the governed - hardly allowed a spirit of cooperation to exist. In many cases the Africans viewed the government with mistrust and various factors contributed to this. Thus the entire effort at putting up the health facility infrastructure was left for the government to carry out. In view of the thousands of small villages and the many towns, it is difficult to see how anything but a patchy service could develop. In any case, following independence in 1957 the entire government set-up was handed over to an African cabinet and the task of nation building passed into the hands of Africans. Hospital building and the construction

of health facilities continued in the same fashion. There are at present a total of 69 hospitals in the country, Korle-bu in Accra and Komfo Anokye in Kumasi being the two largest teaching hospitals. Increasingly, construction has become more expensive; equipping the units and staffing them are even more problematic. Between 1980 and 1985, the health services faced a major crisis. There were problems with obtaining drugs and dressings which led to drastic reduction in the number of people who utilize the hospitals. As one district Medical Officer noted during 1980, the total numbers of patients seen was less than he had been used to seeing in two months.

Public Health

In addition to hospital building, public health was also focussed on. A Department of Medical and Sanitary Affairs had the responsibility of seeing to whatever public health measure was deemed necessary. The Sanitary Section of the department was later changed into the health branch as the number of staff increased, and their specific tasks included undertaking sanitary measures like building of public latrines, construction of drains and disposal of refuse. In addition, the provision of water supply was under their direction. The control of communicable diseases was another important area that the department took on. As the years passed, one disease after another was added on to a list of diseases that were being kept under surveillance and various measures were undertaken to effect their control.

By the 1920s among other duties that were under the directions of the Health Branch was the care of children, especially babies and pregnant women. It is important to point out that most of these duties were often in line with those prevailing in the U.K, with slight variations.

In the Gold Coast, the first sign of public health legislation

appeared in 1878 when a Towns Police and Public Health Ordinance was passed. This was designed to prevent weeds from growing near towns, and to prevent the building of houses on open spaces within the town, as well as control of houses on open spaces within the town, together with control of public latrines and refuse (Dickson, 1970). As the law stood, it applied only to the towns where the administration had some control, with the help of the Police Force. Unlike the U.K system where the Central Government granted loans to the local authorities to help to finance the sanitary development, in the Gold Coast a 'Town's Ordinance' of 1892 provided that public revenue should be collected by the towns and used for the provision of health and sanitary facilities. In 1894, another ordinance was passed to set up municipal councils in the larger towns and these took over the task of providing health and sanitary facilities. Today these councils still manage their sanitary needs, but there is yet to be a consistent development in any one town in the country. The only exception is Tema - a relatively new town, built towards the end of the 1950s - where there is a complete and comprehensive sewage and water supply system.

In Accra, for example, it took an outbreak of Bubonic Plague in 1908 for the government to wake up to its responsibility towards proper sanitation. A report of a committee set up to inquire into the outbreak of the plague pointed to the town council as having failed in its sanitary duties (Simpson, 1909). It was only after the appointment of an Improvement Committee charged with the responsibility of taking care of Accra's problems, that the first public drinking water fountain was opened in 1910, yet it had been under consideration since 1894 (CMD. 4718). By 1926, only one other town - Sekondi - had been provided with water and three others were under consideration (Cape Coast, Kumasi and Tamale). Today, the process of bringing safe drinking water to towns and

villages still continues. Most towns now receive their water from pipes the majority of a town's population drawing from public stand pipes. Altogether, less than 40 per cent of the population is served by pipe-borne water; the situation is precarious in the rural areas where only 6.5 per cent of all such areas have pipe-borne water.

As in the U.K in 1848 the local authorities were allowed to appoint inspectors of nuisance and medical officers of health, to supervise and control the general sanitary reforms; the administrators also appointed such inspectors and doctors on the Public Health Boards (Smith, 1979). There were three such appointments made for Accra, Cape Coast and Sekondi by the end of the first decade of the present century. Where there were not enough doctors, the regional medical officer carried out the task of supervising the public health needs of the town. The duties of the inspectors of nuisance or sanitary inspectors consisted of house to house visitations, checking on general cleanliness but more importantly for the presence of standing water in which mosquito larvae could breed. Convictions often resulted in fines or imprisonment.

Another measure taken to provide for sanitation was the introduction of public latrines using pans. In 1894, there were about ten towns where these had been provided (CMD. 4710). The numbers of latrines for these areas increased unevenly. Accra for example had in 1926 106 added to the 17 in 1894, though Cape Coast had increased by only 13 during the same period. Two other towns - Sekondi and Kumasi - had 60 new public latrines by 1920; these two towns seem to have done better than most. Kumasi's Public Health Board was the most progressive, having on it private Africans who contributed towards the town's development. Septic tanks and modern toilets were first introduced into the government bungalows, offices and schools in the 1940s. Today these are still only available in some of the homes in the towns; the rural areas are yet to see them.

Table 4.6

**PROSECUTIONS AGAINST INSANITARY CONDITIONS AND
SANITARY DEPARTMENT. 1894 - 1928**

<u>Year</u>	<u>Town</u>	<u>No of Prosecutions</u>	<u>No. of Convictions & Fines (for 1928)</u>	<u>No. of Imprisoned</u>
1894	Accra	671	92	2
	Cape Coast	355	277	-
	Kumasi	-	-	-
	Winneba	307	239	23
1920	Accra	1822	855	-
	Cape Coase	196	140	-
	Sekondi	560	215	-
	Kumasi	470	826	-
1922	Accra	2584	1046	-
	Cape Coase	273	217	-
	Sekondi	486	137	-
	Kumasi	955	1679	-
1928	Accra	4111	£1,462 18s 6d	-
	Cape Coase	818	376 16 6	-
	Sekondi	682	228 19 6	-
	Kumasi	3859	1,204 17 6	-

Source:

M & S Reports 1894, 1920, 1922 and 1928.

By far the most difficult sanitary measure to bring under control is refuse disposal. Again, the Town Councils provide sites on which refuse could be tipped and then burnt; but today most sites are too small and refuse is allowed to pile up before being disposed of. These tips are poorly maintained and naturally provide breeding grounds for vermin and parasites.

In addition to the above, another sanitary measure was the building of drains in some parts of the towns (See table 4.7). Owing to their uncovered nature and the rather limited areas in which they exist a comprehensive drainage system seems to be along way away. Originally earth drains were constructed but these proved difficult to control. The later ones were cemented over, though their cost meant the schemes were confined to the towns, beginning from Accra in the 1920s with similar schemes initiated in Takoradi, Cape Coast, Kumasi, Tamale and Sekondi in 1938.

Table 4.7

A SAMPLE OF DRAINAGE ACTIVITY UNDERTAKEN IN 1921

Station	Masonry	Drains	Earth	Drains
	Lineal Yards	Lineal Yards Constructed	Lineal Yards Cleaned	Lineal Yards Dug
Accra	44,975	2,811	61,954	10,325
Cape Coast	22,016	672	6,953	670
Secondee (Sekondi)	38,969	500	9,004	7,233
Coomassie (Kumasi)	11,339	1,177	-	-

The task of providing good drainage measures was considered important owing to the role played by standing surface water in the breeding of malaria mosquitoes. Again in the towns, other measures taken included draining marshy areas and reclaiming the land. The Korle Lagoon in Accra and the Butaoh Lagoon in Takoradi were partly reclaimed and parts were properly connected to the sea to ensure free flow; also it appears that the mosquitoes did not breed in the salty sea waters.

During the Second World War years, there were increases in the number of Europeans and Americans living in the Cape Coast. Further schemes were therefore initiated by the fighting services personnel to control Malaria. A board set up for this purpose (The Inter-Allied Malaria Control Board) cut 170 miles of drainage channels in Accra alone; owing to shortage of staff etc. large stretches were covered up or just left unmaintained.

By 1955 the malaria control services had come to a stand-still. The political climate had forced the retirement of most of the European staff slowing down the pace of development.

In addition to these various sanitary measures, the Public Health Department was concerned with disease control, either during epidemics or at endemic sites. Of the endemic diseases e.g. yaws and malaria, the latter was the one to receive extensive attention. All sorts of measures were undertaken. As early as the first decade of the twentieth century, a Mosquito Ordinance was passed making it an offence punishable by fines and imprisonment to harbour mosquito larvae. By 1928, in addition to drainage schemes chemical spraying was also tried. The chemical, paris green mixed with wood ash had a toxic effect on the mosquito larvae. Even fish predators were introduced in some areas to see how effective this approach would be in the control of disease.

Furthermore, attempts were made at controlling infectivity in the population. This involved the use of quinine tablets sold through the

post offices during the 1920s. All these were attempts made to control malaria. It is important to bear in mind that if these attempts failed to check the disease, it is not for the want of effort. The reason may well lie in the limited area over which the effort was applied, the uncoordinated approach and the lack of sufficient awareness and enthusiasm which would help the majority of the people to become involved in the operation of the schemes.

Fortunately it has not all been failure. The control of smallpox is a global success story; here the early discovery of vaccines made protection possible and hence an easier course of control could be worked on. Smallpox had been a difficult disease to control. The earliest reported effort was that of Dr. Africanus Horton, a colonial surgeon attached to the British forts, who made some attempts at getting people vaccinated. Control proved difficult until the latter half of this century when with the World Health Organisations massive contribution, smallpox was eradicated.

During the colonial period, a system was introduced whereby certain infectious diseases had to be reported and a reporting network was set up. This system helped to keep watch over the spread of disease. Like many of these public systems the sanction of an ordinance proved inadequate though occasionally personal appeals were made.

Among the tropical diseases, yaws has been a difficult disease to control. It was described as a 'primitive African disease par excellence; it appears to yield to control measures only to reappear' (M&S Report p. 26). Its treatment is just as problematic, various preparations have been recommended for it but none seems to effectively clear it. An early attempt to control yaws was made in 1943 - 49 when a campaign was carried out on a large scale with funds from Colonial Development and Welfare. Following the recommendations of one of the doctors - in the Northern

Region - it was decided that whole villages would be mass treated for two years rather than wait for patients to come forward for treatment voluntarily. For nearly eight years the effort was maintained, interrupted only by shortage of funds. This situation was remedied by the World Health Organisation and UNICEF and the campaign was carried on uninterrupted for nearly five years. The disease prevalence rates were brought down to very low levels at the beginning of the 1950s. However, by the 1960s its prevalence was rocketing again, and some hurried attempts were made to control it. Yet prevalence has again increased during the past few years (See Table 4.8).

Table 4.8

GHANA: CASES OF YAWS FROM 1926 - 49; 1969 - 1980

Year	Numbers of Cases
1926	6126
1938	75519
1940	68986
1943	143336
1945	155068
1949	143265
1969	5343
1972	22199
1973	43766
1975	59926
1977	53815
1979	47944
1980	56604

The problem with yaws is that it is embedded in the insanitary conditions in many rural areas and, since these are not dealt with, the bacteria carry on infecting people, regardless of the approaches adopted by the Health Authorities.

Another disease which was given attention during the time of the yaws campaign was trypanosomiasis. This was a disease particularly widespread in the northern parts of the country. The Control activities were concentrated first in Northern Togoland which is now in the Volta Region, and slowly moved down to Brong Ahafo. This region finally became the base of the campaign team whose position was formally consolidated as a permanent unit which came to be known as the Medical Field Unit, with headquarters based at Kintampo.

During the 1950s the work of the team was extended particularly after the Maude Report. Diseases which were to be later tackled included smallpox cerebrospinal meningitis and then schistosomiasis. It has to be indicated that the work of this unit, though it was originally hoped it would be sufficiently widespread to make an impact on the distribution of disease within the population, remains very limited. With exception of yellow fever and smallpox, for which external help was given, no eradication or even substantial reduction has occurred.

The widespread nature of the unsatisfactory state of sanitation in much of both urban and rural Ghana make target control without substantial sanitary improvement fruitless. The persistence of environmentally related diseases demanded that something be done. One suggestion was to resort to ordinances and regulations, some reckoned that education and the raising of peoples awareness would take too long. "A Public Health Ordinance which imposed both a communal and a personal obligation would do much to help the situation ..." (M&S Report, 1938 p. 30). Furthermore the Africans, being often thought of as apathetic and

indifferent, were seen as stumbling blocks to progress in the bid to improve health, but these still have to be met by prosecutions and fines.

Considering the current prevalence rates of many of the diseases, it can be appreciated that these measures would have provided only a partial solution and a minimal one. The need was to change living conditions the lack of proper toilets and latrines, the uncontrolled disposal of refuse, the unprotected water sources, the mud damp floors and favouring bacteria. The three terminal areas - Accra, Takoradi and Kumase have the largest number of facilities and are better equipped as well. The rural areas were largely left to fend for themselves. These peculiarities still persist today.

Another problem arising from the nature of its origin was the dependency of the health care system on an overseas market for its survival. The inputs for its smooth running in the past were obtained from the United Kingdom and, even at present, much of these inputs ranging from high technological appliances to simple basic ones (stethoscopes, syringes, beds, mattresses, furnitures, lighting, drugs and dressings) have to be imported. The supply base of the health care system is externally derived. There is at present no infrastructure for maintaining the health care system's needs within Ghana.

For example, the case of drugs and dressings has been one of the country's main headaches and a drain on foreign exchange. Yet it is ought to be possible for many of the basic drugs to be manufactured locally. As early as the 1890s when Dr. Farrell Easmon, a Sierra Leonean, was in charge of the medical department of the Gold Coast, he encouraged the preparation and use of African medicine and such a practice could have been incorporated into the system encouraging research and developing manufacturing and storage processes. But it completely stopped when he retired. Even though a pharmaceutical corporation was set up in the 1960s

it has not been able to supply even the most basic drugs due to lack of foreign exchange to import the raw materials. The recent scandal concerning the purchasing of drugs by the government officials, and the proposals to start drug manufacturing in Ghana, all go to emphasise this point. Meanwhile, various Ghanaian associations have been formed in Europe and America to help raise money for the purchase of drugs, dressings and hospital equipments for Ghana (West Africa, 1982).

There are problems facing the health care system in Ghana but should one blame the past for all the ills, considering that Ghana has been independent since 1957? The past, of course has helped to define the area of operation, the nature of the operation and the methods to be used. It should have been possible for the government and the administration to change the situation at independence. That, this did not happen is a fact which will be considered in the following section.

The Administration of Health Services

The health services provided are divided into two sectors, public health and curative care. The former is designed to provide for the general public such services as environmental sanitation, epidemiological control of diseases, child and maternal services. Curative medical care deals with the sick who have need of medical intervention. Even though hospitals operate every day of the year, only a fraction of the population is catered for at any one time.

The system, with the exception of mission hospitals and the commercial concerns in health care, is under the control of the government. The organization which administers the services has developed from a small set-up which even in the early 1900s was in two sections - the Medical Department and the Secretariat of the Colonial Government - responsible for health matters. During the 1920s, when the two sections expanded

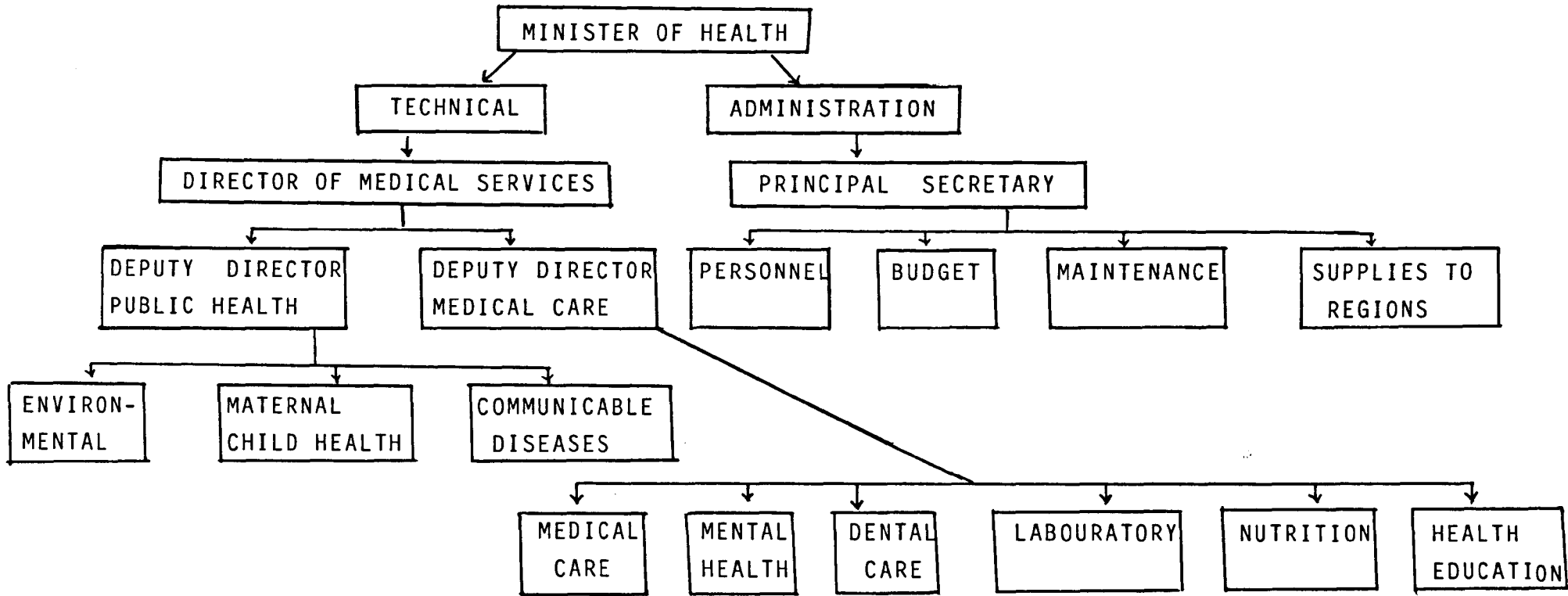
their number of activities and increased their area of coverage, it became necessary to bring them under one Ministry. Owing to its small size, Labour Affairs was also brought under it also and thus it remained as the Ministry of Health and Labour Affairs, up to 1953. Following the recommendation of a commission of enquiry into the health of the country in 1952, the Ministry was divided into two - Ministry of Health and Ministry of Labour and Social Affairs. The new Ministry of Health controlled medical care provided by the government and also partly controlled environmental health. The local district councils were in charge of environmental health activities. With its headquarters in Accra, the Ministry was under a Director of Medical Services, a position filled on the strength of experience and seniority. To assist him are two deputy directors who are directly in charge of public health and curative medicine. The tasks involved in these sections are largely confined to decision-making on health care provision for the country. The operation is confined to office work; there is little technical work as such, all of this being undertaken at the hospital level or within the community providing either medical care or environmental health care.

In addition to the Directors of Medical and Health Services, the Ministry of Health also employs purely administrative personnel whose tasks involve management of the finance; accounting and budgeting, control and logistics of supplies; maintenance of common services such as the repair and maintenance of equipment, vehicles and appliances. These tasks are under the control of a Principal Secretary who has a number of subordinates helping with specific tasks.

The health care system, a bureaucratic one, has therefore been divided into various sectors, the object being that provision can better be organized in individual units each concentrating on how best to deal with a facet of health care (Figure 4.3). The divisions are medical care,

Figure 4.3

ORGANISATIONAL ARRANGEMENTS OF HEALTH SERVICES



environmental health, maternal and child health, epidemiology, dental services, mental health and health laboratories. Each unit has a technical staff which deals with day-to-day planning at the head-quarters level. The actual work is assigned to people working in the field.

This section has tried to provide an account of the system introduced by the British during the period from 18882 to 1940s. Most of the institutions considered above were designed for curative care for the Europeans and later for the indigenous Africans who were encouraged to use separate facilities. Some of the health facilities were however provided by missionary concerns who treated both European and African. There were also the commercial concerns such as the mines and the merchant firms which provided care for their workers.

On the whole, Africans did take advantage of the services offered, though insufficient encouragement was given to them to completely adopt the concept of environmental and personal hygiene.

The sociopolitical Perspective:

This section considers the extent to which the historical antecedents have been weakened to allow certain extant elements to exert influences on the health care system with the objective of improving peoples' health. The extant elements are sociopolitical and they influence the health sciences by helping to oreintate them towards meeting health needs (See Chapter Two and also part Two).

We focus on the manifestation of this in the region by analysing three elements that could be deemed to reflect the sociopolitical status of the country. As previously indicated the elements that have been consistently isolated by different workers are as follows:-

- i) the level of accessibility to care for different areas and different groups of people;

- ii) the level of communal egalitarianism in the health care provision;
- iii) the value placed on health, and the provision for care by the society at large.

Each can be rated as high or low. Where all three indices show high ratings the conclusion can be drawn that the health service situation in Ghana today is sufficiently geared to meeting health needs of the local people and hence satisfactory. Other conclusions that can be reached are that sociopolitical status allows the health care provision in the country to operate at moderate, modest or poor levels towards meeting people's needs.

The Accessibility Index

As this is primarily a geographical study, it is considered appropriate to begin with a consideration of this index and to show how it reflects the factor of territorial welfare. Such an index calculated for different areas will indicate if the principle of equality in distribution is being applied in the case of the Central Region. It assesses the extent to which various groups living in different areas are able to obtain services. To that extent the accessibility index can be said to stand as a surrogate measure of welfare and social justice; where people in certain areas are able to obtain care easily, those people can be said to be better provided for than in areas where it is difficult to obtain care. This is physical accessibility.

There is also the possibility of looking at social accessibility which is reflected in the behavioural aspects of the health workers towards patients. Some patients are treated with some cordiality, while others may be ignored.

In this instance physical accessibility is concentrated on to find out if the distribution of delivery system is fair or not. To this end

we consider the facilities provided by the government-aided and by missionary concerns for medical care. Those for preventive care are so few that analysis will be limited in its contribution to the measure of territorial welfare. The reality of preventive care is that it is inadequate generally; this point is stated in Chapter Five, and no fresh insight would be gained other than what the reality presents.

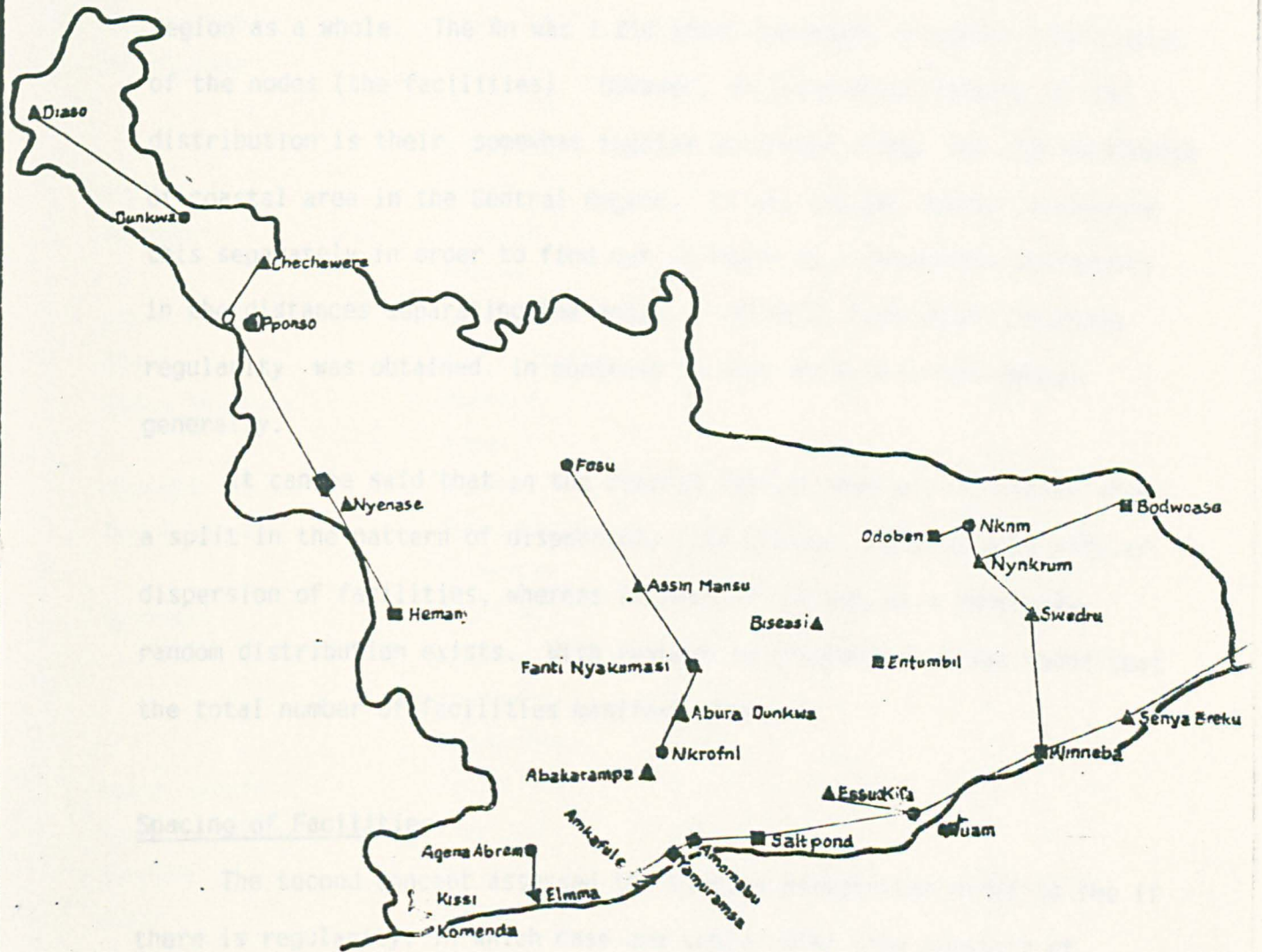
Curative care is provided from different types of institutions: the relatively large general hospital with hundreds of beds and cots and offering certain services such as X-ray, laboratory and theatre; followed by the smaller district hospitals also treating in-patients as well as providing ambulatory care; and finally the smaller units - health centres, clinics and dressing stations. There is only one of the large units and this is located in Cape Coast, followed by the district centres at Saltpond, Winneba and Dunkwa. There are 20 health centres, and 7 local district dressing stations.

To assess their accessibility, these facilities are considered as nodes and three concepts are used to analyse their distributional relationships. These are dispersion, spacing and localisation. Dispersion is regarded as the degree of spread of the points of location of the facilities and it is expressed as a continuum from clustered through random to uniform. The second concept used concerns locational arrangements made of the facilities with regard to one another, unlike that of dispersion which is with regard to the area. The average distance between the points and the uniformity of spacing are the main measures used. The third concept is localisation which is the variation in the relative frequency with which a given type of health facility occurs in any of the districts in the Region. Table 4.9 shows health facilities in the local councils of the Central Region; and these form the basis of the analysis.

Dispersion

Map 4.7

CENTRAL REGION: NEAREST NEIGHBOURS OF MEDICAL CARE FACILITIES 1980



Dispersion

Using nearest-neighbour analysis, we examined the Central Region distribution of facilities by measuring the distance between two adjacent facilities (see map 4.7). These were tabulated and the mean distance between the pairs of nearest neighbours was obtained, using the total area of the Central Region - 9826 sq. km. - and the formula stated in Chapter Three; we calculated the nearest neighbour statistic R_n for the Region as a whole. The R_n was 1.210 which indicates a random distribution of the nodes (the facilities). However, an observable feature of the distribution is their somewhat regular occurrence along the 150 km stretch of coastal area in the Central Region. It was thought useful to examine this separately in order to find out if there is a detectable uniformity in the distances separating the nodes. An R_n of 2.08 which indicates regularity was obtained, in contrast to what obtains in the Region generally.

It can be said that in the Central Region, medical facilities show a split in the pattern of dispersion. The coastal areas display regular dispersion of facilities, whereas in rest of the region a generally random distribution exists. With respect to clustering it was found that the total number of facilities manifest this.

Spacing of Facilities

The second concept assessed the spacing between the nodes to see if there is regularity, in which case one could infer some equality of accessibility for all areas. The procedure here involved the use of standard deviation of the mean distances between the nearest neighbours. Again, distinction was made between the inland and coastal facilities. A standard deviation of 5.818 was obtained for the whole Region, coastal areas on the other hand showed a standard deviation of 2.58 in contrast

Table 4.9

HEALTH FACILITIES BY LOCAL COUNCILS IN THE CENTRAL REGION

Local Council	Towns	No. of Facilities		Population	
		1970	1984	1970	1984
Komenda, Edina Eguafo	Elmina	1	1	114	156
	Komenda	1	1	60	53
Cape Coast	Cape Coast	3	4	517	577
Mfantsiman	Anomabu	0	1	59	67
	Saltpond	1	1	118	126
	Mankesim	0	0	41	84
Ekumfi	Otuam	1	1	37	57
Ajumako	Bisease	0	1	75	94
	Brakwa	0	1	55	67
Anyan Breman	Asikuma	1	1	69	82
Abura	Abura Dunkwa	1	1	40	52
Gomoa Akyempim	Mumford	0	0	86	93
	Apam	1	1	89	132
Winneba	Winneba	1	1	308	262
Awutu Senya	Senya Bereku	0	1	99	119
	Bodwease	0	1	62	96
Agonaman	Bobikuma	0	0	51	52
	Abodom	0	0	52	50
	Kwanyako	0	0	66	77
	Agona Nsaba	0	0	44	52
Agona Swedru	Agona Swedru	0	1	215	303
Nyarkrom Nkum	Nyarkrom	0	1	113	117
Dekyira	Dunkwa	2	2	154	169
Assin	Assin Foso	1	1	72	107
Asebu	Mooree	0	0	101	131

to the standard deviation of 8.24 obtained for the inland facilities. The spacing of the facilities in the Region is highly skewed in favour of the coastal area which registered a uniformity in the spacing of the facilities.

Localisation

Concerning this concept, only one of the seven districts show clear signs of localisation. This is the Mfantseman health district, which depicts a concentration of major hospitals and specialist facilities. In Cape Coast (the main town of this district and of the Region) there are two of the major hospitals in the Region - the General Hospital which is also the regional hospital; and the Cape Coast University hospital. Available in the same district are the two specialist hospitals at Ankaful - the mental hospital and the leprosarium. The third type of this facility also found in this district is the special communicable diseases hospital in Cape Coast town. (there used to be one of nature in Winneba also in the 1950-60s). There is no other health district with any of the above facilities; there are smaller facilities in the other districts. This confirms the relative importance of the Mfantseman district with regards to health care.

The emergent characteristics of the distributional aspects of the delivery of health facilities in the Region are as follows. Except for the coastal areas, there is a tendency towards random distribution of facilities in the Region with some bias towards urban location for the majority of facilities. There is an irregular spacing of facilities generally in the Region except for the coastal area where a definite pattern of uniformity exists. The lack of uniformity indicates an absence of an effective network of services in which large numbers of people would live within a reasonable distance of them. Finally, though localisation

of service is not a predominant factor, one district displays this characteristic. On the whole the coastal stretch appears to enjoy a much better provision than the inland area. This is a privilege which owes its origin to European presence along the coast, when the strategic coastal location afforded the Europeans points of arrival and departure which were later to develop as towns. The inland areas were peripheral to these coastal towns, and governmental involvement was greater along the coast. Indeed the momentum generated has further helped to increase and expand the health services in this area, even after independence. Other social services such as education, urban development, water supply, refuse and sewage disposal were instituted by the Europeans. Indeed, the extent of their influence can be seen in some of the official names of these coastal towns - which have been retained inspite of the fact that they have local names.¹ Here then is an indication of the power of the historical fact of colonialism and a continuing trend set up during the earlier part of this century.

Evidence of Territorial Welfare

It was indicated earlier that the distributional characteristic of the delivery system, particularly with regards to location of physical structures such as hospitals, gives an adequate reflection of the state of territorial welfare in health services provision.

Questions specifically addressed include the extent to which certain areas and hence people are provided for; how accessible are the available facilities to certain groups of people? The answers to these can be obtained from an analysis of travel time to a health facility by a given

1. Cape Coast is locally known as Oguaa, Saltpond is Akyemfo and Winneba (windy bay) is known as Simpa.

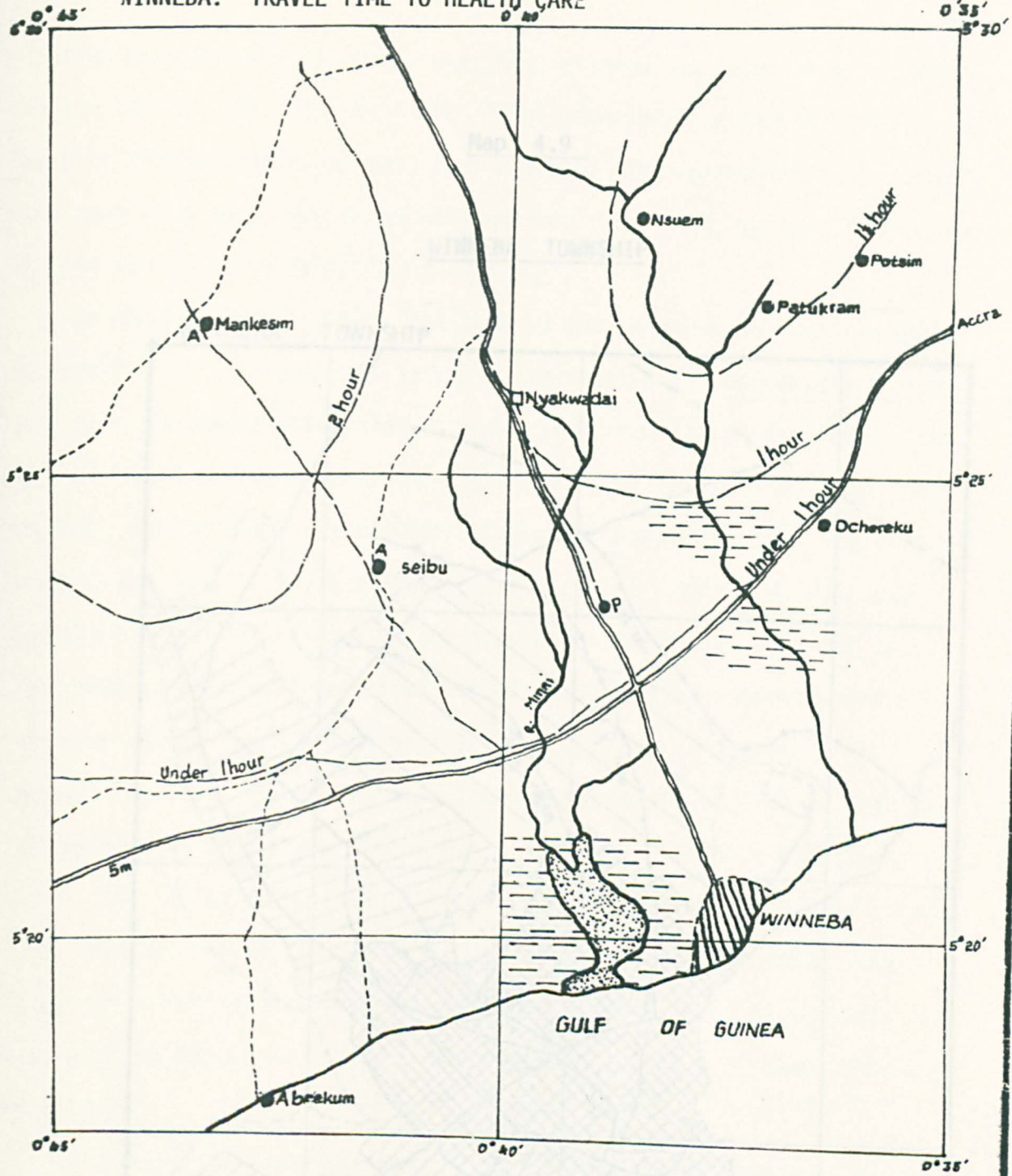
group of people. Travel time is used rather than physical distance on account of the scarcity of public transport and the smallness of the number of privately owned cars. In many parts of the region the predominant means of reaching care is by walking; though public and private transport are also used (See Appendix H (1)).

Two districts were focussed on for detailed study. These are Denkyira Health District, with its capital at Dunkwa, and the Gomua Ewutu Efutu Health District, Winneba being the capital. Generally, the accessibility to health facilities showed both inter and intra district contrasts. In the Gomua Ewutu Efutu areas, the availability of several roads makes connectivity between many towns possible. In Winneba area, for example (see map 4.8), travel time ranges from under one hour but not less than 30mins for those people living in areas close to the Accra-Takoradi Road, motorable all the year round, to over 2 hours for those that are 15 km. or more away from the main road. Part of the travel from here is invariably undertaken on foot in difficult terrain parts of which can be muddy and liable to flooding. This further reduces accessibility. Areas in the north east, Ochereku and Potsin, are slightly more accessible than those of the north west; around the Mankesim area, compared to accessibility to health care in the Winneba townships, we see that travel time is much reduced. People from the heavily populated zone could reach the hospital in an average time of 15 minutes, the majority on foot (see map 4.9). The residents in the government residential areas also reach care in less than 20 minutes; a few people have cars but accessibility is straightforward as there are direct street connections to the hospital. Most accessible are the houses that are lined along the main roads, for example Victoria and Alexandra roads.

As shown in Map 4.9, the majority of the patients live within half hour's walk from the hospital; less than 10 per cent of the patients come

WINNEBA: TRAVEL TIME TO HEALTH CARE

1:125000



Rivers and Areas liable to flood

1st Class Road

3rd Class Road

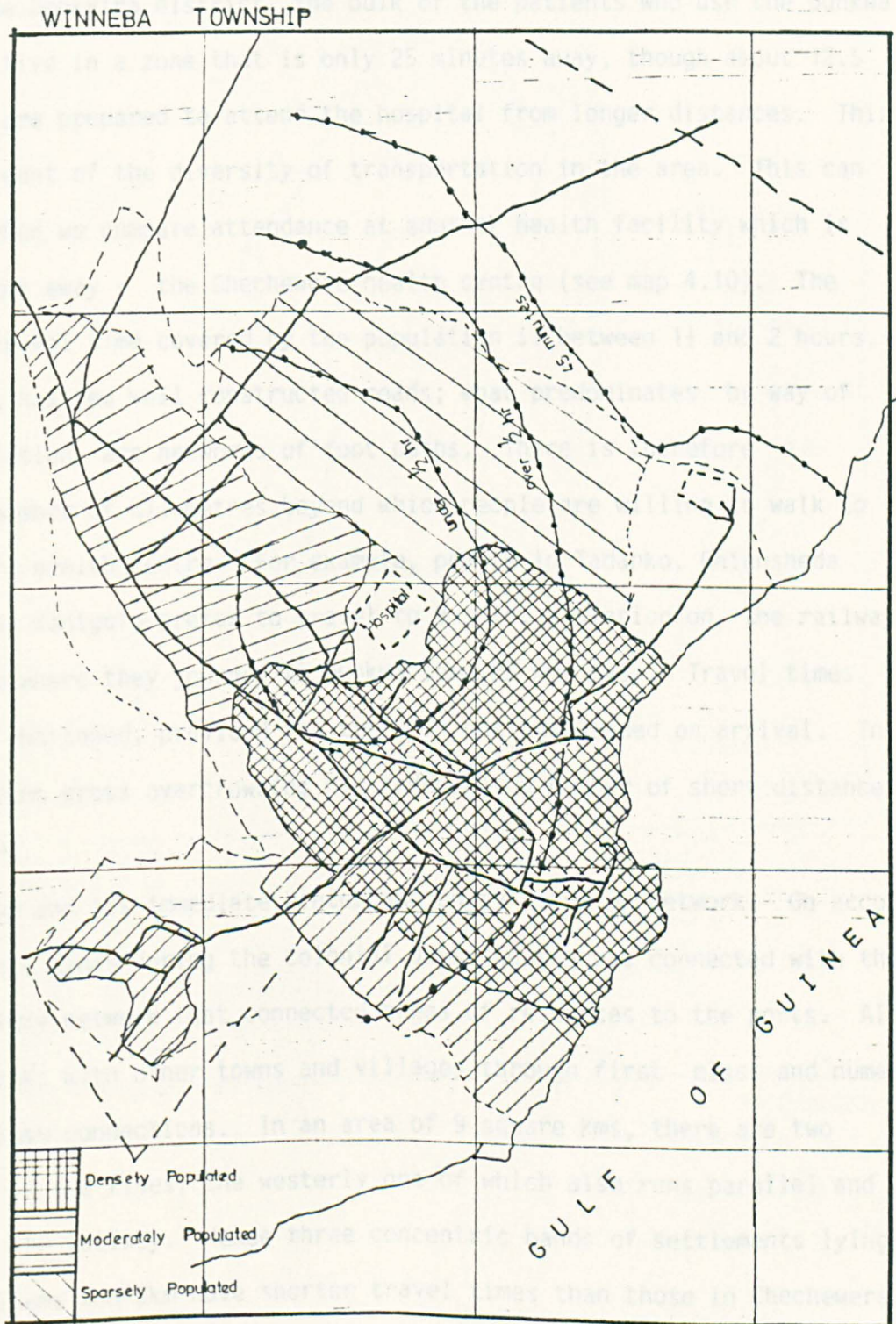
Source: 1. O. S. Map sheet B. 30 Winneba

2. Research Survey

Map 4.8

Map 4.9

WINNEBA TOWNSHIP



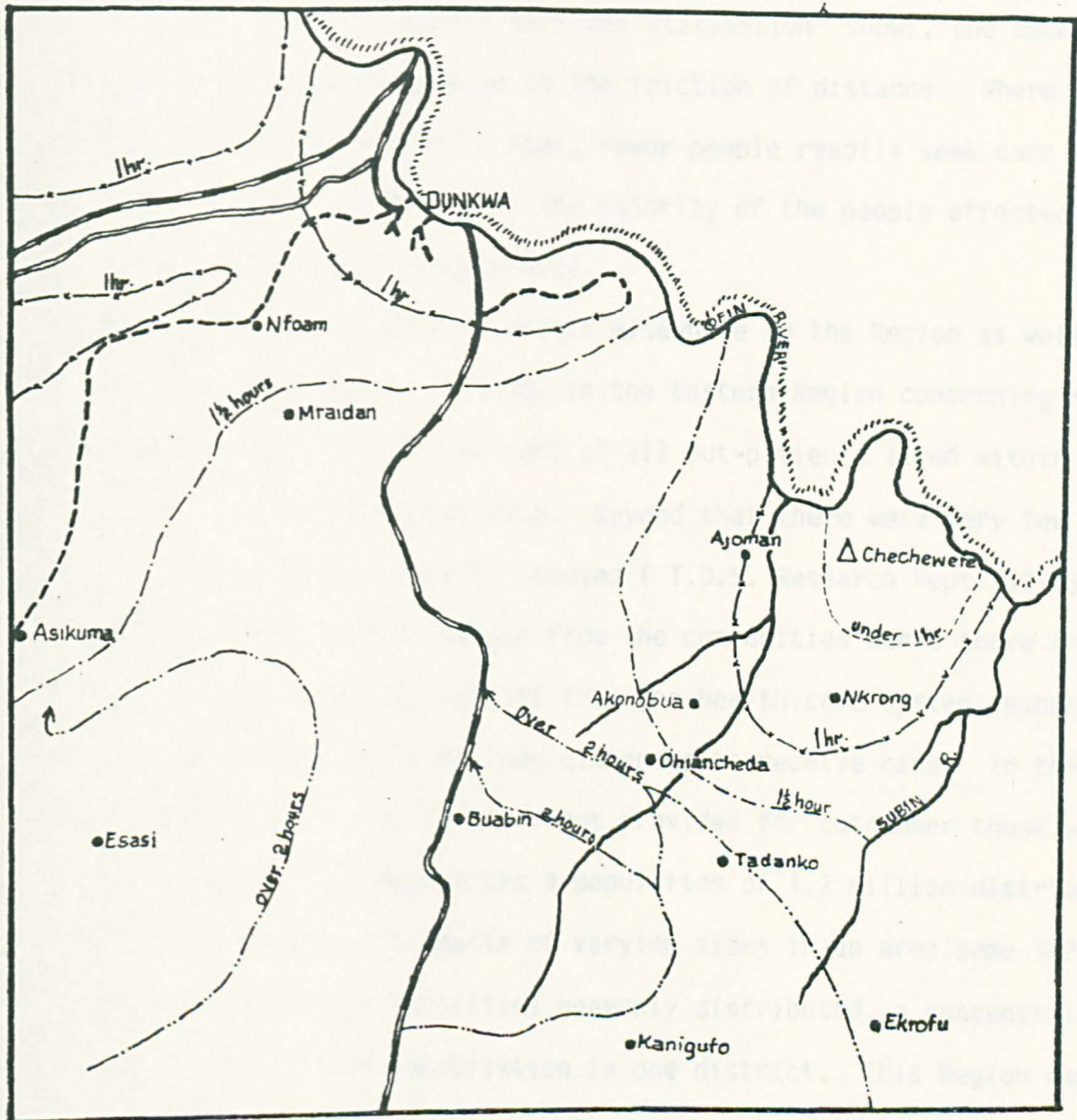
into Winneba hospital from the outlying villages and towns which form part of its hinterland. Not the least of the deterrents of hospital use is the cost of transportation to and from Winneba. Transportation costs over the past five years has increased more than five-fold and this contributes to the reduction in hospital attendance.

In the Denkyira district, the bulk of the patients who use the Dunkwa hospital live in a zone that is only 25 minutes away, though about 12.5 per cent are prepared to attend the hospital from longer distances. This is on account of the diversity of transportation in the area. This can be seen when we compare attendance at another health facility which is only 36 kms away - the Chechewere health centre (see map 4.10). The maximum travel time covered by the population is between 1½ and 2 hours. This area has few well constructed roads; what predominates by way of transportation are networks of foot paths. There is therefore a maximum number of kilometres beyond which people are willing to walk to Chechewere health centre. For example, people in Tadanko, Ohiansheda Ekrofu and Kanigufo prefer to travel to Buabin, a station on the railway line from where they journey to Dunkwa some 25 kms away. Travel times could be shortened, provided the train is not overloaded on arrival. In recent years gross overcrowding has reduced the number of short distance travellers.

Dunkwa and its immediate hinterland enjoy a better network. On account of the gold mines during the colonial days, Dunkwa was connected with the main railway network that connected areas of resources to the ports. Also it has links with other towns and villages through first class and numerous second class connections. In an area of 9 square kms, there are two branches of the lines, the westerly one of which also runs parallel and close to the railway. Hence three concentric bands of settlements lying 2 kms., 3 kms and 5km have shorter travel times than those in Chechewere,

Map 4.10

DUNKWA: TRAVEL TIME TO HEALTH CARE



Boundary —————
 Railway —————
 1st Class Road —————
 2nd Class Road —————
 Rivers —————
 2 Hours Travel time in hours —————

SOURCE: OS Sheet B30 Africa

Scale 1:125,000

1:125,000

where no minerals deposits were found and there was no urgent reason for such connections.

As the literature of health services utilisation shows, the underlying influence on hospital attendance is the friction of distance. Where long distances have to be covered on foot, fewer people readily seek care even when their conditions demand it. The majority of the people affected are those in the rural areas (Figure 4.4).

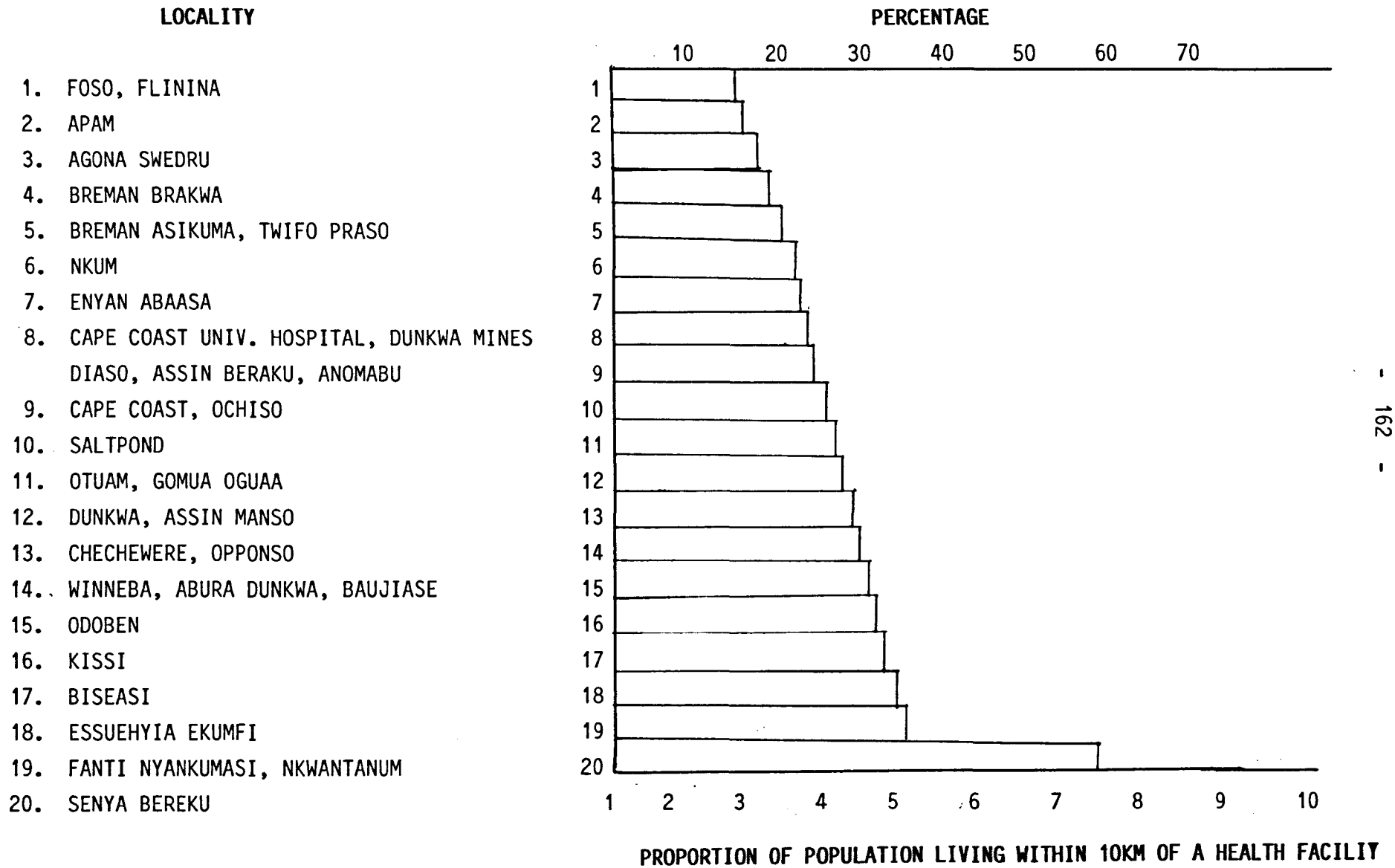
A similar state of affairs exists elsewhere in the Region as well as in other regions of Ghana. A study in the Eastern Region concerning rural health needs showed that 75 per cent of all out-patients lived within about 6 kms. of the health facility. Beyond that there were very few people who visited the hospitals studied (T.D.S. Research Rept. 1978).

The implication is that people from the communities where there are no facilities are virtually cut off from the health care system, especially where they have to travel over long distances to receive care. In the Central Region those areas that are not provided for outnumber those where care is available. The Region has a population of 1.2 million distributed unevenly in over 4000 settlements of varying sizes in an area some 9826 sq. kms.; with 42 health facilities unevenly distributed, a concentration along the coast and some localisation in one district. This Region can hardly be considered as having properly addressed the question of territorial welfare in health care provision.

Since the introduction of health services, none of the governments have been able to consider how to provide adequate care to cover all areas and also to reduce the distance that sick people have to travel under strenuous conditions in order to reach a health facility. Thus, gross inequalities in accessibility to care remain, travel cost and time also vary from one area to another. Yet, the viciousness of the

Figure 4.4

JOURNEY TO CARE - DISTANCE FROM HEALTH CARE CENTRE TO HOME LOCALITIES



economic position of the country puts as much constraint on the adoption of any option. Over the past few years transport and communication have regularly taken more than 21 per cent of the total budget. It appears that it is much easier to allow the health services to muddle through, than to conscientiously make realistic policies that would change the territorial inequalities in service provision. This is what seems to pertain in the Ghanaian situation. However, the provision of care need not be that expensive provided the approach adopted is appropriate to the present state of the development of the people and also with their enlisted contribution.

We are thinking here about community care in which each community would use, in conjunction with governmental subvention, local resources to improve the health situation. Such care would not be institution-based, as was conceived in the health centre idea suggested by Maude in 1952. The community itself, under the leadership of a trained member, will make such changes in its local environment as are necessary for a reduction of the numbers of disease-carrying organisms and in the avenues for interaction. In the community there will also reside a health worker who would deal with their ambulatory health care needs. Questions about accessibility and barriers to the use of the services will be reduced and the existing system could then be revamped with a few additions to handle mainly, referred cases.

This idea is not new. In fact, it has been under consideration for some years now by the community health staff of the Ministry of Health. It appears the problem lies in its implementation by the government. That this is absent in the present system is shown in the sections which follow.

We present here some evidence of lack of communal egalitarianism in health care provision coupled with fluctuating financial commitment to health services provision.

Table 4.10

SOME PARAMETERS: JOURNEY TO CARE. SURVEY HEALTH UNITS. IN PERCENTAGES

Health Unit	Average Length of time to care				Average Cost in Cedis 1979/85			Mode of transport			
	Under 1 hr	2 hrs	3 - 4 hrs	over 4 hrs	Under ₵1.00/₵25.00	₵5.00/₵50.00	₵10.00/₵1000.00	1	2	3	4
Winneba	69	21	6	4	69	16	15	69	3	28	0
Dunkwa	12	41	18	29	12	46	42	36	2	16	46
Fosu	49	23	18	10	48	24	28	30	2	48	20
Abura Dunkwa	59	31	7	3	56	33	10	82	0	18	0
Kissi	58	30	8	4	68	22	10	68	0	32	0
Enyan Abaasa	71	26	3	0	69	31	0	71	0	29	0
Nkum	69	31	0	0	63	37	0	86	0	14	0

1. Walking
2. Private transport
3. Public Vehicle
4. Train

Communal Egalitarianism

This concerns the extent to which communalism features in the provision of services. Specifically it addresses the question of communal or collective provision of care as against care that is provided for individuals who choose to use them. Where the focus is on a community then the health authorities are charged with a responsibility to ensure that each community receives the necessary care and the members of the community can also be seen to be benefitting from the services. In fact in some instances it even becomes necessary to provide guidelines and regulations. Such care will not vary greatly from one community to another and there would also be fewer choices.

One crucial area where such provision is most appropriate concerns maternal and child health. Women who are pregnant, lactating mothers and children under five represent the most vulnerable group in the population. As such, society must take special care of them by ensuring that matters concerning their health are not left entirely in their own hands. Services must be provided to cater for all on the basis of need, not on the basis of demand, to ensure that services provided for them are utilised by all who fall into that group. To what extent can one conclude that these two conditions are met in the case of child and maternal welfare services in the Central Region?

Even though the importance of maternal and child welfare is recognized a universal provision which is available in all areas has yet to be achieved. Secondly, there are few avenues for encouraging all mothers and children to make use of those services offered; not to mention the general absence of any regulation that would force that group into making use of the facilities (for example, children under six (6) years who are to be registered for school should be made to produce immunization certificate). There is no regulation which requires pregnant women to attend antenatal

clinics. In some advanced countries this attendance is attached to the registration for delivery. In the Central Region and indeed in Ghana generally the maternal and child welfare services are for those who choose to use them. Those who are unaware of their existence, or who know of their value but cannot afford financially to make the regular trips to attend on clinic days, cut themselves off from such care, placing their lives in jeopardy in the event of any unforeseen complication. The high rates of maternal mortality in the Region (discussed in Chapter Six) points to the absence of the operation of this principle of communal egalitarianism which will ensure that expectant mothers use the facilities made available for them.

Child welfare is also left entirely in the hands of the individual parents who are free to use or disregard the few facilities provided. In any case, on account of accessibility, only a few parents take advantage of the existing facilities. The table shows the position of health care provision for children in the region; and a cursory glance shows that only a small fraction of the child population in the seven health districts use the facilities. Indeed it is possible that the small numbers are all that the facilities in the way presently operates could handle. If the element of communal egalitarianism were to operate in reality, the services would cater for all children and ways would be found to get the maximum from the facilities. At present the standard practice is to hold two sessions per week for any children who happen to turn up. The sessions could be increased to be proportionate with the total population; all the children could then be registered for clinic attendance on specified days. To do this, staff would have to be co-opted from curative into existing team. Obviously, there would be a need for some organisation of parents and their children to keep the clinic attendance appointments.

Table 4.11

CENTRAL REGION CHILD POPULATION, FACILITIES FOR
CARE AND ACTUAL UTILIZATION 1979-1980

<u>District</u>	<u>Total pop. under 5yrs</u>	<u>% of Total</u>	<u>Mean Mthly attendance</u>	<u>% of users</u>	<u>No.of centre</u>	<u>% of Total</u>	<u>Expected No.o Minimum sessio</u>
Komenda	28561	18.16	1235	4.32	3	7.69	47
Gomoa Ewutu	28473	18.11	3018	10.59	6	15.38	23
Agona	24711	15.71	2314	9.36	2	5.1	61
Twifu Denkyira	19639	12.49	2003	10.1	7	17.94	14
Mfantsiman	18741	11.92	2939	15.6	10	25.61	9
Assin	18701	11.89	2879	15.3	4	10.25	23
Breman	18379	11.61	3186	17.3	7	17.94	13
Total	157205	100.00	17502	100.00	39	100.00	

In the Central Region, there are no regulations governing attendance, individuals go as they wish and the staff hardly spare the effort to follow up except for special cases. The majority of children who survive in fact do so without using government provided facilities. Thus, in effect, the search for evidence on communal egalitarianism or collective provision of services for a group cannot be a fruitful exercise. It is a fact that even if the government plans to provide care on these assumptions, the question of finance would put constraints on the efforts. Thus ill health and the search for cure are generally solved by individuals, provision for care being also on individuals basis. Hence, there is a general absence of regulations and guidelines for care for all areas and all people.

So far, this section has been concerned with the sociopolitical perspectives of distributional responsibility of health services and the communal egalitarianism that promotes a collective system of health care provision. In the Central Region the reality with which we are confronted is one where the operation of both of these elements is generally on very low levels if not absent.

Societal Value of Health Care

A third element that reinforces the sociopolitical perspective on health care provision is the question of element to measure compared to the other two. An assessments can be made by considering three factors. These are the financial responsibility for health care provision, the organisational arrangements of the services to ensure that all members of the population receive care, and the extent to which the services meet the health needs of the people. Where the society represented by the government takes full responsibility for all three factors, then the level of this sociopolitical element the societal value of health can be

considered as exerting a great influence on the health care system of the country.

In this section, we consider two of these factors the financial and organisational responsibility, leaving the third factor which concerns 'needs' to be dealt with in Chapter Six.

Financial Responsibility

The financial responsibility is a useful yardstick to use considering that money still remains the most important medium of exchange. Needless to say, it would have been beneficial for this aspect to be analysed by an expert in finance. Be that as it may, it is still possible to see a reflection of the value that society places on health partly in the amounts spent on the provision of the services, as against other sectors of the economy. Where the proportions devoted to health care are relatively high it can be concluded, provided the other factors are also on high levels, that societal value placed on health is high. Our comments here are made on the broad patterns of allocation, it being difficult to obtain greater detail.

To this end, governmental allocation to health care for a period of twenty years from 1950 - 1974 is analysed (see Table 4.12). The Government is the major source of finance of the health care system through a consolidated fund, and also through various Ministries and organisation for health care. The largest part of these funds goes to the Ministry of Health though some funds go to the Ministry of Defence, Department of Social Welfare and Community Development, Local and Municipal Councils and to the Universities. Results of some earlier research in this area, corroborates the evidence adduced here (Ofosu-Amoah, 1975; Brooks, 1975). Table 4.12 therefore, shows how much the government is willing or intending to spend on the health of the population.

Table 4.12

GHANA: TOTAL EXPENDITURE DEVOTED TO HEALTH CARE 1950 - 1974

Year	Total Govt Expend.	Health Service Expend.	% of Total Expend.
1950	17834000	1039000	5.8
1951	32965000	1727000	5.2
1952	52104000	3130000	6.0
1953	72455000	2892000	4.0
1954	94865000	3002000	3.2
1955	87865000	4200000	4.8
1956	77330000	3293000	4.3
1957	67231000	3341000	5.0
1959	88043000	4487000	5.1
1960	113654000	6275000	5.5
1962	154964000	9200000	5.9
1963	134149000	9583000	7.1
1964	207098000	10564000	5.1
1966	370500000	15330000	5.8
1967	358991630	17159800	4.78
1968	370132140	20724400	5.62
1969	468704760	24607000	5.25
1970	519577550	31486400	6.06
1971	581453670	36399000	6.26
1972	629394400	40533000	6.44
1973	676178660	54500000	7.14
1974	1013225800	81666000	8.06

Sources:

Ghana Government. Budget statement for various years. Ministry of Health Reports - 1960 - 67 (Medical Department)

1950 - 1955

1950 - 1963 Allocation in £s

1964 - 1974 " in Cedis

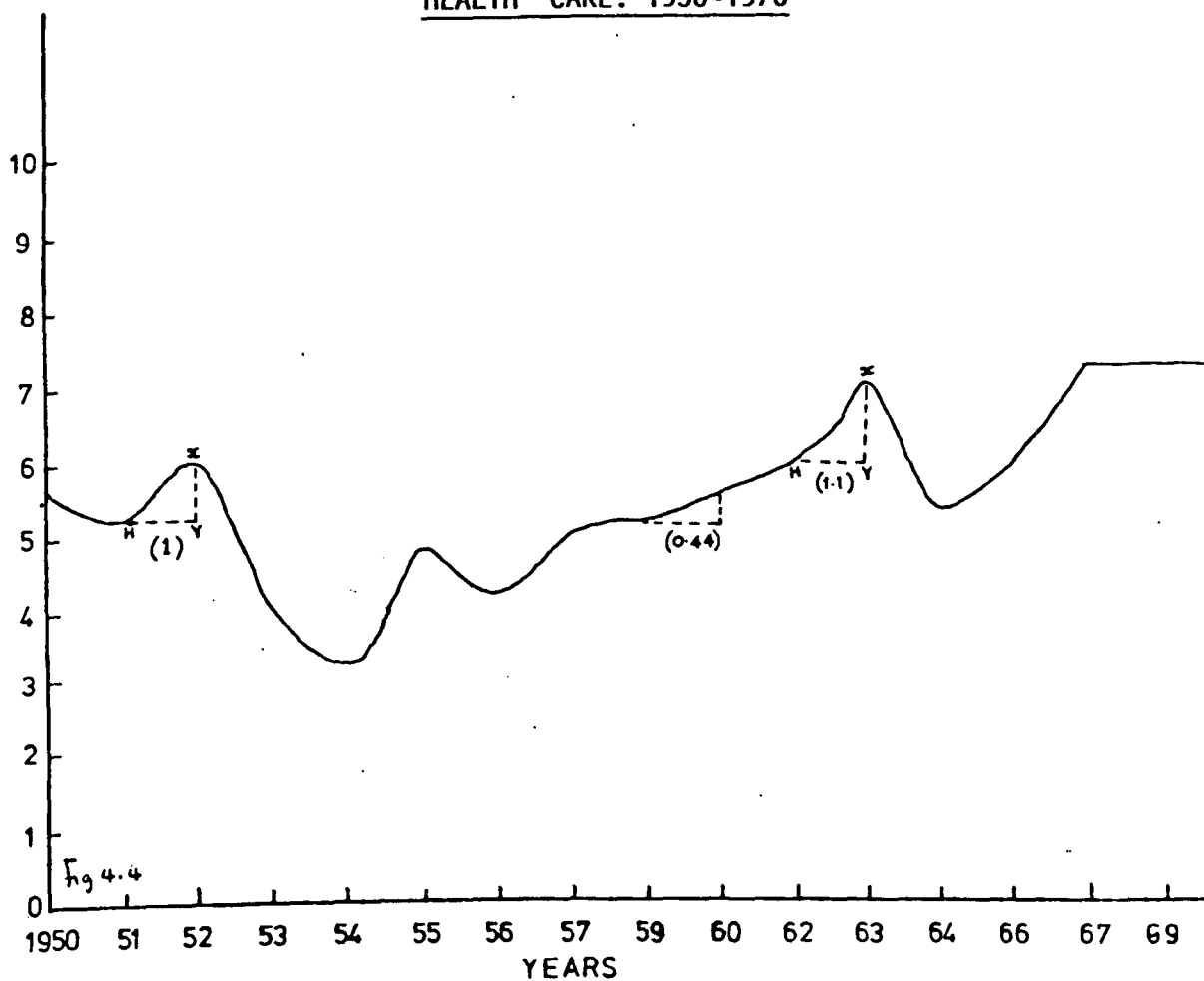
The overall percentages devoted to health over the past twenty years are low, on average 5.5 per cent. There was no year during which the health budget exceeded 8 per cent of the total budget. Between 1953 and 1956 it was even lower - 4.8 to 3.2 per cent. The possible underlying cause for this may be the constitutional changes that came about the formation of a coalition government prior to independence. The former Medical Department was merged with two other departments, Labour and Cooperatives, with one Minister and one Permanent Secretary. Budgetary allocation consequently had to be split into three. The period of increased budgetary allocation between 1967 - 1970 corresponds with improvement in the price of cocoa the main export crop.

A graphical representation of the budget allocation to find out any rates of change in the allocation for health care which might reflect changes in societal value showed varying gradients between the years (Figure 4.5). Between 1951 to 1952, the gradient was 1.0, between 1957 and 1962, the gradient was .04; between 1962 and 1963 it was 1.1. Of the total budget therefore, it can be said that the percentages devoted to care are at low levels, they fluctuate and any increases registered are not substantial. Agriculture (understandably is an economically productive area and a foreign exchange earner) takes on average 20 - 25 per cent or more, transport and communication takes about 20 per cent, and education 12.5 per cent on average. No doubt there are justifications for allocating larger sums for other sectors of the economy, but a case can be made for health care especially considering that the human resources is an indispensable one and deserves more careful consideration than it is apparently being accorded in Ghana.

Furthermore, the actual sums devoted to care are greatly affected by continuously rising inflation and the corresponding falls in the value of the cedi (the local currency). Even though the rate of inflation

Figure 4.5

TRENDS IN BUDGETRY ALLOCATIONS TO
HEALTH CARE: 1950-1970



Source: Ghana Government Budget statements. Ministry of Health Reports 1960-69
Medical department and Ministry of Health, Labour & Cooperatives 1950-70

was put at 96 per cent, this can only be considered as a conservative estimate as it is possible that it was exceeded by more than 200 per cent. The real value of the health budget as with all other sectors, gets reduced in the face of the high inflationary trends.

Unlike many other sectors of the economy most of the inputs of health care are obtained from overseas. Drugs, dressings, equipments instruments, even furniture are amongst the items that must be imported for the health services. In view of this dependence on foreign supplies, the health sector requires a higher foreign exchange component in its budget to purchase essential requirements. Yet the critical economic recession that Ghana went through during the past 5 years made it difficult for essential items to be purchased. Health care provision in Ghana therefore appears to be more vulnerable than the other sectors, since external factors which impinge on the foreign exchange earnings also indirectly affect health care. Ghana's economy suffered during the early 1980s greatly from increases in the price of oil, large foreign and domestic debts that stood at several million cedis, a dwindled foreign exchange reserve¹ coupled with a drop in the producer price of cocoa - the main foreign exchange earner². Apart from these problems which can be regarded as external which impinge on the financial outlay of the health sector, there are also internal problems that contribute to the low rating of health care provision in Ghana. Of the health budget itself, a disproportionate percentage goes into recurrent expenditure of which emoluments alone consume about half. Table 4.13 shows that for a period

1. In 1982 Ghana's domestic debt stood at 15.7 billion cedis (£2.66 billion) and her foreign debts of 1.76 cedis (£300million) as against her uncommitted gold and convertible foreign exchange which stood at £286.3m which was only £47.7m. See Standard Bank Reports, 1982.
2. Cocoa prices dropped to all time low of £1000 in 1983, from its £2006 level per tonne in 1978 and it was not until 1984 that it went back up to £1958 per tonne. See West Africa - various issues.

Table 4.13

RECURRENT AND CAPITAL EXPENDITURE OF HEALTH CARE

Year	Expenditure		Expenditure	
	Recurrent ₵	As % of Health Budget	Capital ₵	As % of Health Budget
1946	501 347	96.47	18 347	3.53
1947	572 328	95.48	24 023	4.52
1948	750 337	99.33	5 093	0.67
1949	867 886	97.48	22 492	2.52
1950	936 927	97.72	22 093	2.28
1951	1 927 166	98.97	10 628	1.03
1952	1 585 219	98.62	22 325	1.38
1953	1 801 506	99.03	17 001	0.93
1966	1 580 000	11.11	750 000	4.89
1967	1 500 000	87.42	2 159 000	12.58
1968	17 258 000	83.26	3 459 000	16.74
1969	20 400 000	82.50	4 307 000	17.50
1970	21 956 000	69.73	953 000	30.27
1971	27 163 000	74.63	9 236 000	25.37
1972	33 356 000	82.29	7 177 000	17.71
1973	45 000 000	82.57	9 500 000	17.43
1974	68 943 000	84.42	12 723 000	15.58

Source: Ghana Government Budget statements for various years;
1946 - 1974.

exceeding 20 years, the highest percentage taken by capital development was 30 per cent. (see also Table 4.14). The net affect of all these various pressures on the health budget is that very necessary and urgent improvements cannot be made in the health care system in order to effect meaningful changes. For one thing, the drop in the real value of the health budget with the high inflationary rates meant that the same quality of care could no longer be provided. It is against this background that the services were brought to the brink of collapse between 1981 and 1984. The existing health resources depreciated so much in quality and quantity that people turned their backs on government services completely. It was not until 1985 when foreign aid of different origins was obtained to relieve the situation in health care that people started to use government facilities again³.

Organisational Responsibility

It must be indicated that it is not only the government that provides health services. Other organisations also contribute. The Ghana National Catholic Mission for example makes some contribution to medical care in the country; the commercial houses, especially the banks, the mines and many manufacturing firms also provide health care, albeit for their workers; while private practitioners of scientific medical care satisfy the needs of those who can pay for their services. Of greater importance but the least recognised is the Ghana Psychic and Traditional Healers Association; an organisation of the local healers who are in the traditional health care and who meet the needs of the majority of rural population, some 70 per cent of the total population (Warren D, Tregoning M. 1979).

3. See various issues of West Africa. The EEC, the British Government other Western European Countries, all pledged to give various grants at a World Bank Consultative Group meetings, 1984, 1985. Japan and Korea also gave aid.

Together, these organisations are responsible for a substantial proportion, about 73 per cent, of all therapeutic care in the country. Public health care however, especially environmental sanitation, is largely seen to by the Ministry of Health. In this study our focus has been on governmental activities on account of the fact that scientific health care was introduced on a broad basis by the colonial government which was subsequently sanctioned by all the governments after independence. As such resources from the government go directly into scientific health care as provided through the Ministry of Health. For these reasons, the contribution of all the other Organisations were not included in this attempt at assessing the societal value placed on health. This is an omission which can only be adequately remedied by a separate study of the ways in which those organisations and bodies offering care are financed.

Thus in view of the different organisations providing therapeutic care, in addition to widespread self care by the population, the contribution by the government for therapeutic care may indeed be relatively small; in the region of about a third of all such care. It is in the area of public and preventive care that government makes a greater contribution both directly through the Ministry of Health and indirectly through the municipal and district councils. As at 1985 however, its direct involvement with the last two has been suspended.

The funds allocated for all the services are relatively small and in recent years these have had to be supplemented by hospital fees⁴. When compared to some of the advanced countries, this becomes more glaring. In 1960, Ghana's health budget amounted to £6.275 million for a population of 6.7 million. In the U.K., for the same year, the budget allocated for

4. Ben Ephson: The price of Health - 2 in West Africa 14th October, 1985. pp. 2156. See also 15th July, 1985 p. 1446.

Table 4.14

EXPENDITURE OF SELECTED INSTITUTIONS - 1972/73

Hospital	Total Expenditure	Personal	%	Drug & Dressings	%	Transport	%
Cape Coast	737 367	395 702	53	16 114	23.1	18 150	24.8
Saltpond	178 986	97 232	55	49 290	26.0	3 901	9.1
Kissi	6 907	2 296	33	3 498	5.0	-	

health care was £860 million for a population of 55 million which is £15.45 per capita, compared to less than £1 per capita in Ghana. By 1974, the U.Ks health budget had increased five times to £4,262 million for about the same number of people as in 1960. Even though the Ghana government increased the health allocation 13 times, it was for a population that had increased by an extra 2 million. The budgetary allocation for the U.K. continues to rise and even though this points to an inherent weakness of the system,⁵ it does also indicate how much society is prepared to spend on the health of the people as compared to the low levels that prevail in Ghana which are further eroded by inflation and general economic stagnation.

Also in view of the fact that several other organisations outside the ambit of government provide therapeutic care one can surmise that in the absence of these organisations, only a small percentage of the population

5. Many critical expositions have been written concerning the ever escalating cost of health care provision especially in some of the Western countries. Indeed the U.K. government has been battling with the National Health Service to cut back on certain services. Notable amongst the critiques is Illich's book.

can be adequately catered for by the government organised care. On the whole, these two factors combine to give the impression that the societal value placed on health care is rather low and more will need to be done to strengthen this element in the sociopolitical system.

Conclusion

This chapter has attempted to consider some of the underlying factors that influence health care provision in Ghana, in general, making specific references to the study area, Central Region. It has focussed in some detail on the operation of three elements discussed in Chapter Two. These are historical, sociopolitical and financial, in an attempt to find out how they operate and interact to influence the system. The three elements have interesting ramifications on health care, the full breadth of which cannot be grasped from an angle such as adopted here, but for which a detailed study perhaps by other social scientists and historians may reveal. The importance of understanding the sociopolitical underpinnings cannot be overstated, in view of the possibility of guiding any future attempt to re-orientate health care to suit local condition. We talk of re-orientation for the simple fact that the historical antecedents so place the whole hcs on a plane on a step higher than the social level and health needs of the majority of the Ghanaian population, and it is essential to know which areas of the hcs require some releasing from any historical antecedent that shackle it.

The financial aspects of health care certainly require greater expertise than has been given here. Comments made should therefore be considered as basic and elementary, especially considering the nature of the data and its incompleteness. Even more importantly an expert handling of the question of finance is crucial in view of the urgent changes and introduction of new approaches to the hcs, all of which requires some

financial backing. As such, the previous methods of financing, the handling of expenditure, ways of generating revenue and releasing funds for capital development are areas in which an expert in financial administration would be more productive. Be that as it may the question of the influence of the three elements was still considered in Ghana in general and some interesting and useful impressions were gained a summary of which is presented below:-

In the Central Region, and indeed in Ghana, the historical fact of colonialism was an important factor that led to the introduction of European medicine to the people living in the area. One way of focussing on the significance of this historical factor, is to consider time as a continuum, and weigh the relative periods and corresponding historical events one against the other. Figure 4.2 illustrates this. Beginning from 1482 when the first European group, the Portuguese, landed in Elmina the next 300 years saw many other groups follow each other to that part of the West African Coast. There was of course, a hiatus of more than a century when nothing apparently happened. In 1598, the Dutch arrived and less than 40 years later the British followed in 1631. From then on the pace of settlement formation quickened involving groups such as the Swedes, and Danes.

It was trade, commerce and hopes of reaping economic bounties that underscored all efforts made by the European groups, in other directions the development of health services was incidental to this. The bulk of the period from 1482 to 1882 was devoted to the pursuit of trade. As is well known, this cannot progress unhindered without political control.

Thus from the mid-19th century onwards there were a series of political intrigues, negotiations and even open conflagrations between the European groups themselves, and later involving the African people. The British group, finally settled down as the most dominant group, to rule; European

rivalry was put into reins by a joint agreement to effectively occupy their territories if they wished to continue staking claims to the lands already held. This political control indirectly pushed the British to provide a modicum of services for the people especially those who lived in the towns where Europeans had settled. The bulk of the health activities were carried out in these places.

Referring to figure 4.2 again, it can be seen that the period with a concentration of health activities seems to be the last 50 years between 1882 and 1932. Of this, the 1920s appear the most fruitful, during which time a medley of services were provided in selected areas. Accra's drinking water fountain for example, the building of Korle-Bu hospital and the construction of earth drains in some few towns. We must hasten to point out that the financial situation was improved during this time owing largely to the efforts of Governors Guiggesberg and Clifford at badgering the home government for development funds.

The next 25 years which could have been used for consolidation of any commitment to social services including health care was mutilated by political distraction caused by the 2nd World War and the unrest in many colonised countries which followed in its wake. In the Gold Coast, this was manifested by a wave that culminated in a coalition government being formed between the Africans and the British in 1951. Six years later full self-government was granted to the Gold Coast, bringing to an abrupt end any direct participation in the health care provision and other social development.

The implications of this rapid succession of political events meant that whatever benefit would have possibly accrued to the African people from a transfer of the varied experience that the British had had in providing health care for themselves both in their home country and in the colonies was much curtailed.

This was even more so when neither the provision of health services nor any other service for that matter was the original *raison d'etre* for the arrival and settling of Europeans in Africa, Victorian patronalistic sentiments of civilizing missions notwithstanding. Of course, one must put into parentheses the activities of the Christian Missionary groups.

The salient features of the services provided are as follows:-

1. There is a very obvious lack of intergration between the introduced services and the local system that had existed all along. The underlying reason is the interaction of 2 factors.
 - a) The attitudes and behaviours of the two racial groups - European and African-towards each other especially after the 18th century up to this time.
 - b) The differing nature of the two systems. There are a few of the two groups that interacted and they seem to have done so on peaceful, mutually trusting basis at least before the slave trade. European and African health care was a matter of serious concern for the European. This was especially so in the light of the frequent infections which led to rapid death, a result of living in an unfamiliar environment.
2. By the same token the health of Africans could only be of prime importance to themselves. Each group was therefore solely responsible for its own members' health care. With the assumption of political control over the African and the subsequent assumption of responsibility for social development, the provision of certain services

for Africans in general was somewhat perfunctory. Though, for those in European employment there was provision made on the basis of the employer-employee reciprocal relationship. For the larger African population very little attempt was made to ensure that the majority of the people equally had access to the same. Such an extended coverage could not be achieved without involving the local people and intergrating what they had with the new system, where possible. This, the European were unable, if not unwilling, to do. For, not only would it involve greater expenditure which was not desirable even if the funds were available, but also more concerted efforts at logistics and distribution of all the inputs to health care that would be required. The bulk of the inputs was imported from the U.K. Even considering the staff requirements alone for tens of thousands of villages in the country is enough to make one shirk from such a herculean task. With hindsight, therefore, and in view of the high amounts required, especially if care is to be provided along the U.K. model it can be appreciated why so little could be done. Thus, the patchy, unequal distribution of facilities and the very limited area in which environmental protection was undertaken can be appreciated.

- c) The limited time period during which the services were made available, was not much of a help either. Integration was thus out of the question on account of the mutual distrust between the African and British. Concerning the use of the facilities the Africans also sometimes felt threatened and apprehensive, not being certain of the reception that would be given them at the health institutions. Further, some doubted the efficacy of drugs they obtained, though others believed that injections solved all problems almost instantaneously. In fact, many of these attitudes still prevail especially

amongst the rural folk who, having never taken the opportunity, are often wary to visit a clinic or hospital.

The effect of this near mutual mistrust on integration was to push the two systems further apart, after the singular attempt by the Sierra Leonean doctor, Farrel Easmon, to use African herbal preparations for treating his patients in the hospital. Needless to say, that practice ceased with his retirement.

It is encouraging to note that fresh impetus is being given to this question of integration of the traditional health care and the modern scientific system. During the 1970s, a research centre for plant medicine was set up at Mampong in the Eastern Region to investigate the medical and pharmaceutical properties of plant materials. This centre, run by a medical doctor, collaborates extensively with local herbalists. Furthermore the World Health Organisation has taken up a leadership role to encourage this integration. With the formation of the first association of psychic and traditional healers, a definite organisation now exists to allow this integration.

- d) Another salient feature of the historical development of health services provision in the country, which has not been affected by the sociopolitical perspective, was the obvious lack of commitment to the African people's welfare. This can be seen by the number of discontinuities of certain services introduced; the mobile dispensary, certain control projects such as yaws and malaria, the construction of drains, are a few examples. In addition, the rural areas were virtually left out in the provision of some of these services. The cocoa producing areas, despite their contribution to the colonial economy, were not given any special attention. In the Central Region, Nyarkrom is a town in Agona district which was

the largest cocoa producing centre. Here the first health centre was built only during the 1970s. Prior to that the services available for several outlying cocoa producing villages were provided by a local man who was sponsored by the people themselves to train as a doctor. The nearest facility was a small Native Authority dispensary at Swedru, which is 25 kilometre away, and this is supplemented by the Catholic Mission Centre at Fosu.

The main facility supposedly set up for the cocoa producing areas was at Winneba, a coastal port town with an appreciable European population who owned houses there. It was far removed from the cocoa producing areas, the distance being 50 to 60 kilometres away from the cocoa producing districts.

A third feature was the piecemeal nature of the services provided. There was a no attempt at providing comprehensive package of services comprising medical care, environmental care and water supply at any one place within the same time period. Greater emphasis was placed on medical care. Understandingly, this was necessary for the Europeans. There was an overwhelming need for them to have curative care in view of the rapid deaths and continuous reduction in their numbers. For the Africans however, an emphasis on preventive medicine would have been attractive.

Furthermore, this emphasis on medical care betrays the lack of a policy on health care provision for the country. The first attempt at even defining the health needs came in 1952 after the coalition government had been formed and political control of the British had weakened.

The few projects which could be considered as preventive care appear to have been experimental in nature. They do not appear to have been planned with the whole community use in mind.

Related to the above was the wholesale transfer of some U.K. ordinances and health regulations to the Gold Coast; a country with a completely different set of social conditions. Even more telling is the absence of an effort to encourage the local people to get involved in providing care voluntarily, a much needed complementary activity. There was a general absence of direct control of the new health care system, except for the small dispensaries under the care of the ill-funded Native Authorities.

The spatial dimension of the health care provided consequently is one of inequity in service distribution with a limited number of facilities scattered discretely in the region, the bulk of which service the urban areas leaving the rural areas with the bulk of the population unserved. Unfortunately most of these features persist, the country's Ministry of Health has so far not succeeded very much in changing qualitatively their nature since the Europeans departed.

The following observation made in 1977 by the National Health Planning Unit, would be a pertinent note on which to conclude this section.

'The major objective of health care (in Ghana) is to extend the coverage of basic and primary health services to most people possible during the next ten years ...(by) engaging the co-operation and enthusiasm of the people themselves at the community level' (National Health Planning Unit, 1977 p.1). The re-orientation of the health services away from curative urban based care inherited from the colonial system is yet to be achieved. The historical influence still dominates and is clearly implicated in the unequal distribution of facilities, the lack of communal egalitarianism and the obviously low priority with which health matters are viewed.

In summary this chapter has tried to explain the circumstance that led to the introduction of Western scientific medicine to Ghana and to

provide an account of how the different types of health activities were instituted. The main argument presented in the chapter is that the historical underpinnings of the health services remains the dominant force which influences the current nature of the services in the country. The evidence for this conclusion comes from the analysis of three elements of the sociopolitical system which normally work towards the achievement of some major changes in the structure of health services provision. The Ghanaian system has since colonial times showed varying degrees of dependency of foreign sources for the supply of all its essential inputs of drugs, equipment, instruments, other supply, even manpower and technical knowhow. It has also been predominantly curative in nature, geared toward satisfying individual demand for care rather than towards a collective benefit and meeting collective needs. With a bias towards urban location, on account of the European presence and activities in those areas, many rural areas and smaller towns populations are left unprovided for. Also the historical structure of health care with a predominance of this curative care over preventive care is the result of the inability to re-orientate the present system sufficiently to meet the health needs of the Ghanaian people. Furthermore, the same historical factor operates to ensure a lukewarm attitude towards finding local alternatives for health services; especially when it is noted that a traditional system of therapeutic care has existed for centuries. In fact, it comes as no surprise that it was only in 1969 that the various groups of healers organised themselves into an association. This is inspite of the fact that they provide the majority of the therapeutic services for the community from the remote villages to urban centres. Such an integration cannot be readily considered especially where certain basic shortcomings persist; as they do with traditional healing; the unscientific basis on which they operate, the fierce protectionism of the pharmacopoeia and

the general secrecy surrounding their preparation. It was difficult for even the most selective integration to be made. As it was in colonial times, so it is in the current system. This has had a serious repercussion on the distributional aspect of care and also in the organisation of care towards a unified provision of services using local materials for all. The full significance of these shortcomings are discussed in detail in the concluding chapter.

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CHAPTER FIVE

CONTEMPORARY HEALTH CARE SYSTEM IN THE CENTRAL REGION

Introduction: An Assessment of its Status

As stated previously, health services cover a broad spectrum of activities and caution must be exercised not to fall into the trap of regarding these as being synonymous with sickness services. At the same time, one must be careful not to overstretch the view that useful activity should necessarily be considered as part of the health care services. In recent times the problem has been resolved by streamlining what is considered as the five components of health care. These are promotive, preventive, curative, rehabilitative and terminal care referred to as sociomedical care.¹

Thus a possible starting point in the development of any health care provision must be at the point of promotive health care, closely followed by preventive care. The underlying reason here is that the ideal state for the human body is the healthy state, where disease, in all forms and manifestations is absent. Perhaps, this latter state is not completely achievable, but it should be possible to control conditions within the environment to the point where disease will not arise, therefore providing man with a healthy environment in which to live.

Our proposition here is that the first task of any health care services should lie in the management and control of the external environment coupled with the necessary changes in the behaviour patterns of the people which will make for healthier living. This task should be

1. See Evang, K. (1960). Health Services, society and medicine
Oxford University Press.
Kleczkowski, B. M. (1968). "The Spectrum of activity of modern health care. An attempt to systematise the concepts".
Sante Publique Revue Inter. 31,255 - 265

pursued if possible with a concurrent effort to prevent diseases, particularly those emanating from the environment. The other points along the health care continuum can be taken care of first on a limited basis and even at a relaxed pace until the necessary foundations have been adequately laid to support the full complement of health care services.

In Chapter Four, we presented a historical account of the introduction of health services into the country as a whole. The purpose of this was to provide a background for an analysis of the present health services and to help explain in broad terms, the reason and justification for the introduction of health services into Ghana. This would shed some more light on the predominant features of the current situation. The points considered include the fact that curative services were the most logical care that could be provided for the Europeans as the health problems they faced were acute and often fatal. The newness of the unfamiliar environment with its host of disease-carrying organisms meant that Europeans who had no previous immunity against these diseases, succumbed easily to infection which, without rapid treatment and cure, proved fatal. The major objective then, was to treat and cure sickness in order to forestall deaths. Any preventive and health promotive measures were introduced later. It included some attempts at draining marshy areas, regulations on residential buildings, some sanitation, refuse disposal and water supply. These proved very patchy in their implementation, indeed several towns were not covered, and as far as the rural areas were concerned very little could be done, especially in the face of financial constraints. The question of sanitation, for example, was very vexing in major towns - Accra, Cape Coast, in particular. Also there was very little effort at co-ordination of curative care with the other facets of preventive care especially since doctors had fleeting interests in the latter. Indeed, most of these findings are corroborated

by Gale who noted that preventive health care, especially sanitation, was the most unsuccessful aspect of the medical policy (of the British) as far as the African was concerned (Gale, 1976; 399).

For the local population, curative care meant self medication with plant medicines or consultation with a local healer who was also the custodian of the community pharmacopoeia and other health knowledge. Again for them, preventive measures consisted largely of the use of potents charms and appeals to gods; though it appears that the art of vaccination was not unknown as Bosman reports about vaccinating against smallpox (Bosman, 1705).

Thus, health services in Ghana on the whole have had a firm curative bias, the bulk of the resources and activities being taken up by this type of service. Preventive and promotive services on the other hand have been fragmented. The present economic recession has been no help either having contributed in bringing the health care services to a state of near collapse.

In this chapter, the current situation is dealt with by looking at the institutions providing health services and the activities that are undertaken are considered and supported with data. The services in the Central Region provide a focus for the study of the health care services in Ghana. The discussion here centres on the activities of the Ministry of Health.

It begins with an overview of the activities of each component of health care as they are provided from the different health institutions in the region. Subsequently, we assess the quality of care that is provided, using an inventory approach which considers the activities of each service in the health facilities visited. The final sections of the chapter consider the results of the analysis. The whole analysis focuses on four out of the five groups of care that is required for a complete

health care package. Socio medical care is absent from the existing system hence, this service is not considered except for the following brief comment. There is a need for this type of care as there are cases whose conditions cannot be helped by the present state of medical knowledge, including geriatric cases. While people generally take care of their dying relations, especially the old people, it is also an empirical fact that in the urban areas in particular there are some who are left entirely on their own to depend on neighbours. In fact in the towns for example, Cape Coast and Winneba, the time is fast approaching when some form of communal care may become very necessary for the old people. At present, however, no other care is available other than the use of the curative services of hospitals.

Curative care is provided from facilities ranging from small health units such as dispensaries and clinics to large hospitals. The care can be ambulatory, in which a patient consults with a physician, his illness is diagnosed and medication is provided for this condition. Or the case might require admission for longer and supervised treatment. Such services are provided from larger health units - hospitals. Normally these should provide a wider range of facilities than the smaller units. Services such as operating rooms for surgical cases, with facilities for anaesthesia and operative procedures, special recovery rooms and specially trained staff. Also facilities are required for testing indications of body functions - pulse, blood pressure, temperature - including the use of X-ray for diagnosis and treatment, and electro-cardiography for diagnosis. In affluent countries, modern supplements include ultrasonographs, which help in scanning tests of the liver, lungs and other organs, as well as the use of nuclear medicine. For purposes of treatment, facilities must also be made to cater for intensive care; preventive inhalation therapy against such respiratory illnesses such as pneumonia,

blood transfusion, hydrotherapy and physical therapy. Much of this new medical technology is unavailable for many developing countries even at their national levels, let alone at a regional level, such as the Central Region. The investigation was therefore confined to looking to the conventional methods only. A detailed summary of the position of specific aspects of the Central Region can be found in Appendices E to G.

Preventive Care

This is the care that is designed to prevent the development of illness in the human body. The activities of parasites, for example, can lead to impairment which if not contained might spread from one person to another. It is necessary therefore, to prevent these communicable diseases from occurring whenever possible, and immunisation and vaccination for example, help to achieve this. Furthermore, there are diseases which are unrelated to the communicable ones, which also need attention. These include those that have physical symptoms such as undue fatigue, chronic pain, permanent cough or an appearance of a lump in any part of the body. The preventive activity here consists mainly of regular check-ups involving the measurement of blood pressure, blood and urine analysis, X-ray examination and other tests which are useful in detecting changes and subsequent illness. Other preventable conditions include rickets, dental caries and goitre especially the endemic type. In this last instance interventions such as vitamin supplements, fluoridation and iodisation of salt can be beneficial.

Promotive Care

This is the care that aims at providing conditions and living situations which would contribute to well being. This type of care can be considered as necessary especially in areas where environmental changes

must be made in order to ensure risk-free living conditions. In this regard, this study considered environmental sanitation, for example, as health promotive. Also included here is maternal and child welfare which however, could be considered as preventive care.

There are many ways in which promotive and preventive health care overlap, for example, those services related to basic environmental protection - sanitation, water supply, vector control, safe disposal of refuse. For our purposes, however, we shall consider preventive health care as those direct interventions, for example immunizations that prevent disease, and promotive care as those that seek to enhance health through the creation of an improved environment.

As mentioned in Chapter Four, rehabilitative care is also essential as it aims at improving or restoring certain functions which might have been impaired or lost during prolonged illness or accidents, through certain medically accepted procedures. These services may also be considered as tertiary or specialist care.

Health Services in the Central Region

In Ghana, and within the Central Region, health services are sectorally provided through government funding with some contributions from hospital fees collected at the point of use. Other interested bodies and agencies also provide care. In the Central Region, the Catholic and Ahmadiya Missions provide five hospitals and there are several clinics and maternity homes (See Appendix G). The services that come under promotive health care - environmental and health education for example, are provided by two agencies - the Ministry of Health and the Municipal or Urban Councils; there are no such services in the rural areas though the different health areas are technically charged with the responsibility. Preventive care is also shared out amongst different departments. The

health institutions provide immunization, communicable disease control is under the care of a special team - the Medical Field Unit (MFU) the activities of which was considered in Chapter Four. The Maternal and Child Welfare Health (MCH) units also provide some preventive care. Therapeutic care is made available from hospitals, health centres, clinics and dispensaries, though additional care comes from MFU and MCH.

In the Central Region, curative care is provided from the following units: government hospitals which number 7, with a total bed strength of 1236 (1979 figures). This includes a University hospital, five mission hospitals belonging mainly to the Roman Catholic Mission, though the Ahmadiya (Islamic) Mission and the Salvation Army also fund one facility each. Added to these medical care facilities are small health units or health centres and posts which number 20 and which have an average bed capacity of 7, totalling some 118. These beds are reserved for maternity cases only.

Activities in these centres vary from unit to unit, but basically all the bigger facilities offer out-patient ambulatory care as well as in-patient care. Of this group, the Cape Coast hospital, which serves as the largest centre for the region, offers more services than any of the others. These include out-patient care, in-patient care, laboratory and X-ray facilities as well as theatres for surgical operations. Cape Coast hospital performed the largest number of surgical operations, both major and minor as well as the greatest number of laboratory tests and X-ray photography. Details of these activities and other health units are presented in Appendix E. The health centres are smaller units. Main medical care activity includes ambulatory care and some maternity care, both ante- and post-natal care; activities such as laboratory services and X-ray carried out. Finally, other governmental agencies, such as the local district dressing stations provide some basic first aid for local

communities (see Maps 5.1 and 2).

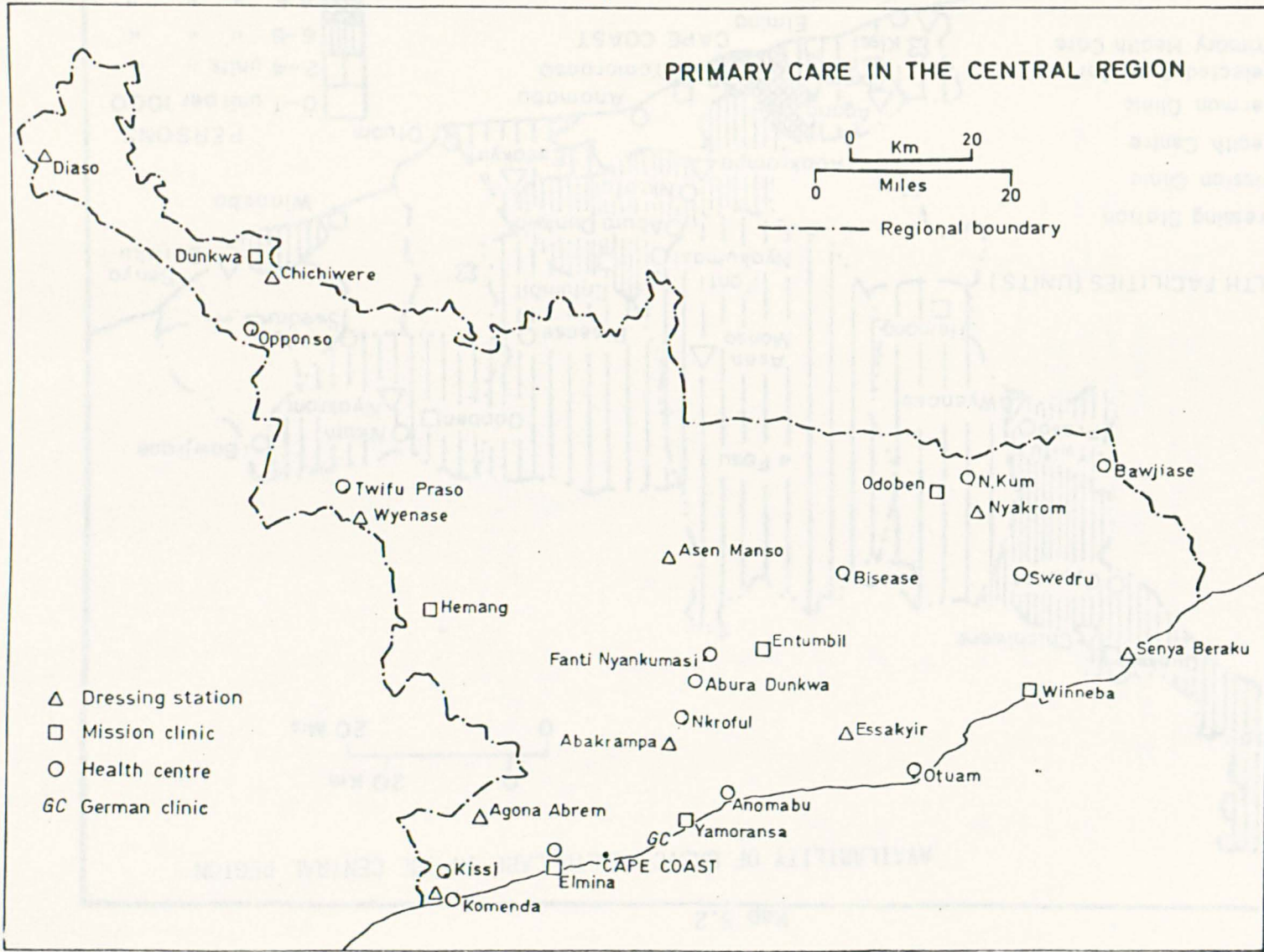
In addition to these health units other facilities which provide curative services include the maternal and child welfare group. Medical care provided from these centres is mainly for children. The activities of this unit include providing routine drugs for complaints such as fever, diarrhoea, coughs and colds, discharging ears and eyes, measles, malaria, whooping cough. Cases which are beyond the capacity of the staff are referred to one of the bigger facilities for treatment. There are a total of 39 maternal and child welfare centres in the region and Table 5.2 provides details.

A third group which provides therapeutic care is the Medical Field Unit which was formed to deal with some of the rampant infective diseases such as trypanosomiasis which occurred in remote areas not covered by other medical care services. The idea was to take medical care to the people in their communities, thus reducing the number of infected cases while trying to control disease. The nature of this service is limited to the treatment of specific diseases in defined areas. The activities of the team involves holding regular clinics for specific communicable diseases in the region. During the past two years, the diseases concentrated on have been cholera, yaws, infective hepatitis, schistosomiasis and yellow fever.

Within the Central Region, there are five of these units located in Cape Coast, Saltpond, Asikuma, Winneba and Swedru. There are no permanent teams in Assin or Twifo Denkyira Heman districts; the usual practice is to deploy staff from the Cape Coast Unit to these districts when the need arises. In fact for the whole region there are a total of 41 people who provide the services in the seven districts.

Map 5.1

PRIMARY CARE IN THE CENTRAL REGION



Map 5.2

AVAILABILITY OF BASIC HEALTH CARE IN THE CENTRAL REGION

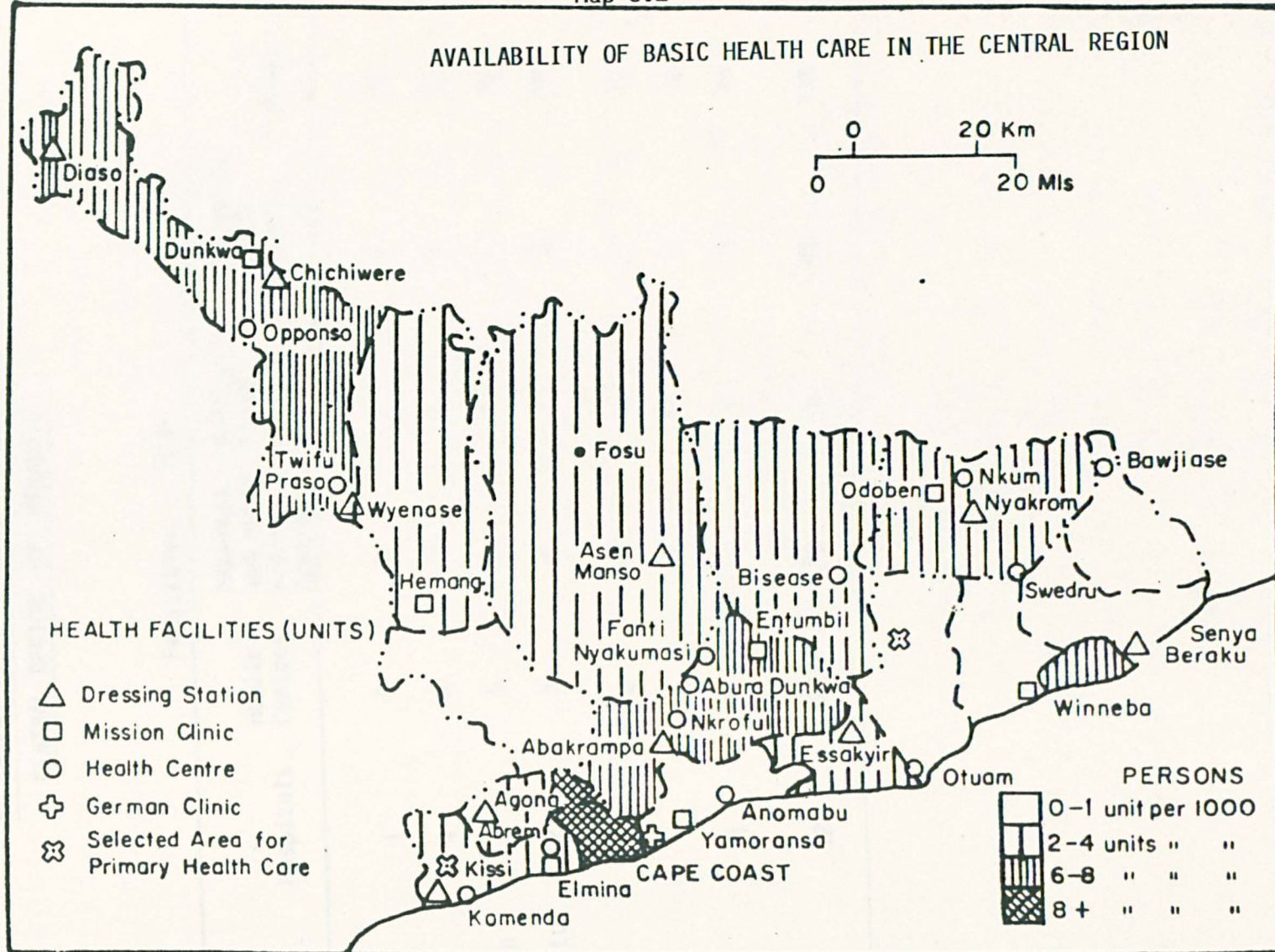


Table 5.1

AN INVENTORY OF SERVICES PROVIDED IN THE
CENTRAL REGION BY DISTRICT

Facilities 1980						
Districts	Hospitals	Health Centres	Maternal and child Welfare Centres	Medical Field Units	Environmental Health Centres	Total
Agona	1	5	2	1	8	16
Komenda	4	4	3	1	5	17
Mfantsiman	1	6	10	0	12	29
Gomua Ewutu	2	5	6	1	8	22
Twifu-Denkyira	2	4	7	1	5	19
Breman	1	4	7	1	6	18
Assin	1	4	4	1	4	14
Total	12	32	39	6	48	135

Promotive Health Care

For this type of care, we consider the activities that relate to the environment and those relating to people's behaviour which are geared towards the promotion of good health. In the study area, it was easy to study the activities relating to the environment relating to people's behaviour. The activities deemed essential included disposal of refuse and sewerage, removal of night soil, vector control and the provision of water supply. Some of these activities are outside the ambit of the health care services. Water supply, for example, is handled by Water and Sewerage Corporation. The services help reduce the numbers of pathogenic agents whose breeding often depends on insanitary and unhygienic conditions. The environmental health division is made up of a number of officers and a team of labourers who see to the cleaning and burning of refuse and disposal of night soil. These vary from district to district as indicated in Table 5.2.

It must be indicated that the district headquarters represents the areas where there are efforts made at governmental level to provide care. In the smaller townships and the rural areas, the promotive health activities are left to individuals, with an occasional community effort to clear out rubbish and other nuisances. These tasks in the towns do not appear to be effectively performed. The problem of night soil removal in Winneba, for example, was a very thorny one. The labourers refused to clear certain areas especially near the sea where the pans were so old and dilapidated that their contents could not be contained. It appears the main problem was the accelerated rate of rusting on account of the salty sea breeze reacting with the urine. In some sections of the town, particularly the government residential areas also situated along the coast the use of water closets (W.C) reduces this problem, though rusting cannot be wholly avoided. In Dunkwa, the main problem encountered was

Table 5.2

**PROVISION OF HEALTH PROMOTIVE CARE
(as at 1979-80)**

District	Major towns	Environmental Health Officers	No. of incinerators (estimates only)	Night Soil removers
Gomoa-Ewutu	Winneba	3	6	42
Agona	Swedru	2	3	25
Assin	Fosu	1	3	13
Mfantsiman	Cape Coast	5	8	57
Twifo- Denkyira	Dunkwa	2	5	48
Komenda	Komenda	1	2	18
Breman	Asikuma	2	3	12
Regional Total		16	30	215

not so much with the removal of night soil as with its disposal. Whereas in Winneba the sea is the natural outlet, in Dunkwa certain areas in the forest have to be cleared and used for the purpose. In Komenda, Cape Coast and Saltpond (respectively in Komenda, Mfantseman and Assin districts), problems encountered range from overburdened facilities to complete lack. Amongst the local fisherfolk quarters in Cape Coast, public pit latrines are provided, though these are few, and the use of the beach particularly by children reduces any congestion. In Komenda, refuse disposal was also fraught with problems especially since dumping sites were uncontrolled in some of the townships. Saltpond and Winneba and Cape Coast had selected sites but the tendency was for the area of dumping to slowly increase in size until rubbish overflows in the street.

Another promotive care engaged in by the environmental health care workers is house inspection. This carries with it the sanction of law. In the health districts this activity, which was started during the colonial era, has been on the wane; though in certain districts such as Dunkwa, for example, house to house inspections have been carried out for decades and daily registers are still kept. Houses are visited noting the presence of larvae or insanitary conditions. The team in Dunkwa claim that this practice helps in maintaining some sanitary order. Certain practices which in the past constituted nuisances, for example commercial fish smoking from various quarters, has been controlled, confining that activity to specific areas. In other areas, for example, Assin district, the few health inspectors of the towns are dreaded members of society as they could get someone fined for insanitary conditions; a practice started in 1894, it still does not appear to have changed the situation much. Advice that they give is often impracticable and costly.

In the rural areas, a control on people's activities is not very easy, if it can be done at all, since there are not health workers even

to carry out the checks. In the whole region, there were in 1980 only 36 health inspectors and their assistants. Their contribution to the real changes in the health status of the people is minimal; they lack sufficient training especially in technical care to be able to offer concrete advice.

Concerning vector control, the main activity undertaken involves spraying against mosquitoes. This activity, when undertaken is very limited in its coverage. Each district has a spraying team who upon request may visit an area and spray. During the rainy season, according to the staff, spraying teams are sent out to marshy areas to spray the surface of the standing water, but this is infrequently done and then such activities are only limited to the towns since the unit does not always have the spraying chemical. During the time of the survey the division had only just taken delivery of a WHO gift of chemicals and spraying equipments.

These are the promotive activities undertaken by the health care system in the region. Though some health education is carried out, this is on a small and very localised scale; mainly to women attending ante-natal clinics. There certainly is a great need to improve this care especially if the disease ecology of the area is taken into consideration.

Preventive Health Care

This takes into account the fact that certain diseases can be prevented by taking simple precautions and measures. In the Central Region, one very useful aspect of preventive care which, unlike the others, is provided in many areas is maternal and child welfare. Mothers and their babies and children under five years receive attention. The babies are regularly weighed and their progress recorded. This helps to monitor their growth. During our visit to some of the clinics, it was observed that not all the necessary materials were there. Some clinics had the

scale without the special weight recording cards. In others the scales were lacking. Furthermore, the services which are available are grossly inadequate compared to the actual numbers of people who ought to use them. If all clinics would operate according to a set standard, for example, examining a minimum of 200 babies per month per clinic, no district will need to hold less than 20 sessions per month. Even though mothers are encouraged to come forward with their babies for immunizations, the response rates particularly in the rural areas are not encouraging. Of the data obtained from seven such centres, mothers from rural areas who had registered their babies were only 0.5 per cent of the total.

Immunizations frequently given include measles and tuberculosis. Very few remember to come forward with their babies for vaccinations against diphtheria, pertussis, tetanus, poliomyelitis, paratyphoid and typhoid. The problem here revolves around the question of accessibility both in terms of transportation and financial constraints. One possible solution lies in taking the vaccines to the people.

Adult immunization is just as problematic. It varies from centre to centre, though a common problem is shortage of vaccine. In Dunkwa, the problem of transportation of vaccines from Cape Coast, which is some 263 kilometres away, always meant delays in the arrival of vaccines or their non-viability by the time use is made of them. This is due to the difficulty of operating a cold chain system, a situation where transportation and fuel problems seem almost insurmountable. For this reason, for the whole of 1981 and in 1982, the solution lay in rerouting supplies through Kumasi, the Ashanti Region capital which at 200 kilometres away, is at least nearer Dunkwa than Cape Coast. The problem with obtaining viable vaccines often results in failure of the vaccine to work, leaving some with a risk. In fact, from the records made available, it was possible to calculate a failure rate of 3.2 per cent for all vaccinations

given in the Central Region. Measles and poliomyelitis recorded higher rates.

There is no health care group that provides such care on a consistent basis. Theoretically all the health services are expected to provide some health care advice to those people who need it. In practice, however, not all facilities are able to do this in view of the volume of work.

Given these services, it was decided that a useful objective would be to examine the extent to which they are made available for the use of the population of 1.2 million in the Central Region. To this end, 33 of the 44 health institutions were visited and investigations carried out using an inventory or a check list to attempt to assess the facilities and services provided. Information sought from the health units cover medical, preventive and promotive health care, a full list of which is shown in Appendix B. There were 25 selected items or services which were deemed sufficient for the provision of a basic and necessary health care. Private owned facilities were excluded. A further criterion for the selection was that the health units should be functioning during the period of the investigation.

The inventory attempted to grade the various services available to assess the intensity of the services provided. Five grades were employed. These are - 'satisfactory', 'adequate', 'inadequate', 'rarely' and 'never' provided.

The varying nature of the 25 items selected for the assessment of health care made it necessary to use different measures. For items such as outpatient care, beds, staff strength, availability of drugs were used to compare with the national ratio. In Ghana, the national ratio of physician per population has been conservatively estimated to be 1:12,000. In the Central Region, the estimate is 1:18,000. For each health institution, the ratio of the total staff strength to the

population of the district in which the institution is located, is compared with the regional average. In other words, the regional figures are used as the standard against which the individual health units' facilities are graded.

To score grade 1, 'satisfactory', the ratio of the item for example, bed strength, must be less than or equal to the regional ratio. Grades 2 - 5 were obtained where an item's ratio exceeded the regional ratio by 100, 200, 300 and 400 respectively.

The second type of measure used for the assessment of facilities such as X-ray laboratory and theatre was based on the physical state of the buildings, equipment and other physical requirements, on the number of days during which such services were in operation during the month previous to the investigation. Recourse was made to the use of record books which showed accurately days of provision. Grade 1 was awarded to the services provided for between 21 and 30 days of the month with subsequent grades being reduced by one week.

The third type of measure was based on the availability of stocks of supplies for use for a fortnight. For example, for orthopaedic services, efforts were made to find out and estimate the quantity of plaster of Paris and crutches that would be required.

Under laboratory services, there are six different departments - bacteriology, blood donor unit, parasitology, biochemistry, haematology, histopathology. Tests performed include serological tests, cultures, stools examined for ova and protozoa, urine tested for proteins and other deposits, skins also for microfilaria.

The laboratory department, perhaps more than any other department requires a wide range of materials in order to discharge functions adequately. Being an important backbone of curative care, it must be well equipped and adequately accommodated. In pre-independence days the

importance of laboratory services was recognised and duly financed by a separate budget; throughout the 1920s and 1930s, the health budget was under three heads: medical care, public health and laboratory.

Conditions in the laboratories visited during the survey left much to be desired. With the exception of Cape Coast University Hospital and the Ankaful Leprosarium, all the other laboratories faced serious problem of staff.

The following illustrates the procedure of arriving at an assessment of one of the services - the laboratory service. We recognise that not all the facilities where a laboratory exists would have all six departments listed, and therefore the actual estimates were based on the types of examinations and tests that were performed. These included serological tests, cultures, stools and urine examinations for different ova, protozoa proteins and other deposits. Below is a summary of the findings of six health institutions where laboratory services are provided.

Accommodation: In four of the laboratories, Cape Coast Hospital, Dunkwa, Winneba and Saltpond, accommodation was unsatisfactory. There was congestion everywhere. In Winneba all six departments were crowded into two rooms. In Dunkwa there were three rooms to cater for the six units; in Cape Coast there were four rooms and Saltpond had one large all purpose room. In addition to the congestion, the physical conditions of the rooms were also not up to standard. There were leaky roofs, broken unlockable windows as in Dunkwa and Cape Coast, coupled with very sparse furnishing. In many places, sinks and washhand basins were unavailable; essential items such as work benches, clocks, reference books were unavailable in the office/laboratories. There was only one institution - Ankaful - where a room was available for culture and sensitivity tests. Nowhere was there a cold room though refrigerators were available for storing media and reagents in three hospitals - Cape

Coast, Ankaful and University hospital. Where blood donor facilities were available, only one room was used for the whole purpose - bleeding waiting area and office.

Equipment required: these are over 15 different items, and in the Region, these are not available in the quantities that are required for the health institutions providing the services. The equipment include microscopes of which there were 8 for all the facilities, 3 of them were out of order; centrifuge of which three were available, 1 out of order; mini autoclave. Equipment that was not available included mettler balance automatic tissue processor, embedding oven, microtome, 1 .37°C incubator and several kinds of glassware.

There is also the question of staff. Again, this area showed gross shortages for the various departments. The assessment was therefore based on the three measures of staff, requirements and accommodation.

Results 1

Overall scores of 25 selected services provided by the Health Institutions

Simple computations were carried out on the inventory data in order to obtain a rating scale for the services provided by the institutions in the Central Region. A weighting was used to help obtain a 100 per cent score for all items in each institution (see chapter 3). Table 5.3 presents the results of the computation which shows the percentage scored by the different health units in the region.

The percentage scores for the services provided by the institutions in the region ranged from as low as 12 per cent scored by Bawjiase and Twifu Praso to 59 per cent scored by Cape Coast University hospital. There were five units that obtained scores above 50 per cent and another five obtained scores between 40 per cent and 50 per cent. Scores ranging between 30 per cent and 40 per cent were obtained for three institutions

Table 5.3

Percentage scores of Health Institutions
for services provided

<u>% score</u>	<u>No.</u>	<u>Health Institution</u>
0 - 10	12	Assin Manso, Agona Brakwa, Odoben, Opponso, Chechewere, Assin Bereku, Bawjiase, Diaso, Twifo Prasu, Fanti Nyankumasi, Twifo Heman, Nkum.
21 - 30	8	Bisease, Enyan Abaasa, Cape Coast Communicable Diseases Hospital, Swedru, Asikuma, Cape Coast Health Centre, Kissi, Abura Dunkwa.
31 - 40	3	Elmina, Anomabo, Saltpond.
41 - 50	5	Ankaful Leprosarium, Dunkwa General, Apam, Winneba, Breman Asikuma.
51 - 60	5	Cape Coast General, Ankaful Mental, Assin Fosu, Cape Coast University, Dunkwa Mines

Saltpond, Anomabu and Elmina, 8 institutions obtained between 20 per cent - 30 per cent and 12 institutions obtained less than 20 per cent.

The facilities provide varying standards of health care; the highest scoring facilities are located in urban areas, with the exception of Dunkwa Mines Hospital which is located in the mining area a few kilometres away from Dunkwa town. The lowest scoring facilities are located in smaller centres and rural areas.

Cape Coast town, which is the regional headquarters has four government provided institutions, three of which are reasonably well equipped; the fourth, the communicable Diseases Hospital, could be improved.

The three facilities in Cape Coast include the General Hospitals, the University Hospital and the Urban Health Centre. Other high scoring facilities located in towns include Winneba and Assin Fosu. The former is a district headquarters, while the latter is a rail and road junction town.

The only highest scoring facility not located in the town are Ankaful Mental Hospital and the Leprosarium. Ankaful is some 25 kilometres from Cape Coast. Its somewhat rural location provides peaceful surroundings for the patients. The Mental Hospital also provides out-patient facilities for all types of illnesses.

The second group of health institutions were those that scored between 40 per cent and 50 per cent of the selected 25 items. These institutions are also located in towns - Apam, Dunkwa, Breman Asikuma. These facilities, apart from Dunkwa, were originally provided by the Catholic Mission, who choose to serve urban and rural areas.

Only three institutions scored between 30 and 40 per cent and these were located in towns.

Group 4 and 5 which scored less than 30 per cent total 20 institutions, two-thirds of all the institutions in the region, indicating a lower standard of services for the people of these areas.

The Quality of Care

The 25 items marked attempt to assess services associated with particular health care needs. These are medical care and preventive care. The latter gives some indication of the real impact of health care provision on people's health. Also, promotive care was considered to find out the extent to which services are being offered with a view to improving an otherwise healthy life.

When all the grades - satisfactory, adequate, inadequate, rarely

and never - are considered, the highest scoring grade is grade 3 - inadequate. Most of the listed services were scored 'inadequate'. This is followed by 'never' which indicates the unavailability of many services. The third highest scoring grade is 'adequate' followed by 'rarely' and finally by 'satisfactory'. Very few of the 25 items in the Central Region actually reach the 'satisfactory' mark.

Curative or Medical Care

To find out about what the inventory indicated as to medical services for curative work, a chart previously described in Chapter Three was used. Figure 5 (1) presents the results of the computation.

The red line represents the demarcating line between adequate levels of provision and the critical level. Those services whose rating put them above the critical line are adequate and sufficient; those which fall below need drastic improvements, which in some case may mean fresh attempts to provide all the necessary requirements for that particular service. As can be seen from figure 5 (i), the total number of marks scored for all types of services for medical care is 575; as much as 479 or 83.3 per cent fall below the critical line with only 16.7 per cent occurring above the line. The high percentage of the services falling below the line gives some indication of the current state of medical care in the region. Out of the 18 selected items considered important for curative care, only two appear to be satisfactorily provided by one or more health institutions. These two are out-patient care and staff.

We considered out-patient care as that which is provided for those who consult with the medical staff over everyday health problems. The degree of adequacy here is seen only in terms of the actual numbers of people who turn up to use the facilities and not with reference to any specific population of the area where the facility is located. There

Figure 5-1

MEDICAL CARE: LEVELS OF PROVISION

Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total
Satisfactory	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11
Adequate	11	13	9	9	5	5	6	4	4	1	1	1	3	2	2	3	3	3	85
Inadequate	11	19	3	3	7	7	5	2	3	4	3	3	2	13	1	4	0	6	98
Rarely	2	0	11	11	3	4	4	5	5	7	7	4	3	3	5	5	10	13	102
Never	0	0	10	10	18	17	18	22	21	21	22	24	25	15	15	21	20	0	279

Total number of check marks 575

Total number of check marks below critical line 479

were nine institutions that provided what could be said to be 'satisfactory' out-patient care. The requirements considered basic for such care include the availability of a waiting area where a records clerk is present to take care of records; a nurse who understands the local language, consulting room which affords privacy during consultation with a doctor or health superintendent, and also the availability of a few simple diagnostic aids in the room - thermometer and stethoscope. In thirteen other institutions not all the items listed were available; in six health centres thermometers were not available having been broken accidentally and not replaced at the time of survey.

The number of staff available was more problematic. There was only one institution in the whole region, Dunkwa Mines Hospital, where the numbers and categories of staff could be regarded as satisfactory. In 13 others the staff strength could be considered adequate and the remaining 19 had inadequate levels of staffing. At the time of the survey, Ghana was experiencing an unprecedented period of out-migration from all areas of government service and from the country itself. One of the areas worse hit was health care. Perhaps one ameliorating fact was that the numbers using the facilities were also reduced and as such, the impact of exodus of staff was not as crushing as it would otherwise have been.

Other services associated with curative medicine included the care of admitted cases in hospital wards. Special efforts are made to equip and furnish these wards to meet patients needs. In this study two items were selected as necessary requirements for curative care of patients - the availability of beds and meals. Of the thirty-three facilities included in the study there was none that provide satisfactory hospital care. Only 9 were able to provide adequate care, the same also provided adequate number of beds but only 5 could make available adequate meals for the in-patients. There were three facilities that also

provided hospital care but these could only be graded as inadequate on the basis of the scores obtained.

A similar state of affairs existed in the case of laboratory care, X-ray facilities and availability of a theatre. Under laboratory as discussed previously, the investigation considered the facilities available for the performance of three tests, haematology, stools and urine, and cultures. The results show that the highest scoring grade was grade five, 'never'; 18 institutions obtained that grade for the tests of blood, stools, urine and culture. Those that scored grade 4, were smaller in number, 5 institutions rarely provided the three services. Of those that regularly provide the laboratory services, those scoring grade 3 'inadequate' outnumbered those that scored grade 2 which is 'adequate'. There was no institution where grade 1 - 'satisfactory' - was scored. The percentage of institutions that fall below the critical needs line is 89.85 per cent.

The third group of services provided which is considered necessary for curative care is the availability of X-ray facilities. This service was subdivided into five to cover the different parts of the body - the chest, bones and limbs, barium meal and enema, pregnancy and dental X-ray. No institution obtained high enough scores to be graded as 'satisfactory'. Those that obtained sufficient scores to grade under category 2 ie. 'adequate', were few in number compared to those whose scores placed them in category grades 3 - 5. The proportion of these above the critical need line is 6.09 per cent compared to the 93.9 per cent below the line, indicating an exceedingly high need.

The study considered the availability of surgical facilities, focussing on minor and major operations performed there during the month prior to the investigation. Again the scores were similar to the others already considered. 'Adequate' facilities exist in 8.92 per cent of the institutions in the region. The rest falls under the critical needs line.

This means as much as 91.1 per cent of the institutions do not provide adequate surgical facilities.

Finally, the availability of an adequately stocked pharmacy was considered crucial to any successful curative health care provision. All the health institutions visited, had a pharmacy located on the premises. The scores obtained fall into three grades - satisfactory, adequate and inadequate. Only one institution, Dunkwa Mines Hospital, obtained the grade which is 'satisfactory'. Three institutions obtained the second grade, 'adequate'; these were Ankaful Mental Hospital, Assin Fosu and Cape Coast University Hospital. The bulk of the institutions - scored, the lower grade. Drugs were stocked were very similar, mostly analgesics and a few antibiotics in very limited in quantity. Every health institution had a standard practice of prescribing drugs for patients to purchase from local chemists.

The second major focus of the investigation concerned the promotive and preventive services that touch on the people's day-to-day activities designed to improve their health. These were covered by items 19 - 25 of the check list.

Figure 5..2

Item No.	19	20	21	22	23	24	Total
Satisfactory	0	0	0	0	0	3	3
Adequate	5	3	0	2	0	20	30
Inadequate	26	11	6	3	3	6	55
Rarely	2	19	22	22	19	0	82
Never	0	0	5	6	9	4	24

Total number of check marks 161
 Total number of check marks below critical line 161

As in the case of curative care, the red line demarcates adequacy of health care from inadequacy or critical level care. For preventive and promotive care, the check marks totalled 194 of which 161 or 82.37 per cent fall below the critical line. The percentage of those facilities that provide adequate preventive or promotive health care is only 17.63 per cent. Of the seven selected items only one, maternal and childwelfare, provided satisfactory care. The institutions providing such a level of service were Cape Coast, Winneba and Assin Fosu. This was followed by immunisation and vaccination services, for which five centres provided adequate service. These services are provided by several institutions though the majority do so at inadequate levels. On the whole, services which are 'rarely' provided, by as much as 70 per cent of the health institutions include health education or advice on health care, local community work, environmental health care and vector control. These constitute the bulk of these services that fall below the critical level of care.

Rehabilitative Care

The last service that was considered is rehabilitative care. This care is very limited in its availability and is provided by two specialist hospitals. Only 9 per cent of the institutions provide specialist care and at the levels of 'satisfactory' and 'adequate'. Psychiatric care and special leprosy hospital are both located at Ankaful, and a hypertensive clinic is at Winneba district hospital. The last service is part of a WHO project on hypertension. In the Ankaful Leprosarium, there is also a dermatologist who treats referred cases from other hospitals. Such care is essential if a comprehensive health system is to be provided. According to the schematic representation of the health care components presented in Chapter One, the rehabilitative care is at the tertiary level,

and necessarily requires both medical and social as well as ancillary facilities to make it possible for the patients to regain full or partial use of any physical or mental faculty that may have become impaired. The two hospitals in the Central Region exist for national use, with patients being referred from other parts of the country.

The third computation sought to find the performance of the health services provided in the Region by adding the total check marks above the critical level and dividing that by the total number of items, all the check marks above the critical lines totalled 135, only 5.30 per cent. This is the percentage of the services in the region that is satisfactorily and adequately provided, an abysmally low score indicative of the generally poor conditions of health services in the region as a whole.

Results II

Three constructs of Health Care Provision in individual districts

A second analysis concentrated on examining three concepts in the provision of care - density, intensity and availability of care. Intensity measures units of services or activities performed by the health institution. Density considers the extent of services provision per 300 people.

The availability construct is a measure of the proportion of health units providing a specific service as against all other services in one district.

The table below shows the actual values and ranks of the three constructs in the seven districts of the Central Region. The areas that appear to have adequate medical care are Komenda and Mfantsiman. The ranks of all three constructs are high for Komenda; the facilities for this district are relatively higher than those of the other districts, hence an intensity score of 40.8. Furthermore, Komenda's population appears to be the smallest and so the density score obtained by the district is

Table 5.4

PROVISION OF MEDICAL CARE IN THE SEVEN
DISTRICTS (VALUE AND RANK)

District	Intensity		Density		Availability	
	No.	Rank	No.	Rank	No.	Rank
Agona	88.0	4	102.1	2	0.81	4
Mfantsiman	60.5	2	111.8	4	0.93	1
Komenda	40.8	1	101.7	1	0.89	2
Gomua-Ewutu	77.5	3	123.8	5	0.52	7
Twifu-Heman	99.2	5	107.0	3	0.66	5
Breman	101.3	6	128.0	6	0.59	6
Assin	116.8	7	131.0	7	0.82	3

the lowest 101.7. Coupled with an availability score of 0.89, Komenda can therefore be regarded as the best catered for as far as curative care goes.

The second district that scored high was Mfantsiman. The intensity and availability scores were ranked second and first respectively.

The remaining five districts did not show much difference in the levels of health care provision, though two, Bremang and Assin, obtained very low scores and ranks for intensity and density. The lowest rank for the availability was obtained by Gomoa Ewutu.

In the case of preventive care (Table 5.5) there seems to be better intensity scores than for medical care. Again Komenda district ranks first

followed by Mfantseman district, with Bremang district third. Density also shows lower scores for Komenda compared to the higher scores for Assin and Twifo Heman which scored 190.6 and 198.9 respectively.

Table 5.5

PROVISION OF PREVENTIVE HEALTH SERVICES IN THE SEVEN DISTRICTS OF CENTRAL REGION (VALUE AND RANK)

District	Intensity		Density		Availability	
	No.	Rank	No.	Rank	No.	Rank
Agona	31.2	6	107.0	2	0.34	6
Mfantseman	28.3	4	113.9	3	0.48	3
Komenda	18.8	1	103.2	1	0.46	1
Gomua-Ewutu	33.9	7	183.4	5	0.42	7
Twifo-Heman	29.0	3	198.9	7	0.39	5
Breman	21.9	2	182.5	4	0.42	4
Assin	30.8	5	190.6	6	0.49	2

On the whole there are few differences in the availability scores for preventive health care. These are generally low and indicate an overall scanty provision of preventive and promotive care in all seven districts of the Central Region.

Discussion

1. Curative or Therapeutic Care vs Preventive Care

From the above results a number of observations may be made concerning the nature and availability of health services provision in the Region.

There is a distinct urban bias in the location of facilities (Table 5.6). All the major government hospitals, with the exception of the two specialist hospitals - the Leprosarium and the Mental hospital, are located in urban areas. Cape Coast, the Regional capital has three hospitals. Other centres such as Winneba, Saltpond, Dunkwa also have important hospitals with facilities for inpatients. In the location of the mission hospitals some consideration was given to the semi-urban and rural centres, hence the Catholic Mission's choice of Fosu, Apam and Breman Asikuma for their hospitals.

Environmental health units can be found mainly in the major town of each district. Here, the services are mainly confined to the developed centres of the town. The fringes are left out just as the rural areas are left unserved.

The MFU, which are even more limited in their distribution, confined to only six towns - Assin Fosu, Breman Asikuma, Twifo Hemang, Cape Coast, Winneba, and Swedru. Of course the mobility of this unit, when circumstances allow, means that more people in rural areas can be reached.

There is a predominance of medical care over preventive and promotive health care. In fact when all the health care facilities in the region are considered some 83 per cent of these, including privately owned ones, provide curative care for various illnesses. In contrast the institutions for promotive and preventive care are very weak, with limited personnel and resources. Even facilities designed primarily for preventive care is used for curative services. The MCH clinics for example, primarily health promotive in design, with particular emphasis on advising mothers, are obliged to treat simple ailments of mothers and pregnant women and refer the more difficult cases to hospitals. Also, 32 per cent of the activities of MFU are devoted to therapeutic care where treatment is provided for those who report with certain infectious or

Table 5.6

AREAL CLASSIFICATION OF HEALTH INSTITUTIONS

Area	Health Institution
1. Cape Coast	Cape Coast (Regional Hospital)
2. Urban Areas	Winneba, Dunkwa, Saltpond, Cape Coast University Elmina, Cape Coast Health Centre, Swedru, Apam.
3. Semi-Urban	Fosu, Breman Asikuma, Bawjiase, Anomabu, Assin Manso, Kissi, Abura Dunkwa, Fanti Nyandumasi, Twifo Heman.
4. Rural	Diaso, Agona Brakwa, Assin Beraku, Odoben, Opponso Nkum, Nkwantanum, Bisease, Otuum, Essuehyia, Twifo Praso, Enyan Abaasa, Chechewere.

parasitic diseases especially worm infestation, though the MFU is strictly required to seek out cases of specific communicable diseases such as yaws, infectious hepatitis, measles, cholera and trypanosomiasis.

Medical care necessarily takes a greater proportion of the health budget than promotive and preventive health care. Funds needed for initial capital development are substantial; in addition to the permanent structures required to house the hospital, there is essential equipment for theatre, X-ray, oxygen, and laboratory apparatus, furniture, and all instruments. The maintenance of these equipment for a continuous service which is even more problematic. There is the perennial non-availability of spare parts for broken machines, a problem that plagues about 70 per cent of the medical facilities in the region.

Table 5.7 shows the position of staff in medical curative care as against those in preventive health care; there are about three and a half times as many members of staff for curative care as there are for preventive care. Apart from the Senior Medical Officer in charge, there is no other doctor directly involved in preventive health care on the part of the staff, particularly amongst doctors some of who actually claim that there is no 'challenge' or 'job satisfaction' in preventive care.¹ Clinical work appears to carry prestige and accords a higher social standing than could be offered by preventive care. Obviously the more dramatic cures that can be effected in a relatively short period cannot be compared easily with the gains that accrue to a whole community if patient and consistent work is done in preventive health care.

A further observation related to curative care is the availability of drugs. In recent years, there seems to have been a serious shortage of

1. This in fact came out on a number of occasions during the interviewing session of the health services survey.

Table 5.7

STAFF SITUATION IN HEALTH INSTITUTIONS IN
THE CENTRAL REGION (1979-80)

Staff	Curative care	Preventive care
Medical Officers		
Regional Medical Officer	1	-
Senior Medical Officer	8	1
Medical Officers	13	-
Dental Surgeons	3	-
Nursing staff		
Regional Matron	1	1
Hospital Matrons/Public Health	9	4
Health Centre Superintendents/ District Public Health Nurse	25	4
Nursing Sisters/Masters	59	-
Other nurses/Public Health	629	86
Pharmacy	68	-
Dental	7	-
Laboratory technicians	9	-
X-ray technicians	9	-
Health Inspectorate	-	17
Total	841	112

drugs in Ghana: During the period of the survey most pharmacy sections of the health institutions were empty except for a few basic drugs such as analgesics and antibiotics.

The problem facing drug supply appears to be the same as that plaguing essential hospital equipment repairs and maintenance. Dependence of foreign sources for the supply makes it imperative for the country to have adequate foreign exchange for any purchases to be made. It is not surprising therefore to find that in the Central Region, only Dunkwa Mines Hospital had what appeared to be a satisfactory level of drug supply. The bulk of the institutions had inadequate levels, and as patients had to purchase drugs privately, outpatient utilization of the facilities was greatly dependent on the current position of the stocks of drugs in the pharmacy. Outpatients tended to rush for treatment whenever drugs were available, with a characteristic fall in the number when the supply dwindled.

Admitted cases were hardest hit. They had to provide for themselves practically every drug and dressing they required, and including bed linen. The only alleviation appears to have been some donations of drugs from well wishers and other Ghanaians living in Western Europe and America.¹ By 1985, it became necessary to charge fees for all services.²

Concerning the services provided for preventive care, the main observation concerns the lack of commitment on the part of the providers as well as members of the public to the various types of care. Services considered included immunization, advice on health care or health education, local community work, environmental health care, vector control and maternal and child welfare. The low grading of all these services points

1. See various issues of West Africa in particular May, June, 1982.
2. July 15, 1985; Oct. 14, 1985. These vividly document the state of affairs in health care position.

to their inadequacy and the need to pay particular attention to them. An essential service such as immunization is poorly provided and inadequately patronised in spite of a UNICEF/EPI campaign.

Part of the problem is related to logistics, obtaining and preservation of vaccine and conscientiousness of the vaccinators. Vaccines are not produced in the country and must be imported. The problems related to staffing has already been discussed and serious shortages in this service contributes to the inadequate levels of provision of immunization. During the 1960s, there were public vaccinations to immunize people in market places, community centres and other gathering points. As the expanded table in Appendix G shows, during the period of survey there were no public vaccinators. Immunization for babies is provided from within the health institutions, MCH and hospitals. However, transportation difficulties alone deter people from making full use of a service. It is not surprising therefore that the total number of children immunized in the population are very few. In Winneba, Dunkwa and Abura Dunkwa, it was estimated that there were 503,378 and 150 babies under one year old in 1979/80; the total numbers vaccinated against tuberculosis was only 162, 92 and 35 respectively during that year. The situation is worse in the rural areas.

Also, for certain immunizations, especially those that must be taken serially such as DPT and Oral Polio, mothers often forget and miss some of the subsequent doses. As for measles, few mothers remember to take their babies when they are nine months of age. A reminder to mothers is essential, yet in the majority of cases word cannot be got round to them. An effective means of communication is an important asset.

Adult immunizations are provided by the MFU. Even though they are not as well organised as the MCH immunization for babies, they do administer more immunizations despite the frenzy during an epidemic. Some problems include arriving without prior notice and rural dwellers are often left

out, except if the locality is an assigned base of the MFU for control of a specific disease. In the yaws control programme, for example, within the Gomua Ewutu district, there are six localities that the team visits fortnightly (provided there is fuel for the motor bike) to administer procaine penicillin and ensure that there is some abatement of the problem. Any other adult immunization is provided on ad hoc basis. Table 5.8 summarizes some of the immunizations undertaken during 1979-81.

Table 5.8

IMMUNIZATIONS IN THE CENTRAL REGION 1974-81

	BCG	TAB	Cholera	Tetanus	Yellow Fever	Polio	Measles
MCH clinic	4236	3086	138	1252	0	3301	5894
MFU	6380	3561	18,811	545	110	4136	4280

Health promotive care is inadequately provided. Any activity that is undertaken is limited to the towns. Although some of the rural areas have health overseers, their activity so often consists in mere instruction - the villagers have to clear and burn rubbish and provide all necessary facilities for themselves. Even though town dwellers pay rates, they still needs to be supplemented by governmental funds for the cleaning and other services such as sewerage disposal. These are all denied the rural dwellers. Of all the conservancy labourers employed, totalling 1073 for the whole region, not one works in a rural area.

Vector control is carried out in the same selective manner. In a

humid tropical area such as the Central Region, mosquitoes abound and the parasites they transmit contribute most to this group of diseases. Yet there are no consistent plans for spraying breeding sites, and the quantities of chemicals are not adequate for the needs of this mosquito infested region.

Health education, essential for behavioural changes, is erratic wherever it is undertaken. Occasionally health education campaigns are held especially during the World Health days, but nothing significant comes out of them. Furthermore, if there is any activity in which the public is to be involved, such as building of new latrines or clearing of bush, this group is used to spread information. This was the system introduced at the end of the 1950s when a district health education unit was established, with a resident health educationist.¹ In the Central Region, health education activities include occasional talks during outbreaks of disease, for example during the cholera epidemic several talks were given. Furthermore, there are talks given during particular seasons, for example during the mango season talks are given to the sellers on how to maintain hygienic standards. Church groups are sometimes addressed on specific topics. Such education is required by all and sundry, but again activities are confined to the towns.

The MCH group have their own method of education, having a captive audience to whom various talks and some nutritional education are given. The MFU has its own methods and activities. Here people who turn up for immunization or for treatment are talked to on a personal basis, thus allowing for some discussion and questions.

Observations concerning community health are not dissimilar to the

1. See Ministry of Health Records on Monthly meetings of Regional Heads - Western Region, 1958 (Central Region was a part of this region at that time).

above preventive health care activities. Much of this work is in the hands of community health nurses who visit the communities periodically to check on specific cases, for example motherless children, the handicapped or mothers who delivered at home. Direct involvement of health service workers in community work is generally absent. More will be said on community care in Chapter Seven, but we can conclude that community care is the least developed of all the services provided.

Conclusion

Against the background outlined, it can be concluded that while there are fewer questions as to the availability and place of curative services, there appear to be many problems associated with health promotive and preventive services, not least being their financing (see table 5.9).

Table 5.9

PERCENTAGES OF MEDICAL AND PUBLIC HEALTH CARE OF THE HEALTH BUDGET FOR SELECTED YEARS

<u>Year</u>	<u>M. Care</u>	<u>%</u>	<u>Public Health</u>	<u>%</u>
1926/7	105,318	49.89	93,392	44.24
1927/8	192,681	52.75	155,436	42.56
1930/31	195,449	52.95	154,985	41.99
1932/33	156,250	50.00	142,436	45.00
1936/37	181,954	58.24	124,141	39.73
1937/38	201,160	59.21	131,060	38.57
1938/39	200,873	57.39	141,983	40.56
*1968/69	15739,540	67.68	260,450	11.20
1974/75	65006,136	79.60	4456,040	11.70
1976/77	597,500	73.13	8313,000	7.70

* Cedis

Sources: Medical & Sanitary Reports 1925-40; Health Budget, Ministry of Health, 1968/9, 1974/5, 1976/7.

As stated earlier in the chapter, the ideal position of any health service is to provide an integrated and comprehensive range of services which ensure that diseases are both prevented and treated and good health is promoted. This chapter has clearly shown that the ideal health care system is still very far from being achieved in the Central Region. The services are neither comprehensive nor integrated. Curative care predominates, to the point that facilities, staff and resources meant for preventive care are used for curative care and the former is relegated to the background. This usurpation by curative care is not unnoticed by the providers; it appears that the problem lies in the nature of the task of providing for health promotive and preventive care, including the following;

- i) Finding the most appropriate measures to adopt to control the natural environment where this has a direct bearing on disease causation.
- ii) The most efficient methods of dealing with the logistics and distribution of supplies, equipment and staff to cover over 4000 localities and 1.2 million people.
- iii) Enlisting and sustaining the support, both moral and practical of the majority of the populace to join with the government to control and eradicate communicable diseases and disease organisms present in the communities.
- iv) Obtaining adequate funds. This seems to be the most difficult of all the problems, how to obtain enough funds to undertake these changes within a given time in all areas of the region and indeed the country.

Concerning curative care, with its predominance over preventive care, the problems centre around four issues. Of no mean significance is the historical basis of health care provision in the country, being

one of European services set up to deal primarily with treating Europeans, who having no previous immunity to tropical diseases succumbed easily to the infectious and parasitic diseases. It was not therefore by chance that curative care should dominate all other cares. Certainly Ghanaians have now been in control of Health Services for some three decades, but it has not been easy to make the radical shift towards achieving a balance in the two major forms of care.

The second issue, which arises from the first is the problem of dependence on overseas supplies for the bulk of the resources required for an efficient provision of curative services. In the early post-independence days, it was hoped that there would be establishment of domestic industries that would produce some of the basic requirements, but to a large extent, this has failed to materialise. Ghana has a pharmaceutical company, which has had its own share of the effects of political manipulations and wrangling.¹ As for the other requirements, very few successes have been recorded. There is a company that produces hospital furniture (beds and cupboards) but its capacity is low. New equipment to replace obsolete ones is hard to come by, as indeed are spare parts to repair what is broken. The lack of parts is a perennial problem as agents and suppliers are continuously changed and spares for one make of equipment may not fit another which is from a different source. These problems greatly increase the expenditure on curative and necessitate a higher percentage of the health budget to curative care.²

1. Within the first few years of operation, the first coup d'état resulted in it being nearly pawned off to a Canadian Company, Abbot Laboratories. Following a hue and cry from the people, it operated jerkily for a while, was temporarily closed down for lack of raw materials and now produces under-capacity.
2. Also, the importation of drugs makes it possible for officials of the Ministry to defraud the government through the purchase of expensive patent drugs. See West Africa, June 19, 1983.

The third issue, of even greater significance in the problem of domination by curative services, is the question of finance and the foreign currency required for the importation of essential items (See table 5.12). During the past ten to twelve years, the country has passed through a very difficult economic recession which has reduced credit worthiness, making importation of most items virtually impossible. The health services are amongst the hardest hit, particularly since the usual budgetary allocation is so meagre, often less than 8 per cent of the total budget.¹ The provision of the three services - curative, preventive and promotive has become a difficult task. Indeed, over the last 8 years, the hospitals have become very run-down, and were almost brought to a state of collapse. In the Central Region, a campaign was set up to "save the hospitals from total collapse".

As can be seen from Table 5.10, foreign exchange expenditure for 1968/69 was 25.8 per cent of the health budget. By 1976/77 this was reduced to a mere 2.5 per cent. A short analysis of the health budget for one year will help shed light on this matter and will give some indication of some of the direct causes leading to the gradual grinding of the health services to a halt. Below is a breakdown of the 1974/75 health budget for the whole country. Attention is focussed here on the item 'Other Expenditure'. All other health care activities derive their share from this, and below consideration is given to the allocation for selected items for that year.

Items 1 to 3 of table 5.11 (ii) amount to 4.48 per cent of the recurrent budget. Compared to item 4 which takes up 4.72 per cent there seems to

1. This does not compare favourably with sectors like Education, which gets 12%, transport and communications which receives more than 21% and agriculture which gets 25% (the latter of course is one of the few productive foreign exchange earners). See Min. of Econ. Planning Five Year Developing Plans, 1975-80 Part III p (i).

Table 5.10

FOREIGN EXCHANGE REQUIREMENT FOR HEALTH SERVICES 1968/69 and 1976/77 (IN CEDIS)

Department	Total Expenditure	Foreign Exchange	Percentage	Total Expenditure	Foreign Exchange	Percentage
Dental	232,370	62,330	26.8	1,400,000	13,041	0.93
Environmental	1,255,900	33,520	2.66	4,459,000	42,310	0.95
Epidemi	1,078,630	194,850	18.64	48,010,001	118,004	2.45
Health Lab.	728,020	197,530	27.13	1,520,000	18,806*	1.23
MCH	623,670	32,080	5.14	2,354,000	57,400*	2.44
Medical Care	6,794,590	1,520,920	22.33	36,301,000	798,611	2.20
Mental Health	1,169,900	571,660	48.36	7,344,000	408,116	5.55
Nutrition	20,070	3,270	16.29	880,000	22,198	2.52
Training	1,641,840	384,090	23.39	-	-	-
Total	23,252,660	3,000,250	25.80	59,059,000	1,478,436	2.50

* - only recurrent expenditure

Source :- Ministry of Health Budget Allocation 1968/69, 1976/77

N.B: The Cedi rate of exchange to 1 US Dollar

Years	Cedis	\$
1967	1.00	1.40
1971	"	0.98
1973	"	0.87
1976	"	0.87
1984	75.00	1.00
1986	120.00	1.00

Table 5.11 (i)

HEALTH BUDGET FOR GHANA, 1974/75

	Amount in Cedis	Percentage
Emoluments	25,363,250	31.1
Travelling and Transport	2,468,220	3.0
Other expenditure	41,111,398	50.3
Capital	12,723	15.6
Total	81,660,254	100.0

Source: Ministry of Health Budget Statement for 1974/75

Table 5.11 (ii)

AMOUNT SPENT ON OTHER EXPENDITURES

	Amount in Cedis	Percentage
1. Hospital Equipments (Maintenance, and Repairs, new purchases)	495,880	0.72
2. Health Laboratory	925,000	2.45
Purchase of equipment	(10,000)	0.02
3. Missions and University Hospitals	530,000	1.29
4. Government Subventions to other agencies e.g. WHO, UNICEF, & UK schools of Tropical Medicine & hygiene - London & Liverpool; Bureau of Hygiene & Tropical Medicine and others	1,939,660	4.72

Source: As above.

be a curiously misplaced order of priorities. There is no doubt about the valuable contribution made to the progress of health from the agencies mentioned. However, in the situation where there is equipment requiring urgent repairs, 3.19 per cent of the budget can only be considered as a pittance. This in 1974/75 amounted to less than \$1.4m for all the health institutions in the country.

The fourth issue of importance which pertains to the predominance of curative care over the others is the general absence of an adequate number of appropriate facilities for treating minor ambulatory problems at the basic level. The result, as previously indicated, is the continuous siphoning of time and effort of the staff and services that are primarily preventive into curative services. This situation is even reflected in the use of the health budget. Of the total budget curative care takes an average of 75 per cent, of which a substantial percentage goes to specialist curative services. This fact is amply indicated by the 'satisfactory' nature of the services offered by the special hospitals at Ankaful (see p.222). The remaining 45 per cent is taken up by the budgets of hospitals and health centres (Nat. Health. Plan. Unit. 1977).

This issue of the lack of adequate care at the primary level is the bane of the health services provision in the country. How can such a service be developed at the local community level which caters for both preventive and therapeutic care, and which has a definite objective of control and eventual eradication of communicable diseases to achieve?

In the provision of health services, there is an essential territorial or areal co-ordinate or parameter which must be reckoned with if an efficient system, which is accessible to the majority of the people is to be established. There are definite environmental areas with important empirical features for deciding on everyday health care

practicalities. This peculiar mix of physical, biological and social conditions and its ramifications for the health status of the people cannot be ignored during the process of sorting out the appropriate measures to adopt for the provision of health services.

Apart from this areal component, there is the special factor of peoples' welfare being given attention in the distribution of any service, particularly health care, which answers a basic human need. Here, the peoples' peculiar health problems arising from the everyday ecological relationships with the local environment; of their communities, the measure of control which they are able to exercise over the latter; and their willingness to work towards a change in the health situation are all important factors to consider in the delivery of an effective primary health care.

Medical geography, with its focus on territorial and ecological aspects of human health and disease, and also its recent welfare underpinnings, make it one of essential disciplines that can contribute meaningfully to the debate and research on appropriate methods necessary for the provision of primary health care. This is why it has been thought useful to organise the rest of the empirical data on the study of health services provision in the Central Region of Ghana into a consideration of:

- i) the ecological characteristics of health and disease in the area;
- ii) the peculiar community structure that exists is also studied in an attempt to identify some of the factors that are likely to help or hinder local contribution to health services provision at the primary level.

In summary, this chapter has attempted to explain the current circumstances of health care provision in the Central Region and to give account of how provision is effected for curative, preventive and promotions services. The main argument put forward in this chapter has

been that the services, as they are at present, are predominantly curative in nature. The reasons for this lies in the historical antecedents and the sheer inertia which the ever-escalating recurrent budget for hospitals places on any options for a radical shift of emphasis to preventive care. In essence there are structural constraints placed on the provision of a primary level care that could use as one of its essential resource the local populace and locally occurring resources. So far the government has been the main provider of care and has relied heavily on foreign sources for nearly all of the inputs to health care. In this way, it has been difficult to commit anything less than 80 per cent of the total health budget to curative services. Yet, the results of the analysis shown, the performance of this is not satisfactory. Most of the listed areas of care are barely adequate for the people where they are available.

Concerning preventive and promotive health care, gross inadequacies exist, many essential services are rarely provided. Yet these are the two areas which, if concentrated on, hold out a hope for the curtailment of many of the tropical communicable diseases with which people get infected.

The heart of the issue is the absence of a primary level care in which the people themselves could contribute. A full consideration of this will be made in the concluding chapter which will also consider strategies for tackling some of the many infectious and parasitic diseases. Chapter Six considers the diseases presented in the facilities examined here, with a view to find out if any alteration in the pattern has been achieved and what needs to be done to improve the health status of the population.

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CHAPTER SIX

PATTERN OF ILL HEALTH IN GHANA WITH PARTICULAR REFERENCE TO THE CENTRAL REGION

This chapter seeks to examine the health status of the population through a search for patterns of ill-health as presented in past records, statistical information of the contemporary situation, and through clinical observations of patients at the point of using the health services, i.e. waiting for consultation. The ultimate aim is to find out what is the nature of ill-health facing the population and assess the health care needs from that point of view. Where the diseases are predominantly systemic ones that respond to therapeutic care, then curative medicine should be encouraged. On the other hand, if there is a predominance of environmentally related disease, then more attention ought to be devoted to their care.

The task before us in this chapter is therefore to find out what the constituents of the pattern of ill health care, what diseases cause great morbidity which causes premature mortality, whether any changes can be observed to have occurred given the approach to health care that is adopted in the region.

This involves the use of health records and some observations at the points of health care delivery - hospitals mainly. The health records were divided into two - the past and the contemporary periods. It was reckoned that if changes in the patterns are to be recognised and also the health needs assessed from the point of view of the outcome of health care, then information covering a long time-span must not be overlooked. Hence the division of the period into the first sixty years, from 1895 to 1955, then seven years of the previous decade from 1974 to

1980, and a short survey period during 1979 to 1980 when the observations were made.

The first time period furnished information concerning the aggregate disease pattern for the whole country; through the analysis of the data as contained in the only reliable health statistics covering the colonial pre-independence period of the health services. These reports, referred to elsewhere as the "M & S Reports", contain information of diseases that were presented in the existing health institutions in the Gold Coast Colony. Though they had undergone some handling, for example, adding up of all the numbers of a given disease, they still represent the only reliable source of information on the diseases and other aspects of health care in the country. Some data or records are better than no records. However, to ensure that a critical evaluation is made of the information contained therein, other references to the health and disease in the area during this period are made.

Our use of material from the Statistical Department of the Regional Ministry of Health in the study area was not only to provide information on the contemporary situation, but also to allow a cross-check on the impressions gained concerning the past. Thus in this chapter, arguments are presented from a general and broad based set of disease patterns to a more specific and localised pattern. The M & S reports which provide some material covering the country help us to gain a nationwide impression or insight. The Central Region provides the narrower focus for a more detailed study of the contemporary situation of health and disease.

The choice of a seven year period for the analysis of the extant position was guided by the need for an unbroken succession of years during which health data were available. The essence of this is the possibility it accords to analyse trends and find out if there is continuity in the past patterns. Another reason for the choice of seven

years is that as a period it is considered long enough to allow adequate impact to be made in the situation where an obvious plan for change exists. The Chinese example provides a sufficient evidence that it is possible to plan for and achieve some change within such a time period (Heller, 1975).

Thirdly, the time period itself, 1974-80, is deemed to provide an adequate lapse in time between the end of the selected first time in 1955 and the present day for any change in the pattern to be noticed. This is especially so since the health services that were introduced during the end of the 19th century can be considered as being more institutionalised now.

As it happened, the two sets of records used in the analysis present only the diagnosed cases that were seen at the health institutions. There was a need for survey of the current situation, hence a three-day visit to selected health institutions in the Region to interview waiting patients for a first-hand information. Since this material was of a more direct nature, it could help to validate or repudiate whatever patterns are discovered. In the first instance, information sought included age, sex, place of residence, the disease and outcome (Appendix D).

In Chapter Seven, the analysis of disease ecology in specific areas of the region places disease in the environment and community context. This serves to show how the every day living conditions of the people involve them in perpetuating or changing the patterns of diseases.

Each of the three time periods presented their own peculiar problems. The earlier time period represent the beginning of the health services in Ghana on the whole and people in general appeared to have been wary of the largely unknown type of European health care. Writing in 1913, for example, a Registrar of Births and Deaths, who was also the

Senior Sanitary Officer, noted that "the majority of the native cases we get into hospitals come only when they are obliged through circumstances to do so" (p.8 Public Health Act, 1913). In fact, an examination of the records shows that in later years, the number of people who utilised the services increased; with an accompanying increase in the number of deaths. Caution is therefore required in the interpretation given to the available figures. Other problems relating to the use of these records have been discussed in Chapter Three.

Concerning the information obtained from the Statistical Division of the Regional Offices of the Ministry of Health, the main problem revolved around the sample size to selecting from the existing records of the seven-year period. It also required classification of the information obtained. This task was much eased with the use of the International Classification of Diseases, 1980, which has codes for all diseases.

Also concerning the information obtained from out-patient interviews, the fact that the illnesses were described symptomatically meant that for collaborative purposes, we have to cross-check the diagnosis at the end of the day's consultations to avoid misinformation. The sections which follow present the information obtained from the different sources, and together these allow an insight to be gained into the pattern of ill-health in the country in general and within the Central Region in particular. The discussion from these three viewpoints leads to an initial consideration of the health needs of the Region, a second assessment of which is again undertaken in Chapter Seven.

The Past Pattern of ill-health in the whole Country

As in other countries, the people of Ghana have had to cope with various types of illnesses in the past, each presenting a peculiar set of health problems. There have been diseases which cause a great deal of morbidity

but very low mortality and there are others that cause high rates of mortality in the population. The task facing us in this section is to find out which diseases in the past have been responsible for high rates of morbidity as well as mortality. This task however is already set out for us, in view of the fact that it is already well known that in many parts of the developing world the major pattern of ill health or disease situation is the predominance of infective parasitic diseases, some particular ones of which cause high mortality (W.H.O., 1976). As such the analysis that follows is concerned with finding out what the pattern of diseases is, what is the size of the problem, the different types of diseases present and what sort of mortality rates result. In effect, consideration will be given to the frequency and distribution of disease and their importance in causing morbidity and mortality.

The nature of the diseases which occur in a given area is important as some are preventable, others can only be cured and others not cured hence the object is to prevent dying and also to reduce the degree of disability that the people will have to suffer for the rest of their lives. Two groups of illness that cause morbidity are the infective parasitic diseases and those of systemic groups. In the case of the infective parasitic group we wish to find out the particular ones that are prevalent, and those that cause greater health problems. Within the period, 1896-1955, the major diseases that the people had to grapple with included the parasitic diseases. It is unrealistic to talk about rates in this case since the numbers that presented themselves for treatment were few. The information obtained from the M & S reports have been summarised and tabulated presentation can be found in Table 6.1.

The Important Diseases in the Country

Figure 6.1 shows the causes of high morbidity and mortality in the

Table 6.1 (i)

SELECTED PARASITIC DISEASES WHICH CAUSED MOBILITY AND MORTALITY IN GHANA: 1896 - 1955

Year	Tuberculosis	Dysentery	Smallpox	Plague	Malaria	Yaws
1896	0	613 (35)	282 (68)	121 (18)	1,097 (9)	439 (0)
1908	0	472 (20)	89 (18)	297 (287)	2,535 (5)	532 (0)
1911	19 (10)	95 (9)	131 (21)	0	2,408 (4)	401 (0)
1916	289	105 (3)	0	0	2,156 (5)	464 (0)
1921	336	710 (26)	0	0	5,946 (5)	621 (0)
1926	580 (91)	382 (39)	0	0	5,919 (9)	24,178 (1)
1930	1,274 (159)	1,096 (39)	70 (8)	0	24,993 (38)	69,819 (0)
1935	821 (216)	1,226 (46)	0	0	25,856 (59)	66,748 (6)
1940	1,705 (222)	1,815 (49)	0	0	31,966 (46)	68,985 (3)
1945	2,364 (301)	2,120 (43)	0	0	49,981 (86)	150,068 (2)
1950	2,198 (225)	7,382 (87)	0	0	87,622 (115)	140,089 (1)
1955	2,502 (121)	7,562 (187)			70,639 (317)	25,462 (1)

CASES OF HIGH MORBIDITY AND MORTALITY IN GHANA 1896 - 1955

Figure 6.1

Year	Yellow fever	Small pox	Plague	Pneumonia	Dysentery	Tuberculosis	Septicemia	Hernia	Enteric typhoid	Cerebrospinal fever	Rheumatism	Malaria	Bronchitis	Diarrhoea	Ulcers	Injuries	Yaws	Conjunctivities	Leprosy	Dental caries	Nutritional Deficiencies	Maternal death	Gonorrhoea	
1896		X	X		X			✓			✓	✓	✓						✓					
1908		X	X		X						✓	✓	✓											
1911	X				X	X					✓	✓	✓	X	✓	X								
1916	X			X		X					✓	✓	✓		✓	✓								✓
1921				X	X	X		X			✓	✓	✓	✓		✓								
1926				X	X		X				✓	✓	✓			X	✓							
1930		X		X	X				X		✓	✓	✓		✓	✓					✓			
1935				X	X	X					✓	✓	✓	✓	✓		✓							
1940				X	X	X		X			✓	✓	✓	✓		X								
1945				X	X	X			X		✓	✓	✓											
1950							X		X	✓	✓	✓				✓		✓		X	X			
1955										✓	✓	✓		✓				✓			X			

Diseases causing high mortality X
 Diseases causing high morbidity ✓

country during the first period of health care provision. Altogether, there are twenty-two (22) major conditions that affected the population. Of these, fifteen can be classified as infective parasitic disease; that is, nearly 75 per cent of all the diseases presented at the health institutions; the systemic disorders are few including hernia, bronchitis, nutritional deficiency, heart disease, nephritis, pneumonia and gastroenteritis. Injuries and other diseases take up the remaining 25 per cent.

The infective parasitic group of diseases dominated the health situation; the proportions fluctuated during this period from 36 per cent to 43.7 per cent. On average, the parasitic infections accounted for 37 per cent of all the hospital cases. It can be seen from the table that some of the diseases cause great morbidity while others contribute more to the rates of mortality. The former include malaria and yaws, while the latter are dominated by dysentery and tuberculosis. Also rheumatic fever, rheumatic pains, conjunctivitis and gonorrhoea contributed to morbidity during this time. In addition, unexpected health problems such as constipation, dental caries, beriberi and ulcers contributed about 11 per cent on average to morbidity.

More insight will be gained on the nature of this group if the pattern of their contribution is briefly examined and we focus attention here on two of these : malaria and yaws. A study of the table shows that malaria and yaws infected more people than any of the other diseases. In 1896, the total cases of malaria that were recorded for the country were a mere 1097. Subsequently, the numbers steadily increased reaching 87,622 by 1950. If malaria cases increased rapidly, infectivity with yaws galloped. From a mere 439 cases in 1896 there was an all-time high of 155,068 by 1950. Of course, these increases can be attributed to increased rates of use and not increased prevalence of the diseases

in the population.

In fact certain pertinent remarks made by health officials of the then Medical and Sanitary Department¹ show that malaria and yaws were certainly predominant diseases during the period under consideration. Figures 6.2 and 3 give graphical display of the contribution and trend of some of these diseases. Malaria's contribution to disease morbidity for 1930, 1945 and 1950 were 24,993 (9.3 per cent), 49,981 (10 per cent), 87,622 (10.8 per cent) respectively. In contrast yaws in 1930 contributed 69,819 (25.7 per cent) cases to the general level of morbidity, in 1945, 155,068 (31.5 per cent) and in 1950, 140,089 (17.3 per cent).

Despite the large numbers of malaria and yaws cases, those who died from these diseases were very few (See Table 6.1). In fact, the mortality rates are negligible. In 1926, for example, the total number of yaws cases stood at 24,178 with only 1 death. Malaria's contribution to mortality was however higher. These diseases can be considered as endemic to the local area, though there are occasions when certain conditions may trigger off an epidemic as well. Such a situation could have occurred after 1926, though the high numbers could be due to increased reporting of already existing cases.

We also looked at the pattern of deaths amongst the cases brought into hospital. On the whole, the proportion of the cases that died to the total of the cases reporting for care was quite small (See Table 6.1). Again, the infectious parasitic group of diseases contributed most to the death rates, as against the systemic group of which bronchitis, heart disease, cirrhosis of the liver, hernia and deaths due to childbirth and

1. M & S Report, 1929 par. vii. "Next to malaria (yaws) is the biggest factor in the immediate health problem to be faced in the Gold Coast." See also 1930, 1931 reports for similar comments.

FIG.6.2 PATTERN OF SELECTED INFECTIOUS DISEASE IN GHANA 1896-1955

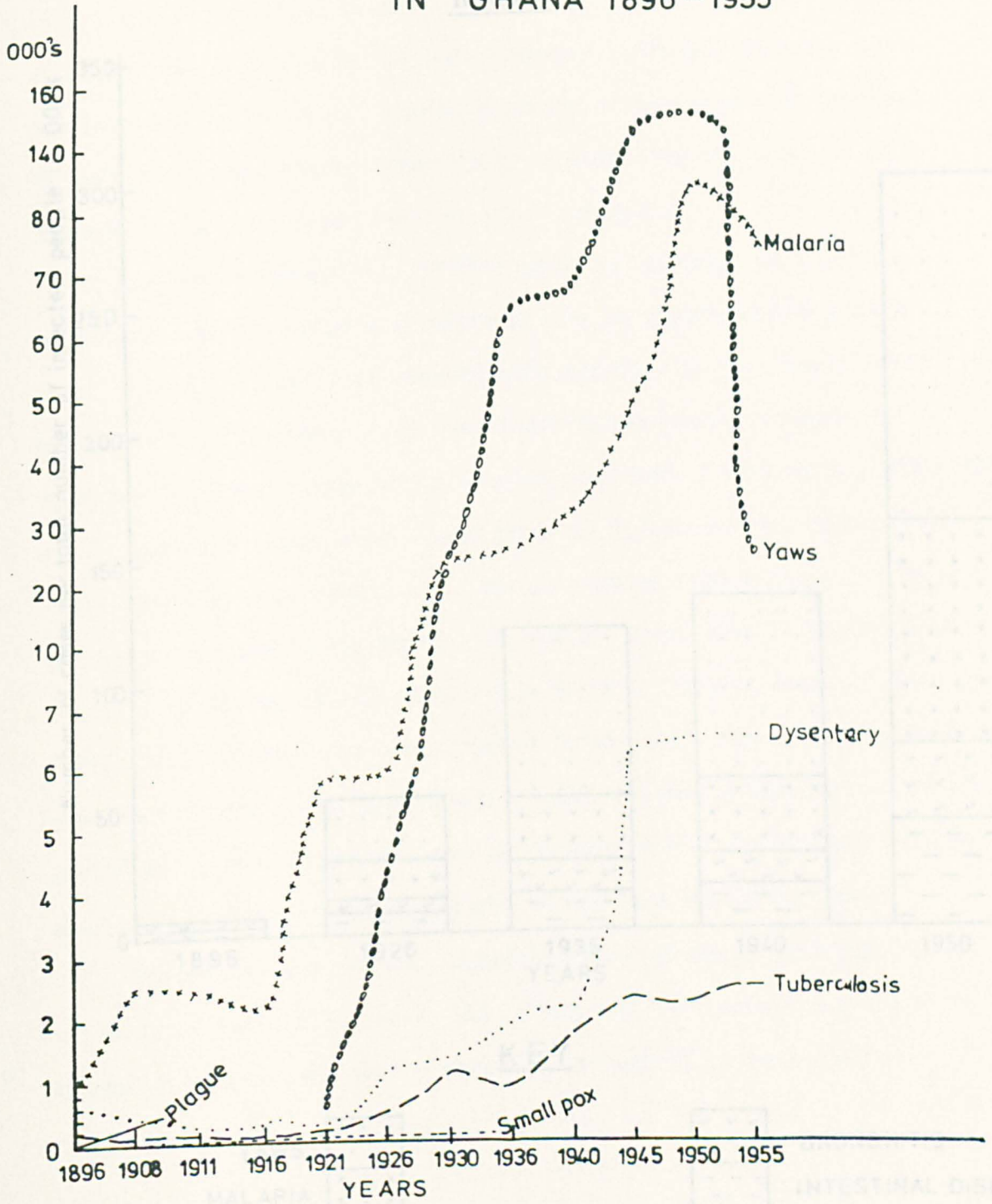
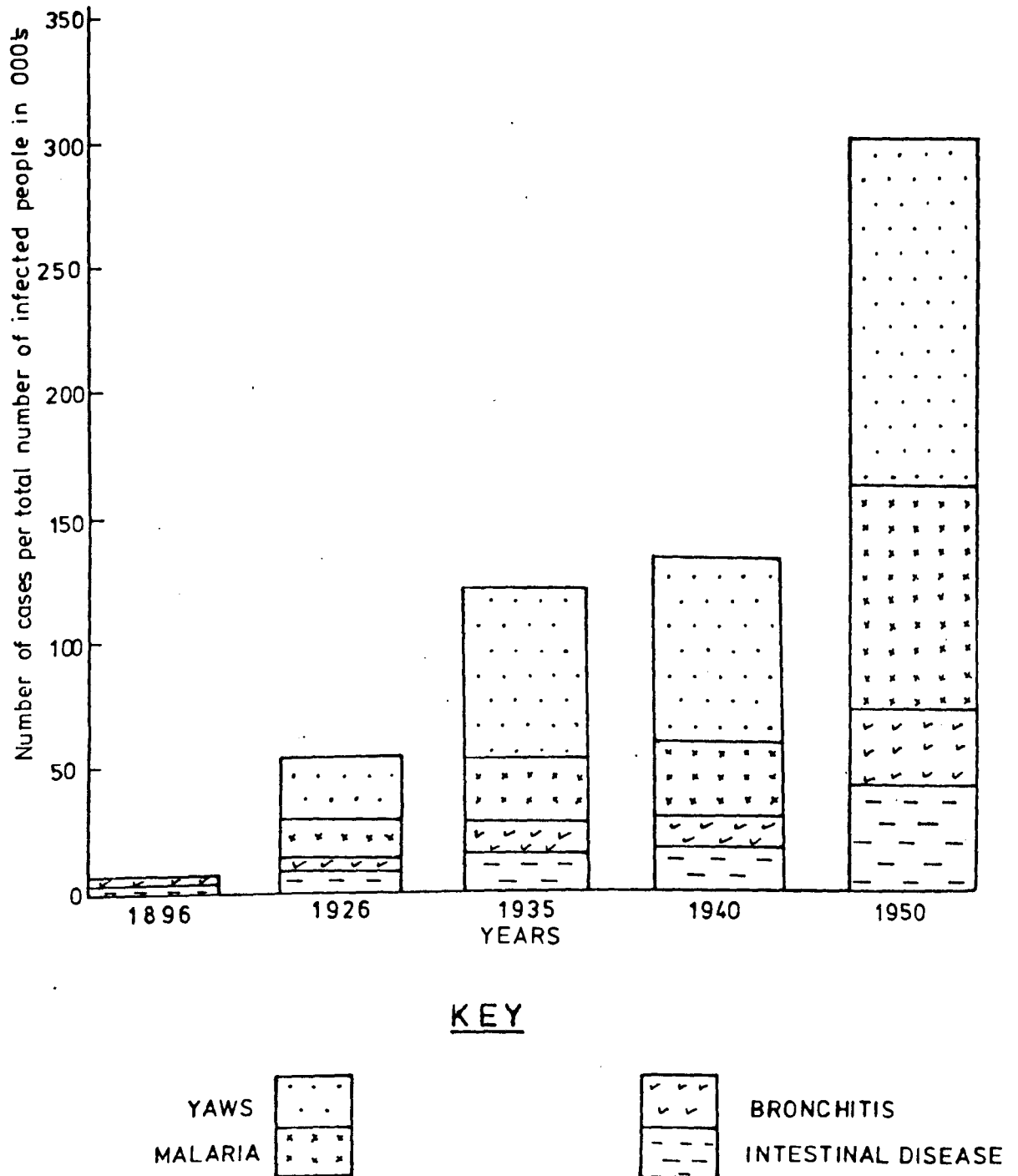


Figure 6.3

THE CONTRIBUTION OF FOUR SELECTED DISEASES TO ILL HEALTH
IN GHANA



injuries were important causes. Of the non-parasitic group, the noted diseases that caused death include dysentery, plague, tuberculosis, smallpox and yellow fever. These diseases often assumed epidemics. In contrast, they caused lower rates of morbidity compared to yaws and malaria which caused lower rates of mortality.

Another characteristic of this group of diseases as far as mortality was concerned was the reduction in importance of some of them. Plague and smallpox reduced considerably as a cause of death by the 1930s. In contrast to the others named above, dysentery remained as such throughout the sixty year period without any abatement.

Another disease which contributed to mortality was tuberculosis. It is believed that tuberculosis was introduced from outside the country, the first 19 cases being reported in 1911. Since then it contributed steadily to the mortality rates - 5.4 in 1911, 39.3 in 1916, 10.7 in 1921, 13.0 in 1926. Its contribution to mortality has since fluctuated between 11.5 and 9.6. Tuberculosis combined during the course of the period with other diseases such as cerebrospinal meningitis, tetanus and enteric typhoid to contribute to the high mortality rates.¹

Pneumonia was another important cause of death contributing up to 39.2 per cent of the mortality. This had been persistent unlike plague, smallpox and yellow fever which yielded to some control measures.²

1. In 1928, the West African Medical Staff agreed that TB was increasing amongst the population and noted also that the indigenous African has little or no immunity (See M & S Report 1928, p.25).
2. In 1908, a plague epidemic occurred with mortality rates of over 85 per cent. Energetic efforts made at controlling it included the mass extermination of rats through burning mostly cordoning off of areas and isolation of victims (See M & S Reports for 1908, 1028, p. 15. For a more detailed treatment of epidemics diseases in Ghana, see also Scott, D. 1965).

The majority of the diseases causing great morbidity and mortality are related in one way or another to either ignorance or poverty. Dysentery, tuberculosis and yaws are diseases which spread on account of dirty conditions, unprotected food and overcrowding. They can be eliminated if effort and resources are devoted to these conditions. Poverty and ignorance act together to prevent the elimination of those conditions that favour persistence.

Other diseases which contributed to the pattern of morbidity and mortality during this period in the whole country were nutritional deficiencies such as beriberi and anaemia, worm infestation such as ascaris, tropical ulcers, and leprosy. All are related to poverty.

Importance of Poverty Diseases

Together, these diseases can be regarded as poverty diseases, and Table 6.1 (ii) provides information on their collective contribution to morbidity and mortality levels in the population during the 60-year period under consideration. It can be seen that the proportions of this group to the disease pattern fluctuates over the years, the lowest being 25 per cent in 1911 and the highest being 59.75 per cent in 1940. At the end of the period, in 1955, their contribution to ill health was 32.8 per cent. Since these diseases were presented at health institutions, it can be argued that the care that was being provided has been unable to alter the conditions that give rise to the diseases. Diseases such as plague, smallpox and yellow fever had been eradicated, the last two as a result of international effort and plague as a result of concerted effort by the population co-operating with the medical professionals. It appears however, in the cases of the others, e.g. tuberculosis and dysentery, malaria and yaws, the health care providers have been helpless in effecting lasting changes. As we were at pains to show in

Table 6.1 (ii)

IMPORTANCE OF POVERTY DISEASES

<u>Year</u>	<u>Total cases</u>	<u>Total deaths</u>	<u>Morbidity due to poverty disease</u>	<u>Deaths due to poverty disease</u>
1896	28,735	192	10,725 (38.6%)	112 (58.2%)
1908	37,317	500	15,131 (40.5%)	330 (66.0%)
1911	42,389	181	10,748 (25.3%)	106 (57.6%)
1916	48,155	122	19,948 (41.4%)	84 (68.0%)
1921	57,442	383	19,939 (34.9%)	143 (37.3%)
1926	105,300	700	36,042 (36.2%)	214 (30.5%)
1930	270,785	1,327	120,334 (44.4%)	484 (36.3%)
1935	273,476	1,841	123,680 (45.2%)	496 (26.9%)
1940	224,193	1,843	133,853 (59.7%)	504 (27.3%)
1945	493,962	2,597	251,886 (50.9%)	724 (28.0%)
1950	807,997	3,150	354,158 (43.8%)	1,058 (33.5%)
1955	415,116	2,598	136,550 (32.8%)	1,125 (43.3%)

Source: M & S Reports 1896 - 1955.

Poverty Disease: Dysentery, T.B. Yaws, Ascaris, Tropical ulcers, leprosy, pneumonia.

Chapter Five, the health services has been dominated by curative or medical care with insufficient attention being paid to the persistent conditions in the environment and society that give rise to the diseases in the first instance. It is essential therefore for some rearrangement to be made in the structure of health care provision by systematically focussing on providing the care as suggested in the health care continuum discussed in Chapter Five.

As it happened, this first period could only be considered as a period of institutionalisation of the health services in the country since after all it was an introduced system, whose roots lay elsewhere as was shown in Chapter Four.

The next section considers the pattern of ill health in more recent times to see the extent to which care is being provided to meet the health needs of the population.

The Contemporary Patterns of Ill Health in the Central Region

The previous section considered the nature of ill health in the past. It was shown that infectious parasitic diseases dominated the health scene though other systemic diseases such as hernia, bronchitis, cirrhosis of the liver were also important. In this section, our focus is on the contemporary situation and information utilised comes from sources already discussed. Methods of analysis of the statistical data from the records office were computer handled and cross tabulation was the main method used. On account of the voluminous nature of the print-out, only a few of the tables are presented here.

In addition to providing a more recent view of the pattern of ill health as it exists within the smaller area, a region, this analysis also focusses on certain important indices of health and disease such as age, sex, outcome of intervention. This closer look also gives us the

Table 6.2 (i)

TWO-WAY CROSS TABULATION AGE BY DISEASE MORBIDITY 1974 - 80

Age (Years)	1	2	3	4	5	6	7	8	9	10	Row Total
0 - 5	133 23.4	6 6.4	20 14.3	35 25.7	6 4.3	102 18.8	109 27.3	12 7.4	52 27.3	19 9.0	494 19.6
6 -14	172 30.3	26 27.9	40 28.7	19 13.9	38 27.3	83 15.3	101 25.3	29 18.0	36 19.8	52 24.0	596 23.6
15 - 34	114 20.1	21 22.5	25 17.9	38 27.9	34 24.4	179 33.0	103 25.3	44 27.3	29 16.0	89 42.3	676 26.8
35 - 50	126 22.2	32 34.4	47 33.8	39 28.6	56 40.2	86 15.8	77 19.2	68 42.2	56 30.9	40 19.0	664 26.3
51 - 65	12 2.12	6 6.45	5 3.5	3 2.15	3 2.1	5 0.9	6 1.5	4 2.4	3 1.6	7 3.3	54 2.1
65+	9 1.5	2 2.1	2 1.43	4 2.8	2 1.4	1 0.1	3 0.2	4 2.4	5 2.7	3 1.4	35 1.3
Column	566	93	139	136	139	542	399	161	181	210	2,519
Total	22.3	3.6	5.4	5.3	5.5	21.5	15.7	6.4	7.1	8.2	100.0

Chi square = 311.208 with 264 Degrees of Freedom
 Cramers V = 0.14454
 Contingency coefficient = 0.27771

Significance = 0.0220

Table 6.2 (ii)

TWO - WAY CROSS TABULATION OF OUTCOME OF
DISEASES BY AGE 1974 - 80

<u>Age</u>	<u>1</u>	<u>2</u>	<u>Total</u>
0 - 5	396	98	494
	17.7	34.7	19.6
6 - 14	526	70	596
	23.5	24.8	23.6
15 - 34	612	64	676
	26.9	22.6	26.9
35 - 50	624	40	664
	27.8	14.1	26.3
51 - 65	50	4	54
	2.23	1.4	2.1
65+	29	6	35
	1.29	2.1	1.31
Total	2,237	282	2,519
%	88.8	11.2	100

Outcome 1 = Satisfactory

2 = Died

Chi square = 209.406 with 5 degrees of freedom

Cramers V = 0.24059

Contingency coefficient = 0.57281

Significance = 0.0124

opportunity to see the extent to which health services have progressed towards meeting the health needs of the population, given the fact that another 25 years have gone by since the end of the first 60 years and that is a period ample enough for several meaningful changes to be made in the health situation.

Frequency and Distribution of Diseases

Not unexpectedly, the infective parasitic group of diseases contributed 36.2 per cent to the morbidity pattern of the population interviewed. Compared to the 1974 to 80 patterns, which is made up of an average of 28.6 per cent, the local population oriented survey has 8 per cent more cases with infected parasitic diseases. Of the 1896 to 1955 group, the pattern showed an infective parasitic group constituting 39.4 per cent of the total cases. The reduced size of the 1974 - 1980 infective parasitic group may be more the result of the size of the sample and the level of precision of the data handling which allowed a greater degree of classification. As Table 6.2 (iii) shows, 17 different categories were used and it is possible that certain infectious diseases such as dysentery and infective hepatitis had been classified under the system diseases. The fact that there is only a difference of 3 per cent existing between the first 60 year period and the contemporary pattern shows that infective parasitic diseases have not altered much over the past 80 years. Certainly some of the diseases such as plague and smallpox had been eradicated, the latter more as a result of global effort than the country's own effort. What may have declined is the mortality from this group of diseases.

The Common Infectious Parasitic Diseases

In the Central Region, the common parasitic diseases that occur in

Table 6.2 (iii)

TOTAL DISEASE INCIDENCE FOR 1974-1980 FOR ALL HEALTH INSTITUTIONS IN THE CENTRAL REGION

Disease with codes	Frequency	Total
1. Infective Parasitic 000 - 136	29.5	12,836
2. Neoplasm	2.1	913
3. Endocrine Nutritional	8.32	3,620
4. Diseases of blood (sickle cell)	0.65	282
5. Mental Disorders	0.32	139
6. Diseases of Nervous system (Meningitis)	1.28	557
7. Disease of Circulatory system (Heart)	11.51	5,008
8. Diseases of Respiratory system (pneumonia)	10.50	4,594
9. Diseases of Digestive system (acute stomach problems)	5.21	2,267
10. Diseases of genito-urinary system (Hernia Peritonitis)	2.32	1,009
11. Conditions of Pregnancy (Childbirth)	9.37	4,077
12. Diseases of the skin & sub- cutaneous tissues	1.23	535
13. Disease of Musculoskeletal system	1.25	543
14. Congenital Abnormalities	.23	100
15. Certain cases of perinatal	3.11	1,353
16. Symptoms of ill defined conditions	3.03	1,318
17. Accidents, poisoning, violence	10.01	4,355
Total	100%	43,512

NB: Frequency here is the same as per cent of total

a blanket distribution across the region include malaria, gastroenteritis, typhoid, measles, tetanus, and tuberculosis. Those that are not so common include whooping cough, meningitis and poliomyelitis (See Table 6.2 (iv)).

A characteristic of this group of diseases is the way it related to age. Measles for example, occurs mainly amongst the under-fives and about 45 per cent of those who are attacked are aged between eleven and eighteen months. Measles occurs everywhere in the region - both urban and rural areas- with new cases fluctuating according to the seasons. From the records, measles cases were more between March and May than any other period.

Malaria, as is well known, is another common disease, which seems to dominate the health scene. It occurs in an endemic form in many parts of the region. Transmission appears to go on all the year round, though increases occur with the rainy season. Also in the coastal areas where there are creeks and lagoons especially around Cape Coast, Elmina and Komenda areas, malaria is holoendemic and children under five are the worst victims (WHO, 1976). There is a reduction in later years when morbidity drops by about 11 per cent from age 15 towards. However, this increases sharply amongst the over 65s when malaria could again be a killer disease. Even though the total numbers of people in this category are few, infectious parasitic diseases are still important causes of morbidity and mortality. Other common diseases in the region include those classifiable under systemic diseases. Foremost amongst this group is respiratory diseases especially pneumonia and bronchitis. These present problems both to the young and to the elderly as was shown in the earlier period. The persistence of pneumonia amongst the younger people especially infants may be due to excessive exposure and insufficient cover especially at night time. Amongst the 65s, there is the possibility,

Table 6.2 (iv)

PROPORTIONAL MORBIDITY RATES OF ALL CLASSES OF DISEASES IN THE CENTRAL REGION OF GHANA
FROM 1974 - 1980

Diagnostic Group	1974		1975		1976		1977		1978		1979		1980	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Infectious and - parasiticidiseases	5,226	32.0	4,942	30.0	5,615	30.4	4,997	28.5	5,157	28.2	5,082	26.7	5,503	25.4
Neoplasms	561	3.4	529	3.2	635	3.4	547	3.1	409	2.2	627	3.3	639	3.0
Endocrine, Nutri- tional, Metabolic and Immun. Disorders	1,087	6.7	1,190	7.2	1,527	8.4	1,609	9.2	1,494	8.2	1,772	9.3	1,951	9.0
Diseases of blood	80	0.5	106	0.6	114	0.6	112	0.6	106	0.6	123	0.7	110	0.5
Diseases of Nervous System	304	1.9	408	2.5	517	2.8	604	3.5	57	0.3	466	2.5	529	2.4
Disease of Circula- tory System	1,494	9.1	1,404	8.5	1,269	6.9	1,601	9.1	1,829	10.0	1,789	9.4	2,256	10.4
Diseases of Respira- tory System	1,283	7.9	1,517	9.2	1,714	9.3	1,486	8.5	1,581	8.6	1,660	8.7	1,803	8.3
Disease of Digestive System														
Acute stomach prob.	324	2.0	335	2.0	377	2.0	359	2.1	299	1.6	593	3.1	676	3.1
Hearing Periotnitis	338	2.1	339	2.1	268	1.5	268	1.5	257	1.4	289	1.5	377	1.7
Cirrh. of the liver	242	1.5	219	1.3	247	1.3	191	1.1	209	1.1	243	1.3	193	0.9
Diseases of genito urinary system	258	1.6	205	1.2	196	1.1	193	1.1	196	1.1	245	1.3	231	1.1
Compl. of pregnancy	2,114	12.9	2,106	12.8	2,364	12.8	2,132	12.2	2,207	12.0	2,291	12.1	2,767	12.8
Injuries and Poisoning	575	3.5	461	2.8	524	2.8	510	2.9	536	2.9	544	2.9	665	3.1
Signs, Symptoms and Ill defined Conditions	2,460	15.1	1,513	16.5	3,078	16.7	2,912	16.0	4,000	21.8	3,287	17.3	3,967	18.3

GROUPS OF DISEASES

1. Infectious Parasitic Disease
2. Neoplasms
3. Endocrine Nutritional and Metabolic
4. Mental Disorders and Diseases of the Nervous System
5. Diseases of the Blood and Circulatory System
6. Diseases of the Respiratory System
7. Diseases of the Digestive System
8. Diseases of the Genito Urinary System
9. Skin Muscular Skeletal disorders
10. Accidents and Poisoning

as the few autopsies performed in the region indicates, that lesions caused by infarctions may be an implicated cause.¹

Included in this group are the circulatory diseases - heart disease, hypertensive disease and stroke. The period under consideration showed increases in morbidity over the first time period. Towards the end of the last century, only 6 cases of heart disease were recorded and the numbers in subsequent years were still small. Granted that this may have been less than what actually existed in reality, there is no doubt that during this last decade the numbers suffering from this group of disorders has increased. Heart diseases affect those aged between 45 and 65 years. High blood pressure also affect people of the same age though slightly more females are affected than the males.

The distribution of these diseases in the region appears to be limited to the towns mainly. Indeed, health institutions along the coast, Winneba, Saltpond and Cape Coast in particular, had more of these systemic degenerative diseases than any of the other institutions. There is the possibility that the paradoxical situation of urban life may be a significant contributor to the increased prevalence of some of the degenerative diseases.

The third group of diseases included in the systemic diseases that caused high morbidity are those involving the lung, kidney, intestines and genitourinary system. Together, these contributed about 32 per cent of all the morbidity in the Central Region during 1974 - 80. This group appears to be more common amongst adults from age 25 to 65.

Also important are the nutritionally related diseases and the commonest ones include anaemia, beriberi, pellagra. Severe forms include

1. See Appendix 1 for information on work carried out in the laboratories of the Central Region, 1976.

starvation and protein energy malnutrition which takes a toll amongst the under 5s. Another more recent addition to this group (or discovery) is aflatoxin, which is associated with the high consumption of maize meal without adequate amounts of protein to accompany such.

Diseases which show smaller frequencies include those of endocrine metabolic disease, for example, diabetes, with rates of under 1 per cent. Mental cases are also not so frequent, though there is the possibility that fewer cases actually get to institutionalised care. The neoplasmas do not also contribute much to the state of morbidity though its higher rate of mortality makes this group a dread illness. The commonest in the region include cancer of the breast amongst female adults and cancer of the throat. The occurrence of neoplasmas amongst the children aged 6 to 14 seem to be caused by Burkitts' tumour which affects the face (cheeks) throat and jaws.

Of the blood and blood-forming diseases, mention must be made of sickle cell anaemia and sickle cell disease. The age group that suffers the most from this are the under 25. In Ghana, the variants that occur include AS, AC and SC. The accompanying tables in 6.2 will further shed light on some of the illness present in the Central Region of Ghana. The rest of the information from this data will be combined with that obtained from the population oriented survey based on interviews from the health institutions to consider other aspects of contemporary patterns of ill health.

The Population Oriented Study

Thus far, the investigation of the pattern of ill health in the region had been viewed from the angle of the health institution. The main short-coming of this has been the one-sidedness of the source and so for a fuller or more complete impression consideration is given to the

Table 6.2 (v)

**PROPORTIONAL MORBIDITY RATES FOR ALL CLASSES OF INFECTIOUS PARASITIC
DISEASES IN THE CENTRAL REGION OF GHANA 1974 - 1980**

	1974	%	1975	%	1976	%	1977	%	1978	%	1979	%	1980	%
Infective Diseases of Stomach: Cholera, diarrhoea etc.	1472	29.4	1452	28.1	1406	27.6	1927	35.0	1660	31.7	1443	29.1	1671	29.7
T.B All	636	12.7	678	13.1	712	14.0	589	10.7	586	11.2	542	10.9	689	12.2
Whooping Cough	44	0.8	45	0.8	39	0.7	48	0.8	51	0.9	32	0.6	53	0.9
Tetanus	635	12.7	675	13.0	648	12.7	774	14.0	597	11.4	562	11.3	594	10.5
Meningitis, Polio- myelitis	15	0.3	22	0.4	41	0.8	32	0.5	38	0.7	27	0.5	49	0.8
Measles & Typhoid	1395	27.9	1484	28.7	1443	28.3	1231	22.3	1268	24.1	1249	25.2	1473	26.2
Malaria	800	16.0	810	15.7	793	15.6	902	16.3	1025	19.6	1087	21.9	1086	19.3
Total all parasitic Infections	4997		5167		5082		5503		5526		4942		5615	

patterns of disease from the point of view of the people as well. In this section, using information from the previous analysis in conjunction with the results of this investigation, we present contemporary patterns of disease. This contrasts with Chapter Seven which gives consideration to the people in the context of the community bringing out not only the disease states of the people, but their ecological relationships which involves the environment and which gives rise to disease.

Data Analysis and Results

As stated previously, the data was obtained from patient interviews at health institutions selected from each of the seven districts of the region. The advantage here is that the districts have specific population sizes to which the information could be related.

Table 6.3 (i) shows some of the details of the total numbers that were seen ; 43 per cent were made up of children and of the adult attendances, females outnumbered the males.

Table 6.3 (ii) shows that majority of the cases came from the local area of the hospital, within a radius of less than six kilometres from the unit. It also presents information on journey to care, part of which is supplied by the responses from the interviews. This constitutes about 73 per cent urban area residents.

Visits

Of 500 people interviewed, 50 per cent had visited the health institution with the same complaints for the first time within the previous three months. The remaining 50 per cent had visited 2, 3 or 4 times with the same or similar conditions. The urban area residents showed greater frequencies in their use of facilities than rural residents.

Table 6.3 (i)
AVERAGE NUMBER OF CASES SEEN IN A 3-day PERIOD AT OUTPATIENT FACILITIES IN CENTRAL REGION
From October, 1979 - March, 1980

Health Facility in Districts	Total Population in District 1984	Total No. of cases	Total No. Interviewed	child	Male Adult	Female Child	Adult	% Children (M & F)
Winneba Hospital	164,183	290	95	21	18	20	36	43.1
Dunkwa Hospital	164,732	265	86	16	14	22	34	41.8
Fosu	123,970	225	72	10	15	26	21	50.0
Abura Dunkwa Health Centre	166,089	221	73	13	19	19	22	43.8
Kissi Health Post	190,163	189	62	13	15	14	20	43.5
Enyan Abaasa Health Post	120,791	170	55	9	10	13	23	40.0
Nkum Health Post	166,089	169	57	11	16	10	20	38.0
Total	1,145,520	1,529	500	93	107	124	176	43.4

Table 6.3 (ii)

HOME AREAS OF OUTPATIENTS ATTENDING HOSPITAL IN
SURVEYED CENTRES OF THE REGION (1979)

<u>Health Facility</u>	<u>Number and % of Cases from Local Area</u>		<u>Number and % from Outside</u>	
Winneba	70	73.7	25	26.3
Dunkwa	50	58	38	42
Fosu	61	84.9	11	15.1
Abura Bunkwa	66	90.1	7	9.9
Kissi	57	90.1	5	9.6
Enyan Abaasa	50	90	5	10
Nkum	51	88.6	6	11.6

The Nature of the Complaint

The majority of the complaints as presented in Table 6.3 (iii) are minor ailments ranging from symptomatic diseases such as headaches, fever, cough, bodily pains and worm infestations. These do not last long. There are a few major complaints such as palpitations which are of longer duration. For 62 per cent of the interviewed cases, the complaint for the previous illness lasted less than 5 days; 21.3 per cent claimed that the illness has been persistent despite the application of the previous medication, some 4.9 per cent indicated that they had suffered from the same complaint for more than a year without any definite remission of the problem, and had had to try alternate sources of treatment, but with little change.

Concerning the treatment prescribed for the last illness, most patients only remembered vaguely; some recalled they were given tablets or capsules or for the children syrups, but did not know the exact names of drugs prescribed for them. Sixteen per cent of the cases had been hospitalised for various problems - 8.5 per cent of these were maternity cases, 4 per cent had been operated on, 2 per cent had had casts for broken limbs and the rest for medical or therapeutic care. The various tables in this series, Appendix K (i) to (ii) summarise the information obtained from the analysis. Concerning the analysis of the diseases, the diagnosis of the individual cases were categorised and rates calculated on the prevalence. These rates must be seen only as estimates of what might exist in reality. Since there are no regional surveys which cover adequate segments of the population, the hospital cases provide the most accessible measure of the degree of morbidity in the population. We combined information from analysis two with the above mentioned data to work out the prevalence rates in Table 6.3 (iii).

Table 6.3 (iii)

GROUP OF INFECTIOUS DISEASES IN THE CENTRAL REGION
MEAN PERIOD PREVALENCE RATES 1979-1980 (per 1000)

<u>District</u>	<u>Group I</u>	<u>Group II</u>	<u>Group III</u>	<u>Group IV</u>
Twifo Denkyira Heman	578	325	865	425
Mfantsiman	573	302	675	326
Agona	493	437	608	523
Breman	581	321	582	636
Gomoa Ewutu Efutu	499	345	582	636
Komenda Edina Eguafo	525	429	558	336
Assin	583	533	612	481

Group I : Gastro-intestinal Tract

Group II : Skin and Mucous Membrane Tract

Group III : Arthropod borne Infection

Group IV : Airborne Infections

Discussion - The Pattern of Ill Health

An attempt is made to find out if there are any deviations from the patterns discovered in the first two sets of analysis involving data from the health institutions alone. Second, there is an attempt made to obtain some indications of the nature of diseases that should be dealt with at the primary and secondary level care. This is in preparation for the consideration of establishing primary health care in the region; indices are needed to guide and shape the strategies that could be suggested for adoption (See Chapter Eight). To this end, we consider disease episodes and their spatial manifestation of specific group of diseases in the region. Third, there is a possibility of a recognition of the health care needs of the people in the Central Region. This indicates which sectors of the health care continuum require reinforcement. As was noted earlier, the reporting of these diseases was symptomatic and therefore cross-checking the doctor's diagnosis was necessary (see Appendix K.ii).

Disease Episodes and Spatial Manifestation

The episodes of diseases recorded during contact with the health professionals can be divided into two groups: those which can be regarded as minor ailments which are not so serious, are transient in nature and would yield easily to treatment. These could also have been prevented if there was some control on external conditions. These, together constituted 71.6 per cent of all the symptoms described. There are those illnesses which can be regarded as major problems, somewhat long-term and requiring continued care. They may involve a major organ in the body, for example, the heart. There are also the chronic illnesses such as rheumatic pains, anaemias and sickle-cell anaemia (See Appendix K.1, ii, iii). These are serious illnesses which threaten to bring an end to life.

The first group resulted in a great deal of contact and 36 per cent

are made up of communicable diseases. These diseases can be handled at the level by staff with only a basic level training. They need not be presented at a hospital at the secondary level care. The second group of illness had the least contact with the health care system. The diseases here include pneumonia, acute abdominal pains, hypertensive conditions, diabetes, to name a few. Even though some of these were presented as acute conditions, the majority were chronic in nature. On the whole, these had fewer contact with health care than those in the acute states. The majority of these diseases need to be managed at higher levels of care - hospitalization of cases may be required and specialist care involving different professionals may be necessary.

A consideration of the pattern of diseases from the point of view of the people and in spatial terms will provide an understanding of the content and nature of diseases that the various sectors of the health care continuum has to address. Diseases in the Region manifest themselves in two broad spatial patterns. The rural areas, on the whole, tend to have greater numbers presenting with communicable diseases than with either the systemic or degenerative diseases.

The urban areas, which show only slight decreases in the number of cases presenting with the same parasitic diseases, have more of the degenerative diseases.

We begin with a consideration of the symptomatic diseases which is followed by the communicable diseases, the systemic and finally the degenerative and their spatial manifestation.

Symptomatic Illness

Headaches, fever, cold, backache were some of the illnesses commonly complained of. These could be grouped into one category - fever, which is indicative of an infection, malaria being the commonest one. This was

followed by stomach-ache with or without diarrhoea, the common cold, chest pains and infestation with worms - Schistosomiasis, guinea worm infestation or intestinal worm infestation. Other symptomatic complaints included swollen face and legs, feet etc., weight loss, loss of appetite, general weakness, palpitation. There were women who complained of painful menstruation and a few women complained of bleeding when pregnant.

A regrouping of these cases was considered appropriate. These are, three: communicable diseases which cover the majority of cases, systemic diseases and degenerative disorders.

The Communicable Diseases

This group of diseases have dominated the health scene for a long time. As the previous analysis showed, it has contributed greater proportions to the pattern of morbidity than any other group of diseases. The most implicated of these include malaria, gastroenteritis,¹ diseases of the respiratory system, various skin disorders especially yaws and dental caries and plague.

To examine this group of diseases and its spatial manifestation, they are divided into four on the basis of the nature of causation and their occurrence in the different districts.

Arthropod-borne Infections

The highest prevalences are shown for Group III - the arthropod-borne infections. There is only one explanation for the high ratios of this on account of malaria. Even though this group also includes other fevers such as haemorrhagic fever and yellow fever, it is malaria that causes the

1. Gastroenteritis is often classified as a systemic disease but they can be considered as non-specific parasitic diseases since they are caused by different kinds of micro-organisms that live parasitically.

largest number of hospital attendances. Every health unit in the Central Region reported a high number of malaria cases, a disease which from earliest times been endemic in the country as a whole. It is transmitted throughout the year and has a reputation for being a killer disease of the under fives and those who have no previous immunity.¹ Yellow fever, however, is not so widespread. Cases are few, though the infection often breaks out in an epidemic form from time to time. In 1959, there was an outbreak of the disease in Besease in Breman Ajumako District.² In 1969, there was an epidemic in the country. Though the numbers reported were less than 300, it was still alarming, as yellow fever had been brought under control more than three decades ago. There have been recent cases of yellow fever reported in the Central Region. In 1982, Fosu Hospital in the Assin District reported an outbreak. By the beginning of this year, Cape Coast Hospital has also recorded its first few cases. So far, less than 100 cases have been reported from within the study areas.

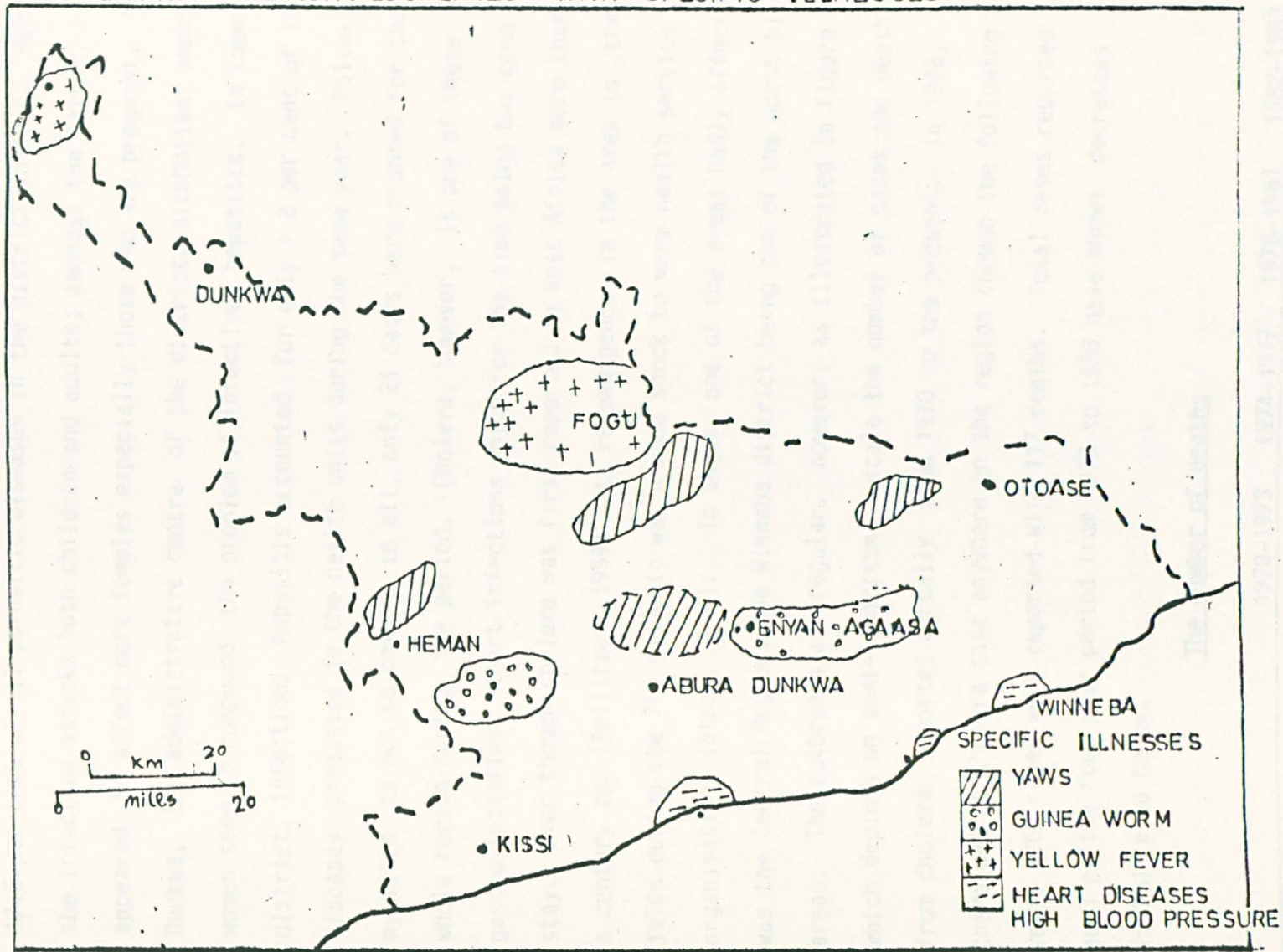
Gastro Intestinal Tract Infections

This group is followed by Group 1 which is made up of large number of diseases, the commonest ones include infective hepatitis, poliomyelitis, cholera, enteric fever, food poisoning, typhoid fever, paratyphoid fever, gastro enteritis, bacillary dysentary, helminthic infections including ascaris, taenia, guinea worm, are also included. It can be recalled from the hospital survey that some of these diseases were encountered, though those that were not recorded during this period of the survey are not entirely absent from the region. This group also occurs in various

1. In 1886, it was written that malaria is best known by its results, particularly amongst the children by its high mortality.
2. Ministry of Health Records. Notes on monthly meeting of Regional Heads of Departments in Central Region, 1959.

Map 6.1

CENTRAL REGION: LOCALITIES WITH SPECIFIC ILLNESSES



frequencies. In Twifo Denkyira Heman, for example, the most prevalent infection in group I is infective hepatitis which accounted for nearly 17.5 per cent of all parasitic diseases in the district in 1980. Here, the infection attacks both children and adults; amongst the latter, it appeared to affect more females especially those who are pregnant. In Dunkwa, the administrative centre of the district, alcoholism amongst women seem to compound the problem of infective hepatitis. In Komenda district, infectious hepatitis accounted for only 1.2 per cent of the diseases presented in the health units during the same year. Polio-myelitis is not so common: in all, only 21 cases were counted for the whole region during the period. Cholera, however, is one of these gastro-intestinal tract infections which for the time being has come to stay. Even though cholera was first reported in West Africa more than a century ago (Pollitzer, 1959), its re-emergence in the area in the 1970s during the 7th pandemic was a rude shock to many health service organisations (Stock, 1976). In Ghana, one of the areas badly affected was the Central Region, the Winneba district being one of the worst hit areas. The outbreaks are regular, however, as illustrated in Figure 6.2 which depicts on semi-logarithmic scale the number of cases and deaths from cholera reported annually from 1970 to the present. In 1976, there was no cholera case anywhere in the region though the following year, 2266 cases were reported with 117 deaths. Total cases reported for each of the four year period from 1970 to 1983 have shown decreases as indicated below.

The number of deaths

	1970-1973	1974-1977	1978-1981	1982-1983
Total number of cases	6,612	2,289	2,718	2,249
Total number of deaths	386	157	216	244

Within the study area, in more recent times, cholera outbreaks have been reported from various health units in the different districts. The districts affected include Twifo Denkyira Heman where cholera is reported from more than 10 localities including Buabin, Imbraem, Diaso, Oponso, and Dunkwa. There were a total of 89 cases with 10 deaths reported in 1980-81 and again in 1983. Also included are Mfantsiman, where cases recorded from Saltpond Hospital exceeded 200 with 13 deaths; Breman district also recorded 33 cases at Ajumako, Swedru; Agona district recorded 72 cases with 8 deaths, and Gomua Ewutu Efutu recorded cases from Winneba, Apam, Senya Beraku nearly 200 cases.

Apart from the diseases discussed above, other diseases which are known to occur in the region include enteric fever, typhoid and paratyphoid fevers, gastroenteritis, dysentery and food poisoning are all reported in the health units within the region, though prevalence varies from district to district.

In more recent years, particularly during 1982 and part of 1983, cases of food poisoning have been on the increase. In the Gomua Ewutu Efutu district, 106 cases were reported for 1982, by mid June 1983 there had been 205 cases. In the Komenda district, food poisoning cases recorded total 117 in 1983; the previous years cases were less than half of that.

As for infections such as gastroenteritis and ascariasis, these are of frequent occurrences in all areas of the region and amongst all age groups, though the frequencies are particularly high amongst children. Gastroenteritis is a killer disease of the under fives.

Also occurring within this group are the helminthic infections of which guinea worm is the most prevalent. Like malaria, guinea worm infestation, dracontiasis, has been recorded in that part of the country since the previous century (Cruckshank, B., 1853; Meredith H., 1812).

During the period under investigation, areas from which guinea worm infestation was recorded include Abaasa, Abura Dunkwa in the Mfantseman district where a monthly average of 140 cases are regularly seen, though they tend to increase in mid year; and Ajumako in Breman district and Assin Bereku in Assin district where cases average 60 persons per month.

Group III: Airborne Infections

The third group of infectious diseases in the region are the airborne ones which infect the respiratory tract. The noted ones in the region are chickenpox, mumps, whooping cough, measles and the common cold. As an infantile disease, measles has of late increased in its prevalence especially in Twifo Denkyira Heman and Breman districts. Tuberculosis also belongs to this group. Owing to the stigma attached to it, many cases are not seen in hospitals. Cases are more frequently reported from Dunkwa hospital in the Twifo Denkyira district.

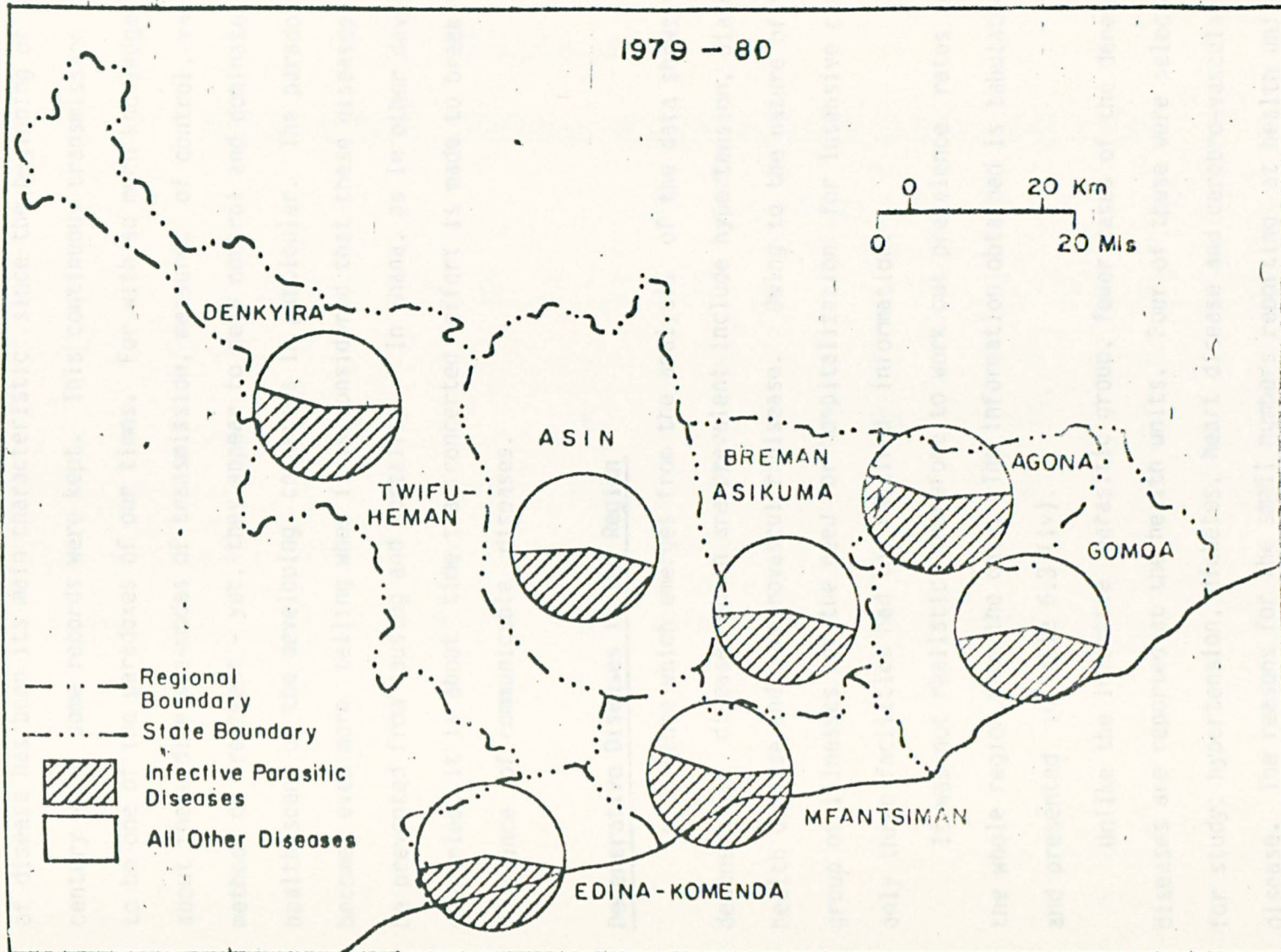
Mucous Membrane and Skin Infections

Within the region, the group of infectious parasitic diseases that gain entrance through the skin and mucous membrane include yaws, leprosy, tetanus, schistosomiasis, hookworm and scabies. Meningitis is not common in the area. yaws has been a difficult disease to control with concentrations in Gomua Ewutu Efutu and Enyan Ajumako, Twifo Denkyira Heman where it seems confined to the rural areas of Chechewere, Dominase and Oponso. Like malaria, yaws has been an endemic disease in the region for a long time, and for it to be still persistent means that the conditions that sustained it at the time when Winterbottom wrote about it (1804) still remain. In Chapter Seven, some of these diseases are selected for a more detailed study.

In summary, consideration has been given to communicable diseases

Map 6.2

CENTRAL REGION:
PROPORTION OF INFECTIVE PARASITIC DISEASES TO ALL OTHER DISEASES



and the spatial variations in the types of this group of diseases. As has been shown, the predominance of communicable diseases, the pattern of disease has been its main characteristic since the beginning of this century when some records were kept. This continuous transmission appears to be one of the paradoxes of our times. For with so much knowledge about these diseases-modes of transmission, measures of control, various methods of treatment - yet, they appear to defy control and dominate the health scene of the developing countries in particular. The paradox becomes even more telling when it is considered that these diseases can be prevented from causing and mortality. In Ghana, as in other developing countries, it is about time that concerted effort is made to break the dominance of communicable diseases.

Degenerative Diseases in the Region

The picture which emerges from the analysis of the data shows that degenerative diseases which are prevalent include hypertension, diabetes, health disease and cerebrovascular disease. Owing to the nature of this group of illnesses and the need for hospitalization for intensive care, only three facilities had the required information.

It was not realistic therefore to work out prevalence rates for the whole region from the data. The information obtained is tabulated and presented in Table 6.3 (iv).

Unlike the infective parasitic group, fewer cases of the denenerative diseases are reported at the health units. Four of these were selected for study: hypertension, diabetes, heart disease and cerebro-vascular disease. The reasons for the small numbers reporting at health units could be as follows:

- i) there is the possibility of inaccurate diagnosis especially at the smaller health units;

Table 6.3 (iv)

ADMITTED CASES OF DEGENERATIVE DISEASES IN CENTRAL REGION 1979 - 1980

Age Group (In Years)

Disease		Under 16	16 - 25	26 - 35	36 - 45	46 - 55	56 - 64	65 ⁺	Total
Hypertension	M	15	24	63	96	123	72	99	486
	F	6	33	66	69	108	117	66	465
Diabetes	M	30	18	27	27	75	63	54	288
	F	3	9	63	63	63	51	39	267
Heart disease	M	51	33	18	39	42	78	126	426
	F	20	30	60	54	60	66	30	360
C.V.A	M	3	0	9	9	15	9	24	69
	F	0	0	0	6	24	30	18	87

- ii) The need for intensive care, results in greater reference being made to the main hospitals.

The smaller numbers presenting at health units may well mask the prevalence of this group of illnesses in the population. During the hospital survey, for example, some of the frequent complaints were chest pains with difficulty in breathing and also palpitation. In some cases, these complaints are repeatedly brought to the outpatients departments as indicated shortly.

Since data from only three urban hospitals was used, the information seems biased towards the urban population. In fact, more than 75 per cent of the cases came from within the local area of the hospital, only 25 per cent being referred from different areas within the district.

It is possible that hypertension is more common amongst the urban populations within the region than in the rural areas. This group of illnesses tend to affect older members of the population more than the younger, though diabetes and heart disease do not appear to be so closely related to age. It is possible that certain cases of heart disease, for example the congenital form, lead to earlier childhood deaths.

At any rate, the smaller numbers of these diseases in relation to the total numbers of cases presented to health institutions make it difficult to calculate meaningful rates for the whole population in each district. The main conclusion that one could come to is that there is a need to find out the extent to which this group of illnesses presents a problem to the population and also the possible ways of extending the present facilities to cater for the management of such illnesses.

The Diseases Relating to Pregnancy

All the health units had information on this group of illnesses affecting women in the childbearing age group. In the Central Region the

totals for each district is shown on Table 6.3 (v).

During the survey period, most districts has some 10 per cent of the women in the childbearing age group actually pregnant, having registered with a health institution. It is possible that this percentage is exceeded though ascertaining the actual proportion would be difficult.

Of those registered, the proportions of health institution deliveries as against home deliveries are low. In none of the districts does it exceed 40 per cent. For this reason, maternal mortality is also high. In one hospital alone, during the three year survey period, some 182 maternal deaths were recorded.

Diseases affecting this vulnerable group of the population includes hypertensive diseases of pregnancy, ectopic pregnancy, haemorrhage, abortions and puerperal infections. Cases of hypertensive diseases seem to be more frequently reported from the larger health units - Cape Coast Winneba, Dunkwa Apam - than in the smaller units. The haemorrhagic diseases seem to affect cases which were delivered elsewhere than in the health institution, and then following complications the case would be rushed to hospital. Abortion both complete and incomplete, however, causes most of the illnesses leading to admission of maternity cases. In the Elmina area of Komenda-Edina-Eguafo district nearly 30 per cent of all registered pregnant cases in 1979 ended in abortion; these cases were admitted in Cape Coast Hospital.

Seasonality and Disease

Within the Central Region, the occurrence of death from certain diseases seems to coincide with the seasons. Malaria, for example, appears to have a higher transmission during the rainy season than during the dry season. April is generally a dry month in the Central Region, and on average the month of April seems to be the month during which few deaths

Table 6.3 (v)

% MATERNAL MORTALITY - CENTRAL REGION 1979-80

<u>Disease</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
1. <u>DYSTOCIA</u>			
Ruptured Uterus	8.1	6.0	7.79
Obstructed Labour	-	-	-
Prolonged Labour	5.6	4.0	3.90
Retained Placenta	9.3	12.9	15.58
2. <u>HAEMORRHAGE</u>			
Antepartum Haemorrhage	5.8	6.0	6.49
Postpartum Haemorrhage	11.2	10.4	10.39
Obstetric Shock	-	-	-
3. <u>TOXAEMIA</u>	23.5	25.6	27.29
4. <u>SEPSIS</u>			
Septic Abortion	1.5	2.4	1.30
Puerperal Sepsis	7.8	8.6	5.19
5. <u>ECTOPIC GESTATION</u>	7.2	6.2	5.19
6. <u>ABORTION OTHER THAN SEPSIS</u>	4.5	3.1	-
OTHER CAUSES	15.5	15.8	16.88
T O T A L	= 100.00	100.00	100.00

due to malaria occur. The largest number of deaths from malaria occur in July during the rainy season. On the other hand, measles contribute more to the death rates than any other disease during the dry seasons.

Mortality from malnutrition also appears to coincide with seasonal rainfall. The peak period is from March to June. This is from the end of the dry seasons to the beginning of the planting season when food supply is at its lowest. Morbidity from malnutrition reaches its peak in April-May after which time those cases that are severe may not be able to recover.

Death from pneumonia occurs mainly in the months of August and December both of which are cold months. In August, temperature drop by about 2°C. This is the period of maximum rainfall, with overcast skies both day and night. December is also a cold month; as this is during the time that the harmattan blows from the north towards the coast. Figure 6.4 shows some of the mortality trends of specific diseases within the Central Region.

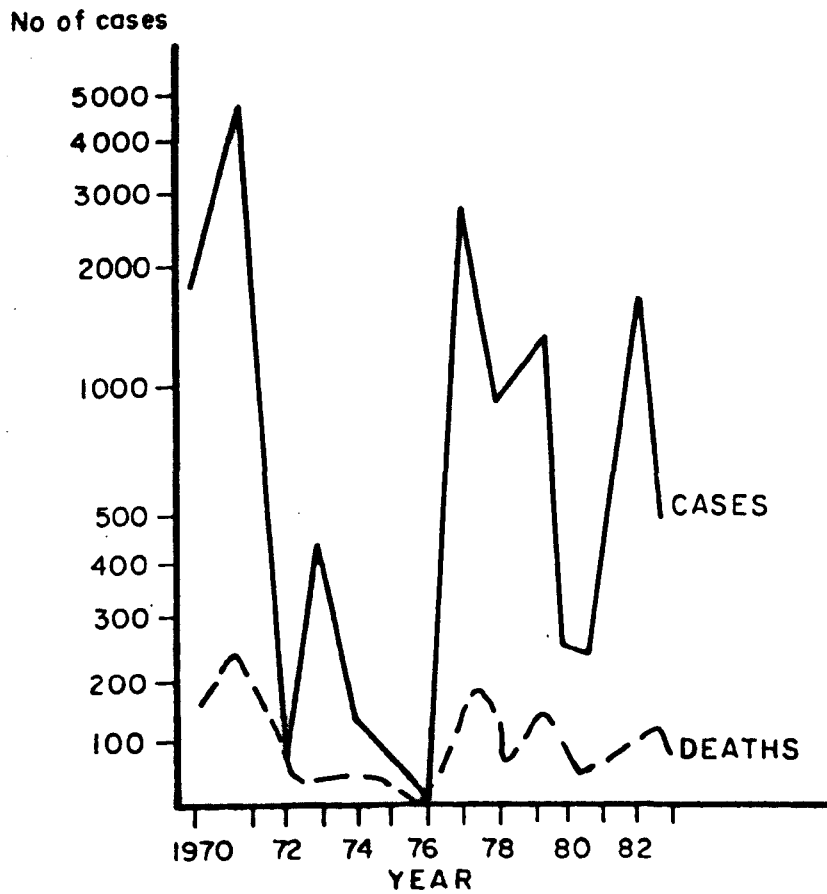
Changes in the Pattern of Ill Health and Health Care Needs

In the preceding sections, the predominance of communicable diseases of which the vector-borne disease, malaria, is responsible for a large share of the morbidity which occurs in the region, has been noted. This, alongside the other three groups of infective parasitic disease has been shown to have some spatial variation in the relative distribution: a logical question that could be asked here is, why the variation? We deal with this question in Chapter Seven. Also noted are the degenerative diseases such as hypertension, cardiovascular disease and diabetes.

It has been difficult to discuss patterns of diseases in the region without reference to change. The diseases which have been responsible for illness and disease among the population in Ghana in general and

Figure 6.4

**THE CENTRAL REGION - CASES OF CHOLERA
REPORTED ANNUALLY FROM 1970-83**



within the Central Region in particular have not all remained static. Certain changes have occurred, some for the better others for the worse. It is possible to focus specifically on a few of these changes, among which are the disappearance of certain parasitic diseases, the reduction in prevalence of others only to resurge at a later date, and the quiet increases in evidence of some, the degenerative disorders, and the almost static state of some of the endemic ones. Using a number of graphs plotted from hospital records, we present a qualitative discussion of the changes that have occurred in certain diseases.

At this point, we note the limitations of the data available for this study: reliance is on the hospital records and some of these are incomplete, thereby making any detailed and elegant analysis such as we find of Learmonth's study of malaria in Mysore where use was made of spleen rates or Fonaroff in Trinidad, an impossibility (Learmonth, 1957; Fonaroff, 1968).

However, broad outlines of the changes can be seen and perhaps a later study can be undertaken where other indices will be considered to see what actual processes are at work.

Eradicated Diseases

We consider first, the diseases that have been completely eradicated. These are smallpox and plague. Both diseases that were prevalent during the first sixty year period considered. However, by the end of that period, plague had entirely disappeared and smallpox was so contained that the onslaught of the global attack on it reduced its prevalence to zero level.

To control plague, which used to break out in epidemic form, infected houses were quickly walled up and death with by fire, fluid disinfectants were used and all rat holes were blocked up, and police

cordons were placed around the infected town and trade routes temporarily closed. Furthermore, campaigns and appeals were set up to stimulate people's interest (See M & S Report, 1921).

Diseases Controlled but Re-emerged : Yellow Fever and Yaws

In the case of yellow fever, control was embarked on at the beginning of the century¹ and by the 1930s it had been brought under control (See M & S Report, 1932). As noted earlier, an outbreak occurred in Bisease in the Breman Ajumako district of the region in 1959 nearly 3 decades later. Since then, yellow fever has been transmitted. Reports of it has been made in different parts of the region including Fosu, Denkyira and Asikuma.

Yaws is another disease that has been brought under control only to resurge and spread. Its treatment is just as problematic; various preparations have been recommended but none seems to effectively clear it. An early attempt to control yaws was made in 1943-9 when a campaign was carried out on a large scale with funds from the Colonial Development and Welfare Fund. Following the recommendations of one of the doctors in the Northern Region it was decided that whole villages would be mass treated for two years rather than wait for patients to come forward for treatment voluntarily.

For nearly eight years, the effort was maintained, interrupted only by shortages of funds. This situation was remedied by the W.R.O. and UNICEF, the campaign was carried on uninterrupted for nearly five years. The disease prevalence rates were brought down to very low levels at the beginning of the 1950s. However, by the mid 1960s its prevalence had rocketed again, and some hurried attempts were made to control. But again its prevalence has increased during the past few years (See

1. In 1913, the M & S Report carried some information on some of the procedures used for its control.

Figure 6.4.

Diseases showing no change

There is the third group of parasitic diseases that appear to have defied all the attempts at reducing their infectivity through control. These include malaria, dysentery and pneumonia. Despite the various attempts at controlling malaria through the use of drugs and chemicals is still remains an important cause of morbidity and mortality amongst, the young people and the very old. As for dysentery, it appears that direct control is difficult and so it quietly continues to contribute to the pattern of ill health in the population as does pneumonia.

The fourth kind of change is characterised by increased frequencies of occurrence of disease. It appears that measles and tuberculosis over time typify this kind of process. Measles was a disease hardly mentioned in M & S reports in the earlier years. Very few cases were brought to the health institutions - in 1912 there were 45 cases, in 1913, only a few cases were reported and this was so up to 1930. In fact one medical officer remarked that measles was "a mild disease in the Native, so we see very little of it".¹ By 1950, the numbers of cases had reached 1717 and since that time, measles has become not only an important contributor to morbidity, but also an important cause of death amongst the under fives. As was noted earlier, tuberculosis displays a similar character.

There are also quiet but ongoing increases in the frequencies of heart disease in particular, though hypertension and stroke may also show a similar characteristic if data on them could be obtained. It can be seen from Table 6.4 (ii) that an increase has occurred in the frequency of morbidity from heart disease; from the low levels of 0.29 in 1896, which even in 1955 had not reached 1.0 than within the 25-year period

1. M & S Report, 1913, p. 10

Table 6.4 (i)

PNEUMONIA - CONTINUING TREND OF CONTRIBUTION TO ILLNESS
1911 - 1974

<u>Year</u>	<u>Number of Cases</u>	<u>Total No. of all cases</u>	<u>Percentage</u>
1911	97	42,389	0.22
1916	344	48,155	0.71
1921	366	57,442	0.63
1926	218	105,300	0.20
1930	1,032	270,785	0.38
1935	1,026	273,476	0.37
1940	1,685	224,193	0.75
1945	2,405	493,962	0.48
1950	6,663	807,997	0.82
1955	3,519	415,116	0.84
1974	1,283	16,348	7.85
1975	1,514	16,274	9.21
1976	1,714	18,465	9.28
1977	1,468	17,521	8.48
1978	1,581	18,342	8.62
1979	1,660	19,013	8.73
1980	1,803	21,667	8.32

x 1974 - 1980 figures refer to only the Central Region.
1911 - 1955 related to the whole country.

Source: M & S Reports 1911-1955

Statistical data collected from the Central Region -
Ministry of Health, 1974-1981.

Table 6.4 (ii)

HEART DISEASE - MORBIDITY PATTERNS - SELECTED YEARS

<u>Year</u>	<u>No of Cases</u>	<u>Total No of Hospital Cases</u>	<u>Percentage</u>
1896	89	28,758	0.29
1940	736	224,193	0.32
1945	1,254	493,962	0.25
1955	1,181	118,802	0.99
1974	1,269	18,465	6.87
1975	1,404	16,274	8.85
1976	1,494	16,348	9.14
1977	1,601	17,521	9.14
1978	1,829	18,342	9.97
1979	1,787	19,013	9.41
1980	2,256	21,667	10.41

1974-80 Data refers to only the Central Region.

Sources: M & S Reports 1895-1955

Data refers to all hospitals in the country.

Ministry of Health Statistical Dept. 1974-1980

from 1955 to 1974 it reached 6.8.

What are the notable issues that arise from the different change processes that have been discussed so far? Concerning those diseases that have been controlled to the point of being eradicated, the essential action was the elimination of the risk factors. In the case of plague, for example, the concerted and energetic efforts with which rats were exterminated and infected cases promptly isolated and dealt with proved to be the main controlling factors.

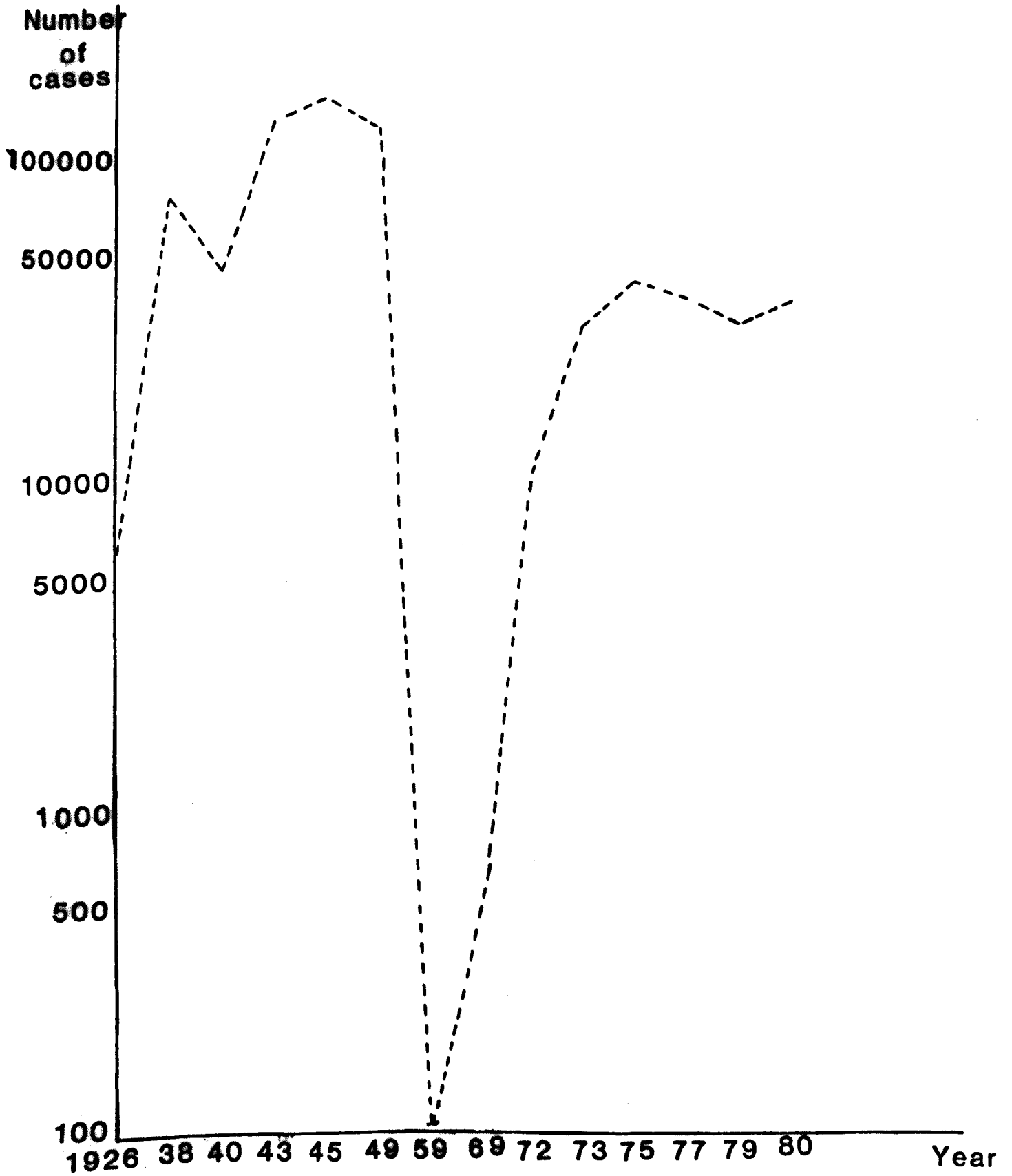
In the case of diseases that succumbed to the control measures only to resurge, for example, yaws, a possible explanation could be that the risk elements were partially and temporarily suppressed but not entirely eliminated. It could also be the result of the increased numbers who were treated and cured, since a massive effort was put into the curative aspect. A high cure rate might well serve to mask the presence of the potential risk factors, thereby reducing the vigilance required in surveillance of disease.

As for the third process of change, which operates in maintaining some kind of a steady state of morbidity, the only possible explanation lies in the ecological relationships that exist between man and disease-causing agents living in the same environment. There appears to be a mechanism operating to maintain a balance between the two and it would be useful to undertake an interdisciplinary study of this. It is only through a sufficient disturbance of this steady state that the transmission of these diseases can be interrupted and control effected. Chapter Seven examines some of these arguments.

Of all these changes, the one that is disturbing is the notable increases in heart disease. It is disturbing because it appears that the Ghanaian example may represent the beginning of a process of trend that is already established in the developed countries. In other words.

Fig 6.5

Ghana: Trend of Yaws from 1926-59 1969-80



The pattern of high mortality and morbidity from degenerative diseases in many western European and American countries may be some kind of a pattern to which the Ghanaian case may move. What is even more disturbing in the last case is the apparent inability to control those infective parasitic diseases that are tractable. As such, a certain sense of urgency surrounds this problem which unfortunately appears to have been missed by the policy makers and Chapter Eight concerns itself with possible ways of dealing with it.

Conclusion: Health Need Assessment II

The preceding sections of this chapter have been concerned with the nature, spatial and manifestation and changing patterns of ill health in the country as a whole and within the study area in particular. The infective parasitic group of diseases is the most prevalent and dominates the pattern. As was shown, this group of diseases display a consistency in the numbers of infected cases over the whole period considered. There has been only a small reduction in the overall proportions of about 30 per cent that it contributes to the bulk of ill health; it has retained its first position. Further increases in degenerative diseases, and the unremitting nature of mortality of maternal cases serves to increase the gloom surrounding the health services of the country.

There are certain urgent health care needs that must be met if adequate changes in the right direction are to be made. These needs require some re-orientation of the current services available for taking care of ill-health. This concluding section is therefore, devoted to the consideration of the health care needs of the Central Region.

In Chapter Five, some assessment of the health care needs was made from the angle of the services themselves - their structural characteristics; the number and types of staff, organisation of their activities,

accessibility to the population. The chapter also considered some of the processes that go into care either treating or preventing disease. There were a number of issues raised which cannot be reconsidered here but the purpose of that exercise was to appraise the quality of care in meeting urgent needs. In many ways, it represents an easy approach to assessment of health care needs. It would be recalled that the task in Chapter Five involved the use of a simple inventory of existing facilities and straightforward assessment of certain indices.

Unrelated to the health status of the population, the assessment of the structure of health services may serve very little purpose. Indeed as Brook and Avery argued, some ten years ago, certain aspects of such an assessment may only help in revealing insanitary conditions in the hospitals or perhaps fraud (Brook and Avery, 1976). Also assessed in Chapter Five were the processes or types - curative care versus preventive using five indices. As stated in the beginning of this chapter an additional objective of the study is to find out what the health care needs are from the point of view of the outcome of diseases after a visit has been made to a health institution. This is the main focus in this section.

Health Care Needs

To assess the health care needs, we compare the outcome of ill health based on the patterns elicited from the analysis above to the five sectors of the health care continuum shown in Table 6.5 (i). Concerning the outcome of ill-health, one question which can be posed is as follows:

What diseases in the study area can be influenced by therapeutic processes to produce a high rate of cure without any recurrence? Diseases not fully influenced by therapeutic care may have to be

Table 6.5 (i)

PROPORTION OF HOSPITAL VISITS WITH THE SAME
OR SIMILAR COMPLAINTS (AT THE TIME OF
INTERVIEW WITH PATIENTS)

Area - Health Unit	Visits			
	1st %	2nd %	3rd %	4th %
Winneba Hospital	46.9	33.6	10.8	8.5
Dunkwa	53.4	29.0	13.9	10.4
Fosu	47.1	23.7	20.1	9.7
Abura Dunkwa	51.3	28.7	13.0	6.2
Kissi	50.6	24.1	15.8	9.3
Nkum	54.3	28.0	10.5	7.0
Enyan Abaasa	49.4	23.4	16.3	10.7

provided for by the other remaining four sectors of care.

Since the data are biased towards curative care on account of the fact that it is mainly from hospital records, the assessment of the other sectors of the health care continuum will be based on curative care using it as a surrogate index.

There is a major limitation here which must be noted. This is that not all disorders and diseases have outcome which are influenced solely by therapeutic care. As has been proclaimed loudly by Illich, McKeown and others, environmental protection, genetic manipulation and other interventions have substantially influenced the outcome of the infectious parasitic diseases. It is difficult therefore to assess the health care needs of the population simply by considering the outcome of medical care. This is especially so in the case of the study area where environmentally-related diseases are responsible for more than 35 per cent of morbidity. Hence the use of curative care only as a surrogate measure. An assessment of those diseases influenced by environmental and genetic conditions would be considered in the context of disease ecology presented in Chapter Seven.

From the total data generated for the study of the patterns of ill-health in the population, it can be seen that the need for cure through treatment is a basic health care need. This need is expressed for all classes of diseases. Other necessary therapeutic care are orthopaedic and surgical. The following is a breakdown of the medical care needs. For communicable diseases, the average is 10.2 per cent of the total expressed need for medical care. Diseases included here are malaria, polio-myelitis and measles. For systemic and degenerative diseases, the average was much less, 4.1 per cent. For surgical interventions 5.2 per cent expressed such need, for maternal and child care, it was 1.7 per cent, and for orthopaedic care it was less than 1 per cent. The

total need for medical care for all five groups of diseases - communicable systemic and degenerative maternal care and child care, surgical and orthopaedic care - is 51.2 per cent, 29.2 per cent, 12.7 per cent, 5.2 per cent, and 1.8 per cent respectively (See Table 6.5 (ii)).

The need expressed for medical care can be regarded as carrying with it a hope for a more or less permanent cure. In reality, most cures do not last for very long or may not be of a complete nature; often there appears to be a residual part for which more care must be sought even in the absence of reinfection. If complete cures were possible for all ailments, the patients who use a health facility once for a particular complaint would not be expected to return with the same or even a similar complaint at another time. The fact that people pay subsequent visits to the health centre within a certain time interval suggests that outcome of medical care is not a sufficient indicator of all health needs within a given population.

Hence the surrogate use of outcome of therapeutic care in this chapter. In Chapter Seven, a final assessment of health care needs is made, based on the presence of factors that are related to the environment but which influence the outcome of certain diseases.

An Interpolation of other Health Care Needs

In the interview survey, three questions addressed may provide some indication of health care need other than medical care; these are related to the number of visits to health institutions.

We here consider the persistence of complaints with the same illness for non-admitted cases and the subsequent visit to health institution with the same or similar complaint, after being discharged. Concerning the repeated nature of visits to care, it could be surmised that the outcome of the first visit may not have been completely

Table 6.5 (ii)

PROPORTION OF CASES WITH PERSISTENT COMPLAINTS - COMMUNICABLE
DISEASES (CD) AND SYSTEMIC AND DEGENERATIVE DISEASES (SD)

Area	Not Persistent		Persistence in Months and Proportions of Cases							
	CD	SD	CD	SD	CD	SD	CD	SD	CD	SD
Winneba	48.3	63.2	21.7	21.2	16.8	6.3	7.2	5.0	6.0	4.3
Dunkwa	46.5	58.3	23.2	30.8	13.3	8.1	9.6	1.8	7.4	1.0
Fosu	51.4	72.0	18.6	15.6	14.2	6.5	8.4	3.3	7.4	2.6
Abura Dunkwa	46.8	67.8	20.0	18.3	18.2	8.9	15.1	3.6	8.9	1.4
Kissi	45.1	67.3	22.4	19.2	14.9	6.1	9.7	4.5	9.8	1.9
Enyan Abaasa	47.5	68.1	21.8	26.0	15.5	12.0	12.5	3.8	4.0	2.2
Nkum	43.2	70.0	23.1	15.4	16.8	8.2	10.8	4.0	6.2	2.4

satisfactory, particularly if the same complaint is presented. Our inference for this is drawn from Table 6.5 (i).

With regards to the question of persistence of illness it could be an indication of need for other types of care, we infer from the information in Table 6.5 (i).

The persistence of the diseases may be due to a number of reasons. The cause may be due to environmental conditions. In such a case the infection-cure-infection cycle will be valid. It could also be due to insufficient attention devoted to the history taking, diagnosis and eventual management of the disease. That this occurs is a fact that doctors would admit to. There are sometimes too many patients to be seen. Indeed at the health posts and health centres, it may well be that the symptoms were being treated without much attempt to treat the actual cause. Thus the diseases may persist for sometime. Diseases that showed such persistence included chest pains, coughs and many of the infectious parasitic diseases such as dysentery and malaria; in the cause of malaria, the problem of latency in which the parasites are not completely killed.

In the case of admitted patients who after discharge from hospital make subsequent visits to complain about the same illness, a higher level of care with more specialised staff may be required before a more complete cure can be achieved (see Table 6.5 (ii) for the proportion of cases with subsequent complaints after hospital discharge).

It must be pointed out that our task here is not to assess the quality of care provided, it is to assess the need for other kinds of care, especially in terms of the health care continuum discussed in Chapter Five, and shown below in Table 6.5 (v). In tables 6.5 (ii) and (iii), the proportions are presented in five columns, but table 6.5 (i) has only four columns. These columns are regarded as represented need. Based on the proportions cured,

Table 6.5 (iii)

CLASSIFICATION OF CARE REQUIRED FROM HEALTH INSTITUTIONS IN CENTRAL REGION
(BASED ON THREE DAY SURVEY) 1979 - 1980

Health Institution	Orthopaedic Services		Medical Care for communi- cable diseases		Medical Care for systemic and degenerative care		Surgical Care		Maternal and child welfare		Total Number
	No	%	No	%	No	%	No	%	No	%	
Winneba	3	.6	43	8.6	25	5.0	13	2.6	11	2.2	95
Dunkwa	4	.8	42	8.4	22	4.4	8	1.6	10	2.1	86
Fosu	2	.4	34	6.8	27	5.4	3	0.6	6	1.2	72
Abura Dunkwa	0	0	38	7.6	24	4.8	0	0	11	2.2	73
Kissi	0	0	35	7.0	15	3.0	2	0.4	10	2.0	62
Enyan Abaasa	0	0	31	6.2	15	3.0	0	0	9	1.8	55
Nkum	0	0	33	6.6	18	3.6	0	0	6	1.2	57
Total	9	1.8	256	51.4	146	29.2	26	5.2	63	12.7	500

Table 6.5 (iv)

OTHER CASES REQUIRING CARE IN THE CENTRAL REGION
1979 - 1980

Malnutrition	294
Motherless Children	112
Crippled people	14
Aged	115
Mongol	2
Other	38
	<hr/>
	575
	=====

* Cases officially notified.

Table 6.5 (v)

THE HEALTH CARE CONTINUUM 2 ITS COMPONENTS

Promotive Care	Preventive Care	Curative Care	Rehabilitation Care	Socio-medical Care
Environmental protection	Immunization;	Use of drugs;	Care of disabled; mental cases etc.	Aged
Sanitation	Prophylaxis;	Surgery	Mental cases etc. Limbs;	Chronic and terminal care
Water Supply	Check-ups	Laboratory	Eyes;	
Waste disposal	Use of additives e.g iodised salts and fluoride	X'ray	Deaf and Dumb; Retraining to cope with useful parts of the body	
Behavioural requisites;				
Personal Hygiene				
Clean living conditions				
Adequate, well-cooked and protected food.				
Avoidance of health damaging activities, e.g. smoking of cigarettes				

we set up a five-point scale of cure. These range from 'satisfactory' 'manageable cure', 'inadequate cure', 'not much hope for cure' and 'seek hope for alternate cure'. The five-point scale therefore represents a range from whether the care is satisfactory to whether there is a need to find alternate cure.

As in the assessment of need in Chapter Five, we have a critical demarcating line. It is reckoned that column 3 is the demarcating line. In columns 1 and 2 there is hope for cure to be effected from the same source, but beyond column three there is an indication to seek an alternate source of cure.

As has been repeatedly shown, about half of all the cases that turn up at health institutions are presented with communicable diseases. In Table 6.5 (i), the proportions that have come for the first time and for whom such care could be regarded as satisfactory range from 53.4 per cent in Dunkwa to 46.9 per cent in Winneba. The remaining proportions spread in three columns represent the case of those whose need has not been met. Indeed in the case of the communicable diseases, frequency of visits could represent a frequency of reinfection with parasites. This is so particularly in the case of children under five who often present with two or more infections at the same time, for which only one may be successfully treated, thus requiring more visits. The fourth column of that table shows values which range from 10.7 per cent in Enyan Abaasa to 6.2 per cent in Abura Dunkwa. For these proportions, alternate care especially environmental care and health promotive care must be found. Curative care only deals with part of the problem, whereas the last two will tackle the root causes.

In the case of in-patients the proportions who received satisfactory care are higher than those of ambulatory group ranging from 72.8 per cent to 85 per cent. For this group, it could be said that the outcome is a

reasonable measure of medical need as different therapeutic interventions may have been brought to bear on the disorder. An average of 2.3 per cent require to seek alternate care. The scores for the other points of need, i.e. 'manageable states', 'inadequate cure' and 'no hope for cure' range from 10.1 per cent for manageable state to 3.5 per cent for 'not much hope for cure'. This represents a total of 10 per cent of cases who must seek alternate care.

Also included are maternity cases; in four out of the seven hospitals the bulk of the cases are maternity cases who have had deliveries in those health institutions. The excess need from this group of discharged hospital cases may require either a higher level of care than is available in the region or sociomedical care which combines medical knowledge with home or community care of the individual.

Table 6.5 (vi) presents a summary of the combined health care needs from the proportions presented in Tables 6.5 (ii), (iii) and (iv).

In summary, this chapter has attempted to trace out the pattern of ill-health in Ghana and in the Central Region and to indicate some of the changes that have occurred from 1895 to the present. The pattern of diseases appears to be dominated by the infective parasitic diseases and although certain specific diseases have ceased to be problem, others seem to defy control and continue to threaten life. Indeed the recent scare of AIDS could well be a problem of the future if the unconcerned attitude of the health care planners, as far as involving the population as much as possible, is not changed. So far the approach to health care provision has been predominantly curative in nature with very little attention being paid to health promotion and disease prevention.

A cursory reflection would show that given the pattern of diseases as evidenced by the hospital records obtained from the health institutions appropriate emphasis should be put on each of the five areas of care,

Table 6.5 (vi)

INDICATORS OF UNMET HEALTH CARE NEEDS IN
CENTRAL REGION

Area	Persistent illness due to CD	Persistent illness due to SD	Subsequent complaint of admitted SD cases	Subsequent complaint of CD cases
Winneba	51.7	36.8	27.2	26.8
Dunkwa	48.6	41.7	22.0	22.1
Fosu	53.2	28.0	25.0	21.8
Abura Dunkwa	53.5	32.2	18.9	-
Kissi	54.5	32.7	15.0	-
Enyan Abaasa	52.5	31.9	16.9	-
Nkum	56.8	30.0	18.2	-

Possible type of Health care required	Health Promotion & Disease	Higher level therapeutic care	Socio-medical care	Health promotion and Disease prevention
---------------------------------------	----------------------------	-------------------------------	--------------------	---

VB. CD - COMMUNICABLE DISEASES
SD - SYSTEMIC DISEASES

with the first two sectors - health promotion and disease prevention receiving at least 50 per cent of the health care effort.

There are however, problems which seem to surround the pursuit of health care from this angle. First is the problem of controlling the environment, something which appears to be almost unsurmountable at present. Second is the problem of getting the people sufficiently involved in order to change some of their behaviours inimical to good health. Third, it is hoped that the participation will increase the interest shown in certain preventive care activities such as immunization, use of prophylaxis and use of additives. However, the general absence of all these has been an important contribution to the predominance of the infective parasitic diseases, a group diseases that have been brought under control in some parts of the world during the period that we have been investigating.¹

The last few paragraphs attempted to assess the health care needs of the country and the picture confirms what has already been repeatedly indicated; that health promotion and disease prevention activities must be increased. These cannot be overlooked any longer and in the light of the importance of these, an ecological viewpoint of disease is presented in Chapter Seven where disease, people and the environmental relationships are considered.

The evidence assembled here shows that the pattern of mortality and morbidity that occurs in the region and the related conditions present problems that need a particular strategy the highlights of which are as follows.

1 Malaria was controlled in the Netherlands only after 1930 (Prothero, 1965). Also in China several infective parasitic diseases received an onslaught only after 1949 and have virtually disappeared (Heller, 1975).

There is a need for a governmental commitment to health care provision on a level which is higher than exists at present. We are thinking of operationalising the much used term, 'Health Care'. It carries with it a connotation to take charge over the health of the people to ensure that there are no problems. The onus therefore remains on the government to show sufficient interest and concern about the people's health in order that preventable diseases would be dealt with. This concern does not seem to be there at present. Secondly, there is a need for the people themselves to take an active part in instituting hygienic measures, changing certain behavioural characteristics and generally keeping healthy life styles. So far this has been a problem, and there is yet to be a concerted effort in this direction.

The third point that must be highlighted concerns the differences of emphasis put on the various sectors along the health care continuum. As repeatedly stated, the curative attracts the bulk of the health care resources leaving the health promotion and disease prevention sectors lagging far behind. Consequently, a continuous cycle of infection-cure-infection is set up which cannot easily be broken into sufficiently for changes to be made. This can be done through the control of the conditions on which the parasites that cause infection depend. These need to be tackled at the primary level. Thus, even though it is recognised that infective parasitism is the major form of disease causation, and a leading cause of death, and it is also well known that some of these diseases can be prevented, not enough funds are devoted to the latter to make improvements. It is clear from the discussion above that certain characteristics of the health services are incongruous with the pronouncements for primary health care. It would be recalled from Chapter Five that the dependence on the hospital system within the health services does not allow a balanced care to be provided. In other words,

the staff in these institutions devote greater attention to effecting cures than in teaching personal hygiene, vector control or protection of water supply.

It is important to find out what areas of the people's everyday lives represent disease risks, which conditions can be manipulated in the local community setting by the people themselves. Here consideration is given to participation in the health care provision by the people with a view of making changes in their health.

In the following chapter, we present details of the ecology of disease of the Central Region. We identify a number of risk factors which are described and analysed where appropriate.

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CHAPTER SEVEN

ECOLOGICAL ASPECT OF DISEASE IN THE CENTRAL REGION

The ecological aspects of disease were considered in Chapter Two. It was stated there that the concept of disease ecology was relevant for the study of the geography of Health. Both share a common concern over area, focussing on environmental relationship between living organisms.

The differences lie in the extent to which inroads have been made to the study of interactions between the different organisms and their physico-chemical environment. Ecology has progressed more in this direction than has geography of health whose main contributions to disease studies have been related to disease diffusion (Hunter, 1972; Haggett, 1976; Prothero, 1965).

In this chapter, disease ecology is considered as the most appropriate framework on account of it focussing on the given organisms in a specified place and their interactions amongst themselves as they live and struggle to survive. The environment in which they live comprises the physical environment - climate, altitude, vegetation soils, rivers, lakes, - and for man the human or social environment. Attempts to study the ecological aspects of disease were considered in Chapter Two where it was suggested that May's work represented an important contribution. He suggested that a number of factors may interact at various stages to give rise to disease in the human body. These interactions may occur amongst causative agents, vectors and intermediate hosts, and man. Other workers such as Pyle, Learmonth and Knight support this approach.

In the area under study, we noted in Chapter Six that the predominant

illnesses affecting the population are the infective parasitic diseases. These tend to display some persistency in their infectivity. People report with similar, if not the same, complaint at the health institutions requiring treatment. We noted the possibility of a cycle of infection - cure-infection being set up, pointing out also that the persistence of certain diseases may well be due to their initial management at the health institutions.

Where it is obvious that a cure was initially effected only to be followed at a subsequent date by another infection, there is the possibility that the infective agent or organism is continuously present in the environment and remains sufficiently virulent to infect people. This could be so particularly in the situation where no immunity has been conferred by the previous infection. In the study area, diseases that appear to confer such immunity include measles, chicken pox, poliomyelitis, mumps. There are others which do not offer very long lasting immunity and whatever initial immunity is conferred may be worn out after some time. Included amongst these diseases are the diarrhoeal diseases - dysentery, cholera.

There is also a third group such as malaria, helminthic infections and even the common cold. These do not confer any direct immunity, but previously exposed people who are subsequently infected may have milder effects than those who suffer an attack for the first time.

For many diseases, it is not known precisely how much of the microbes is required to establish disease. In the case of viral and bacterial infections, since these agents multiply so rapidly, it is possible that in the absence of any prohibitive factor a few microbes are enough to start off an infection.

In any given environment therefore, the problem of infective agents remains and so long as man continues to live and interact with these he

will get infections. The consideration of these causative organisms within a given environment is therefore appropriate and disease ecology provides us with the framework for this.

Involving as it does a multiplicity of factors, a problem arises as to how to sort out and understand the distinctions amongst biological, physical, chemical, socioeconomic and even cultural determinants of human illness. There is a need for an interdisciplinary study of the ecology of disease, involving biomedical and social science disciplines, to unravel the exact nature of the interactions that occur in disease causation.

Even though there has been a decline in the study of diseases from the ecological point of view in recent years, there is no gainsaying the fact that the ecological approach is crucial, especially for developing tropical countries like Ghana.

Our concern in this chapter is therefore to focus on the general aspects of ecology, indicating the facets which are of relevance for disease studies in geography. Within the general framework, we consider the environment of the Central Region and the presence of particular pathogens in the region. The need to narrow our focus leads to a consideration of aspects of socio-economic life in seven selected localities comprising urban, semi-urban and rural life patterns.

To understand the extent of the ecological balance that exist between man and the pathogens, an attempt is made at working out ecological niches or communities which can also be regarded as ecological risks cells within the selected localities. The isolation of such niches will facilitate the task of disease control by interrupting the cycle of infection, especially through the training of the attack on the causal agents. Furthermore, the usefulness of disease ecology as a framework is highlighted by using it to study three selected infections prevalent

in the region. The chapter concludes with a final assessment of the health needs of the region.

The Ecological Perspectives

This section makes a small attempt to highlight some of the factors involved in the interaction, isolating some of the causes underlying the pattern of diseases considered in Chapter Six.

As is well known, within any given environment, there are various organisms which interact with one another as each struggles to survive and reproduce. Their survival depends on the ability to obtain food, and also on favourable living conditions. Their reproduction depends on the extent to which they are comfortably settled. With regards to the ability to obtain food, the most efficient group of organisms are the plants. These are naturally equipped with chlorophyll with which they are able to trap solar energy and fix carbohydrates through photosynthesis. None of the other organisms are similarly equipped and hence they depend on the plants which become the primary producers of food. The existence of a food chain and food web in ecology is well known and needs no elaboration here (Farb, 1969). What must be noted is that it is at the community level that each organism struggles to obtain its food and to find, for itself, favourable living conditions. When these fail, the organism must adapt itself, as best as it can, to the prevailing conditions until the latter changes for the better. In the absence of this, an organism will not be able to reproduce nor survive for long.

Ecologists use the terms 'niche' to describe the position of the organism in relation to the food web; and habitat to connote the living conditions favourable for a particular organism. It is at the community level where niches and habitats of different populations of organisms live and interact. While one habitat can be shared by different kinds

of organisms, the niches are somewhat structured according to the nature of the species. In addition to plants there are animals, micro-organisms and man, all of which require food.

Of this group, the microorganisms find it difficult to obtain food directly and depend on the other larger organisms for their supply. There are those that can live off dead plant and animal material and those that depend only on live animals or plants which become their host. The latter are the parasites which form our object of interest here. In the process of obtaining their food, some of these parasites produce toxins which are inimical to the health of the host - hence they become pathogens which cause disease in the host.

There are seven different parasites that affect man in general. These are bacteria, viruses, rickettsia, spirochaetes, worms, fungi, protozoa. Apart from the worms, all these micro-organisms are unicellular and are very minute. However, small as they are some, such as the fungi are plants, while others, such as the protozoa, are animals.

Apart from the habitat, the organisms also require resources such as time, temperature and humidity. This set of resources necessary for existence and reproduction constitute the ecological niche of that organism. The biotic and abiotic components of the area also set limits to the organisms that can be present.

In the study area, the search for the limits of the niches of different parasites would have benefitted from an interdisciplinary approach, but this was not possible for a small-scale research such as this. It should have been possible for example, to find out about the existence of bacteria in the area by examining soil samples or analysing samples of water from the various streams for the presence of worms but limited financial and other resources prevented this. Perhaps, for a future research such as an approach could be planned.

It is essential therefore to consider the ecology of disease in the Central Region, with a view to finding out the level at which specific types of care ought to be provide if some diseases are to be controlled. The control of the environment in this case means an effective suppression or elimination of those organisms which are pests and pathogenic; for example the mosquito. So far, the survival of these organisms has been assured because of their adaptation to the prevailing patterns of food, shelter other living conditions.

The purpose of the preceding section was to set the scene for the use of the ecological approach to study diseases in the Central Region. Definitions have been offered and the position of 'community' in the ecological framework has also been explained. We further explore some of these concepts as they apply to the situation in the Region. In a later section, specific attention is focussed on ecological communities that exist in the region. Here use is made of principal component analysis to help bring out the important variables that combine to establish communities of different ecological status. To illustrate the processes that operate in disease ecology, three parasitic diseases of importance in the region are examined. The Chapter ends with a conclusion that draws attention to the inadequacy of the Ghanaian model in dealing with infectious and parasitic diseases.

The Environmental and Pathogens in the Central Region.

In this section, the environment considered is at the level of the ecosystem. At this level can be found the communities of different organisms and the physical and chemical components which function together to create suitable habits and niches for the various organisms to survive. The broad aspects of the ecosystem consists of the climatic zones, the vegetative and soil types that give an area its character.

The Region stretches from the Atlantic coast and the Gulf of Guinea, in the form of a funnel, the broad part being the drier southern end, with the point jutting towards the north-west. Rainfall in the two sections vary from just under 1,200mm in Cape Coast on the coast to 2,100mm in Dunkwas in the north (see Map 7.1). In general, there are two rainy seasons, May to August and late September to November. The temperatures are high ranging from 25°C to 27°C. The highest temperatures average about 26°C while the lowest is about 24°C during the cold harmattan season, especially at night.

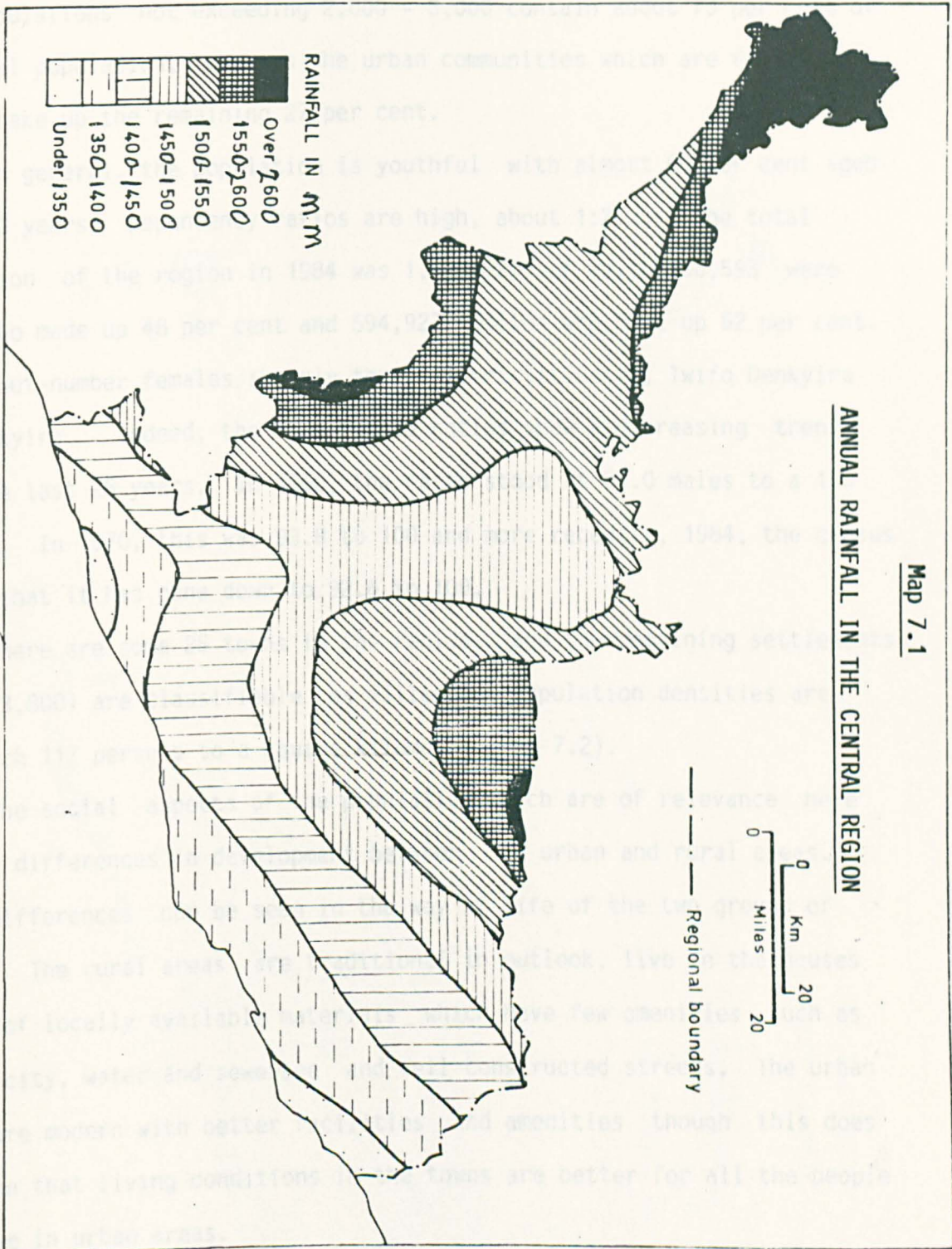
Humidity in the region varies from 50 per cent in the south to 70 per cent in the rainier north. There are three vegetational belts, the coastal grassland and thicket with herbivores as the main fauna, the tropical rain forest and a transitional zone between the two. The soils are described as forest ochrosols: these are reddish and alkaline in nature, well-drained, with adequate moisture and aerated. Along the coast there is a strip of sandy soil (Dickson and Benneh, 1970). Concerning the relief, the Central Region has two main relief features. There is a coastal plain with an average altitude of 168 metres. This is undulating in nature with occasional hills. The coastline bordering this plain is characterised by lagoons and bays such as occur in Winneba and Cape Coast. Beyond the coastal plain, is the forested plateau. This is dissected by numerous rivers, the Pra, Subin, Offin and their tributaries. These rivers drain three other Regions of Ghana.

There are other rivers in the southern part of the Region. These include the Ayensu, Birim, Kakum and the smaller streams of the Densu river.

The human populations form part of this environment, dominating it and changing parts of it to suit their own needs. There are various kinds of grouping of the individual people, but like other organisms, man also lives in communities. These are of various sizes, the rural communities

Map 7.1

ANNUAL RAINFALL IN THE CENTRAL REGION



with populations not exceeding 2,000 - 3,000 contain about 73 per cent of the total population, whereas the urban communities which are fewer in number take up the remaining 27 per cent.

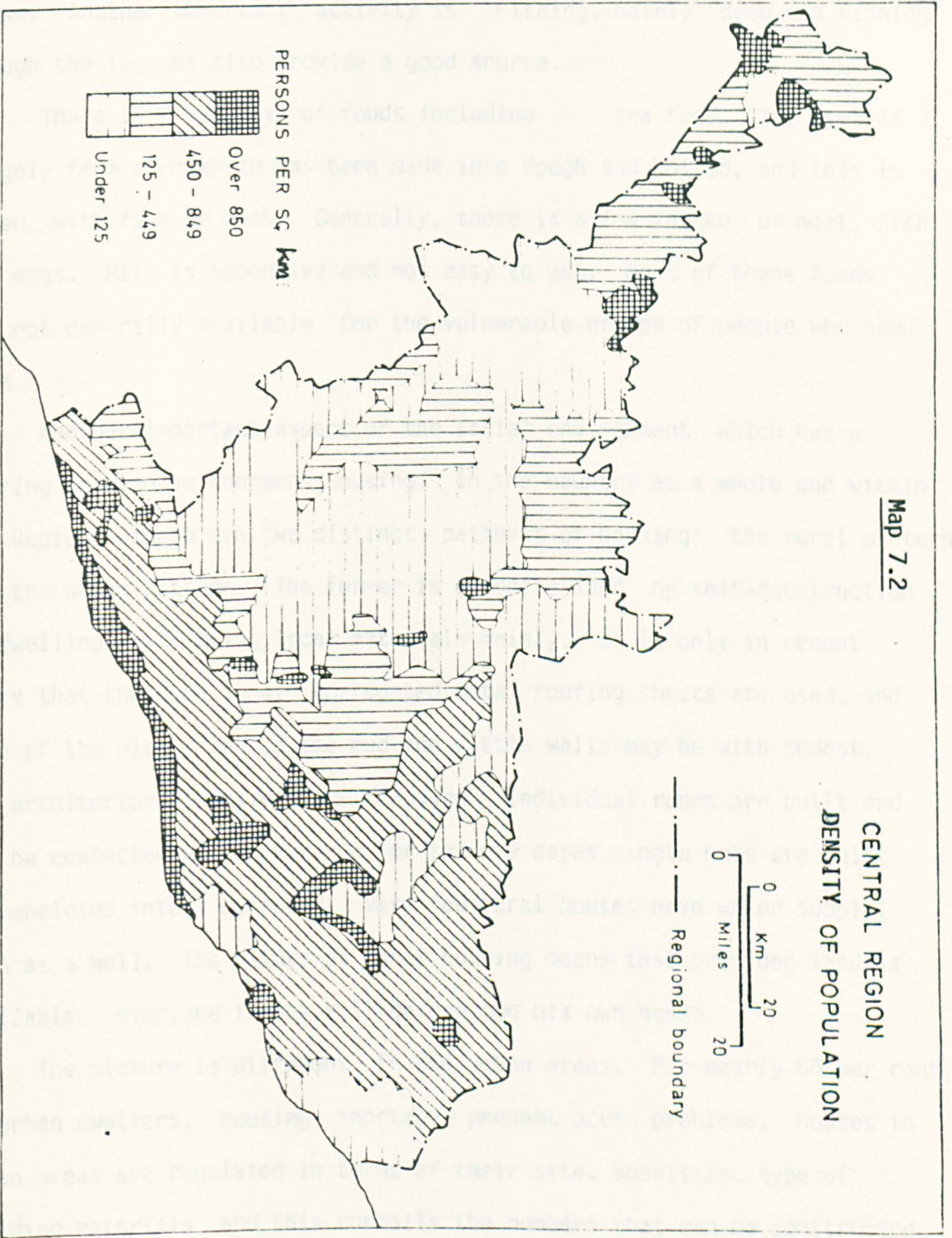
In general, the population is youthful with almost 60 per cent aged under 30 years. Dependency ratios are high, about 1:2.2. The total population of the region in 1984 was 1,145,520 of which 550,593 were males who made up 48 per cent and 594,927 females who made up 52 per cent. Males out-number females in only three districts, Assin, Twifo Denkyira and Denkyira. Indeed, the male-female ratios show a decreasing trend over the last 25 years. In 1960, the ratio stood at 95.0 males to a 100 females. In 1970, this was 93.8 to 100 and more recently, 1984, the census showed that it has gone down to 92.6 to 100.

There are some 25 towns in the region, and the remaining settlements (about 3,800) are classifiable as villages. Population densities are high with 117 persons to a square kilometre (Map 7.2).

The social aspects of the population which are of relevance here are the differences in development between the urban and rural areas. These differences can be seen in the way of life of the two groups of people. The rural areas are traditional in outlook, live in the houses built of locally available materials which have few amenities such as electricity, water and sewerage and well constructed streets. The urban areas are modern with better facilities and amenities though this does not mean that living conditions in the towns are better for all the people who live in urban areas.

The two areas are characterised by two systems, the traditional and official. The urban areas owe much of their development to official status unlike the rural areas. Slowly, some of the benefits of the urban areas are spreading to the rural areas.

Other aspects of the population worth considering are the agriculture



and nutrition. In the Central Region, agricultural activities include the production of citrus fruits, corn, oil palm and vegetables. In the forested areas of the plateau, cash crops such as cocoa and coffee are grown. Another important activity is fishing, mainly deep sea fishing though the lagoons also provide a good source.

There is a variety of foods including sea food. The diet is largely from corn which has been made into dough and boiled, and this is eaten with fish or meat. Generally, there is a low intake of meat, fish and eggs. Milk is expensive and not easy to get. Most of these foods are not generally available for the vulnerable groups of people who need them.

Another important aspect of the social environment which has a bearing on disease concerns housing. In the country as a whole and within the Region, there are two distinct patterns of housing: the rural pattern and the urban pattern. The former is characterised by self-construction of dwelling units using local materials mainly. It is only in recent years that the occasional corrugated metal roofing sheets are used, and some of the plastering of the mud and wattle walls may be with cement. The architectural designs are standard. Individual rooms are built and may be connected with a veranda or in some cases single huts are built and enclosed into a compound. Very few rural houses have water supply, such as a well. The nature of rural housing means that provided land is available, everyone in the village can own his own house.

The picture is different in the urban areas. For nearly 60 per cent of urban dwellers, housing shortages present acute problems. Houses in urban areas are regulated in terms of their site, amenities, type of building materials and this curtails the numbers that can be constructed as it has become very expensive for individuals to build. The continuous stream of migrants to the urban areas also compounds the problem. The

results are two-fold. The development of shanty areas where dwelling units are put together with unorthodox materials, and overcrowding in the houses that are available for renting. In both of these sanitation and toilet arrangements are non-existent or are in unuseable states. The implications of the above for the spread and persistence of communicable diseases are well known, but details such as exist in the study area will be documented in a later section.

Though several indices can be considered under the human environment, the areas selected above are considered adequate for present purposes. In summary, it can be said that environmental associations with disease vary from those related to the broad features to those in small local areas. The broad features, for example climate, may have very little direct relationship with disease; though through excessive heat or cold various disease states can be produced. There have been a few recorded cases of heat stroke in the Central Region, but these incidents are often brought on by other attendant conditions such as cooking in a small kitchen with no ventilation. Climate here can be considered as the inorganic stimuli that adversely influence human tissue, but in themselves the natural environmental conditions may not be health hazards.

Consideration should also be given to the nature of the microbiological environment in the region. It is however, in this area that an inter-disciplinary effort would have repaid study. In its absence we could rely on the known diseases within the Central Region, as evidenced by the hospital diagnosis using clinical and laboratory investigations.

As was stated earlier, the micro-organisms which are also either plants or animals cannot manufacture their own food. Neither can they utilize any of the directly available food sources. The only manageable nutrients for these micro-organisms are the already processed chemicals absorbed by either plants or animals including man. As such the higher

organisms provide micro-organisms with their niches.

As for their habitats, the warm moist soils, temperatures and humidity provide adequate moisture, temperature and aerobic soils conditions for the comfort of the micro-organisms. It must be remembered that not all the parasites are pathogenic, some live symbiotically on man without causing much disease, e.g. E. coli (Dubos, 1970). Then there are the saprophytic bacteria that help in breaking down dead organisms.

In the region therefore, the micro-organisms whose presence can be inferred include various bacteria, both spore forming and non-spore forming: the tuberculosis bacillus and tetanus bacillus; fungi such as those that cause tinea; guinea worm; the malarial plasmodia and a host of others.

General Socioeconomic Outlook of Localities in the Central Region

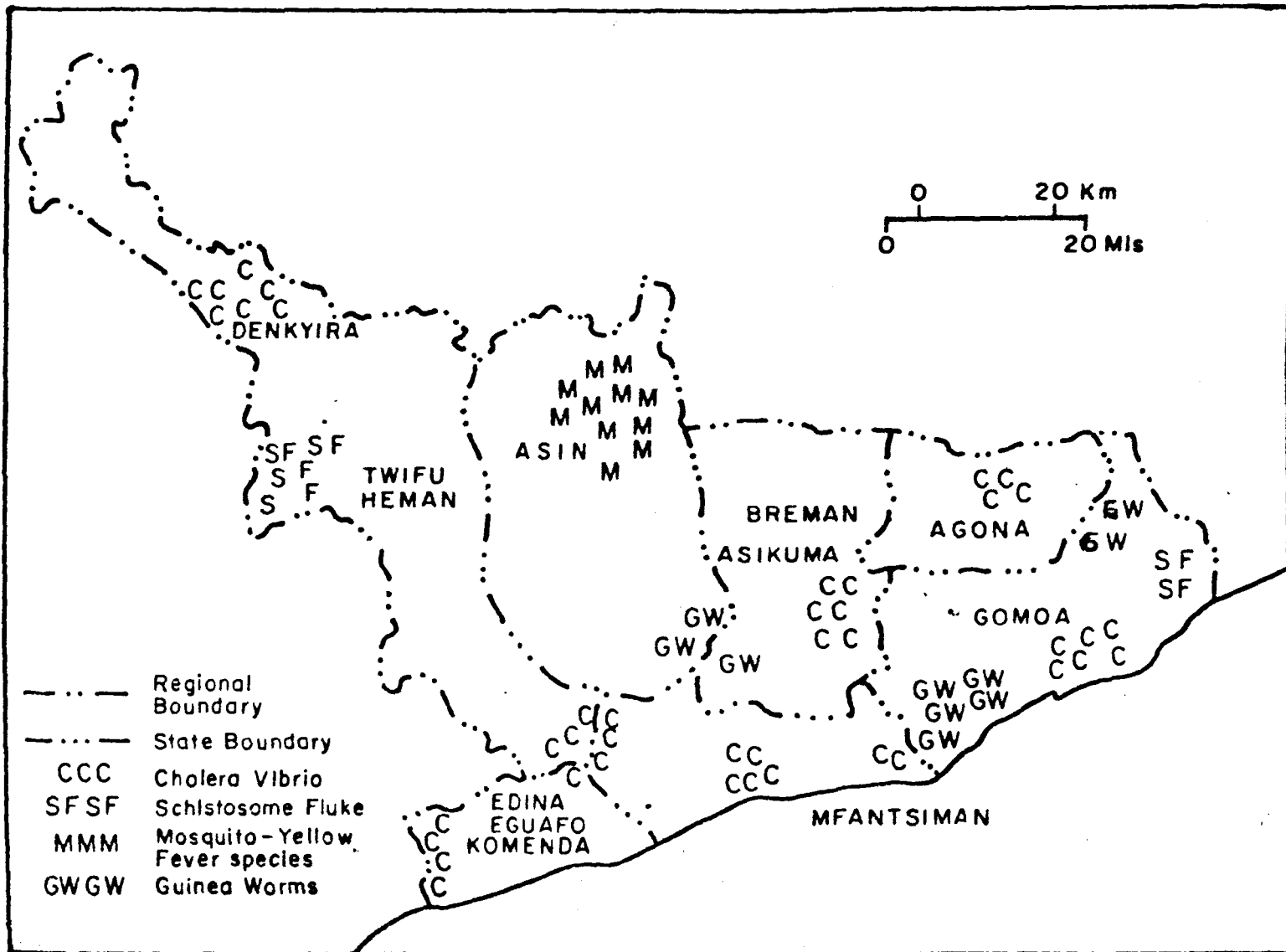
The following section focusses on selected localities within the Region and attempts an estimation of the limits of the various communities in supporting certain parasites. The investigation centres on the extent to which the localities possessed the set of resources that provides a species with all its requirements for existence and reproduction.

The field data were obtained through interviewing and observations in the selected areas. In Chapter Three the procedure used in selecting the cells from which individual houses were visited was discussed. Use was made of a standard cell size, about 315 square metres, with an average of 9 houses per cell (See Appendix C). The cell was the initial areal focus for the study of the ecological relationships.

The Central Region, like the rest of the country, is divided into districts. There are 48 of these in Ghana, and 7 in the Central Region (Map 7.3). These districts are of varying sizes. The largest is Twifo Denkyira Heman District, and Mfantseman district is the smallest. Some

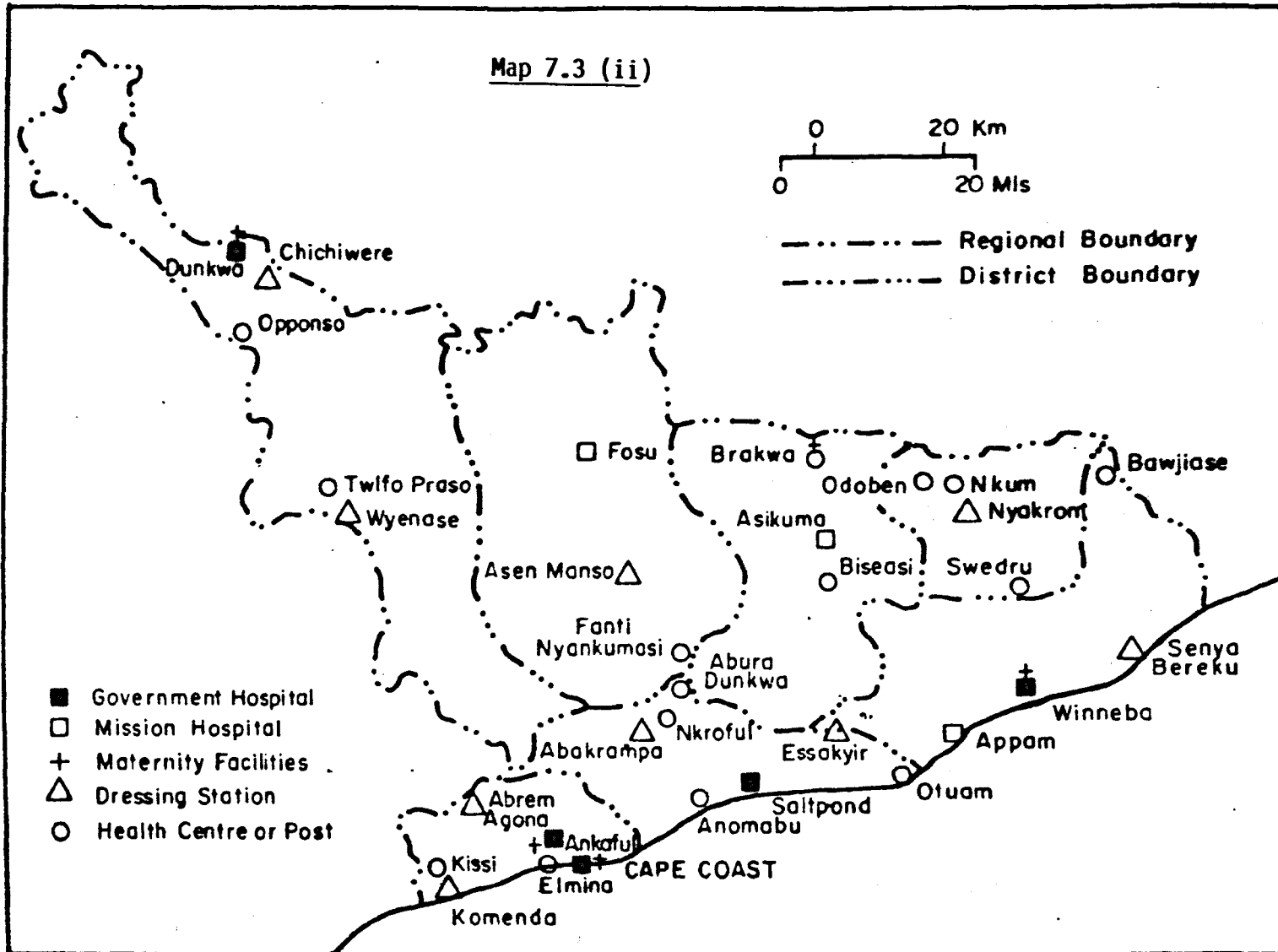
Map 7.3 (i)

CENTRAL REGION: AREAS OF REPORTED VECTORS & PATHOGENIC ORGANISMS



HEALTH DISTRICTS & FACILITIES IN THE CENTRAL REGION

Map 7.3 (ii)



contain thousands of houses, such as Cape Coast town, though others may contain only a handful such as Koduabe Mberasa in the Agona District. Care was taken to select communities which represented the urban, semi urban and rural communities.

Winneba and Dunkwa are the two towns with populations of over 25,000 representing the urban communities. Fosu, Abura-Dunkwa (a different community from Dunkwa) and Kissi represent the semi-urban, while Ofoase and Enyan Abaasa represent the rural.

These communities are specifically looked at as they are the units within which the essential interactions take place between man and the disease organisms, and hence the units with which health problems can be addressed. Also, the nature of the health needs in the communities makes it necessary to consider the urban, semi-urban and rural communities individually.

The Urban Areas

The urban areas within the Central Region exhibit certain common features. First, most of the towns with populations of over 25,000 owe their initial development to European commercial activity, either mining or trading. Those towns which developed along the coast were often trading posts, having developed from small fishing villages. Cape Coast, Winneba, Apam, Elmina, Saltpond, Anomabo are examples.

Ports and settlements were developed from where goods were shipped in and out of the country. Winneba, a town lying within a protected bay of the Guinea Coast, saw its greatest development from the late 18th century to the mid-19th century. As a seaport during this time, it handled most of the agricultural products, palm-oil and cocoa from the hinterland, which were exported, and its European imports made it one of the busiest commercial centres in the region. Today all that is left of

its former nature are the large solid warehouses and the mansions which attest to a more affluent past.

Winneba has long since ceased to be a seaport and its position as an important fishing port has also been taken over with the development of Takoradi, Tema and Elmina. It has also lost a lot of its commercial enterprises to Swedru, an inland town located some 50 kilometres away.

Dunkwa on the other hand developed as a mining town. Though there had been a number of small mining villages around the present site long before the European arrived, its present development dates back to the late 19th century when serious prospecting and mining activities were undertaken. It is located in a hilly gold-bearing area within the rain-forest. Unlike other urban areas, Dunkwa has been a planned town from its very beginning. The residential areas, market schools, parks and gardens were planned. From the end of the 1940s and following independence the population increased and this led to the spread of the shanty section of the town.

Both Dunkwa and Winneba are administrative centres receiving governmental subventions for social development. Services such as posts and telecommunication, health care, education, water and electricity supply are provided for the inhabitants of these urban areas. Other areas in the region where such amenities exist include Swedru, Apam, Nyakrom, Saltpond, Anomabu and Elmina (Table 7.1 (i)).

Cape Coast being the administrative capital of the Region is in a class of its own, being a University town as well. Winneba's population had dropped by 14 per cent on account of its eroded importance (Figure 7.1).

The Human Environment

In the attempt to understand the human environment of the urban communities, and its relationship to the parasites that attack the

Table 7.1 (i)

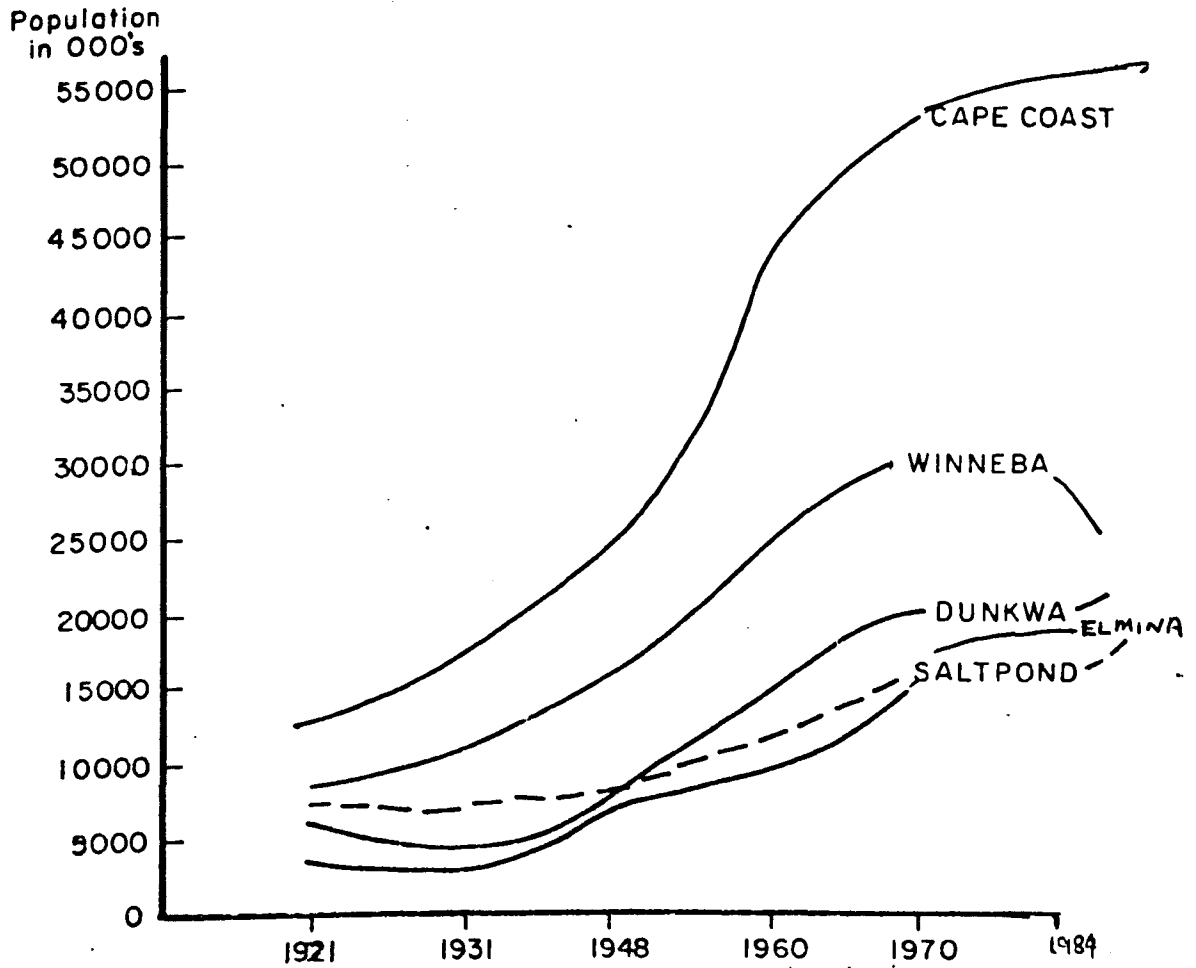
POPULATION GROWTH: SELECTED TOWNS IN
CENTRAL REGION

<u>Area/Year</u>	<u>1921</u>	<u>1931</u>	<u>1948</u>	<u>1960</u>	<u>1970</u>	<u>1984</u>
Cape Coast	14,921	17,685	23,294	41,230	51,654	57,700
Dunkwa	5,262	4,797	6,827	12,689	15,437	16,900
Elmina	3,142	3,407	5,909	8,534	11,401	15,600
Saltpond	6,342	6,369	6,968	9,869	11,849	12,600
Winneba	6,980	10,926	15,110	25,376	30,778	26,200

- Sources: (1) Vital Statistics of thirty five
Registration Districts, 1921, 1931;
- (2) Population Census 1960, 1970, 1984.

Figure 7.1

POPULATION GROWTH IN SELECTED TOWNS
1921 - 1970



population, a brief survey was made, the findings of which are presented below.

The Population

In the two towns the youthfulness of the population is a characteristic of the region and indeed of the country as a whole. As in much of the developing world, this is due to the high birth rate (Ghana's crude birth rate is forty-six per thousand), with a crude death rate of 21 per thousand.

In both Winneba and Dunkwa, children aged 0 to 14 years far outnumber any of the other age groups, taking up nearly 46 per cent of the total population. The small numbers of those aged above 65 years is also noteworthy, on account of its implication for health planning. Also, in Winneba females tend to be more numerous than males, but in Dunkwa there are more males than females. This is on account of the mines.

Within both towns, the occupation of the population ranges from those engaged in primary pursuits to white collar workers and top professionals, though again Winneba displayed a greater proportion of professional people than Dunkwa (Table 7.1iii). In Dunkwa, the number of primary occupations is large, from food crop farming to rubber plantation and mining.

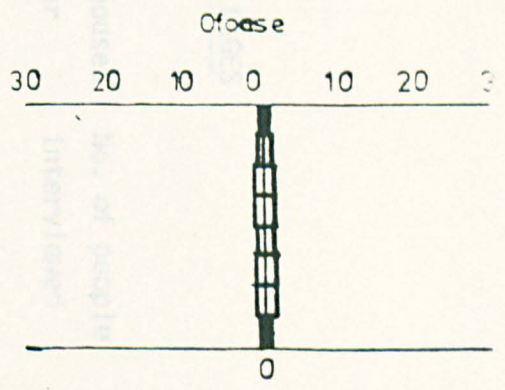
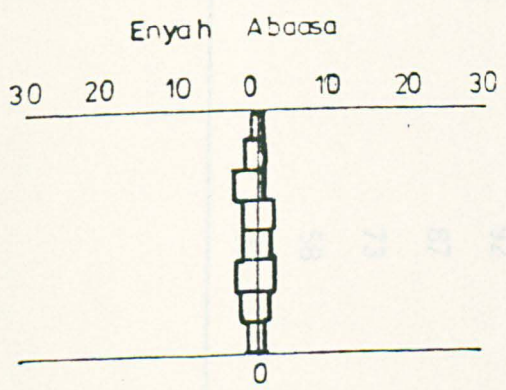
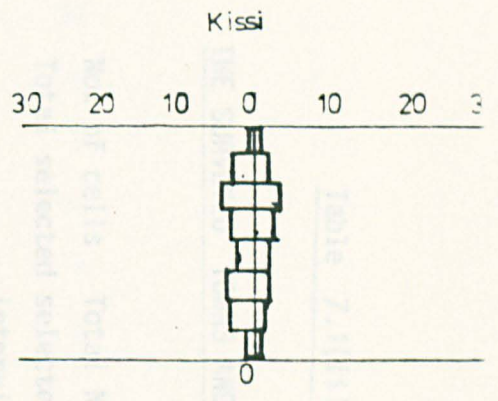
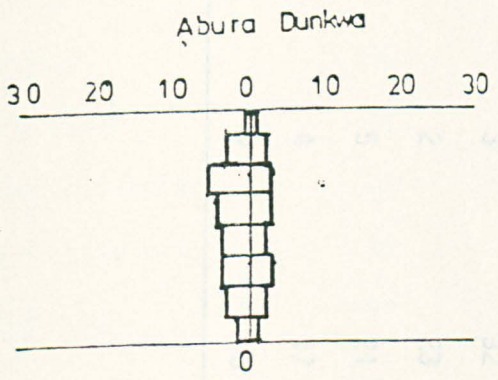
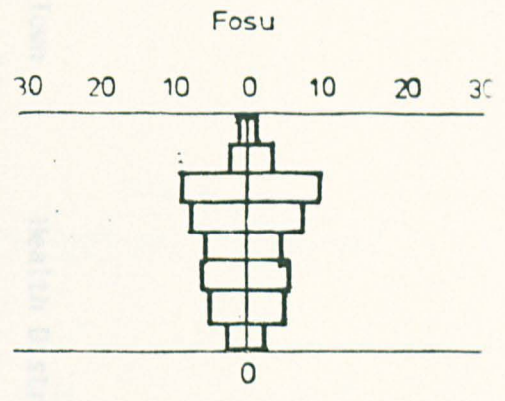
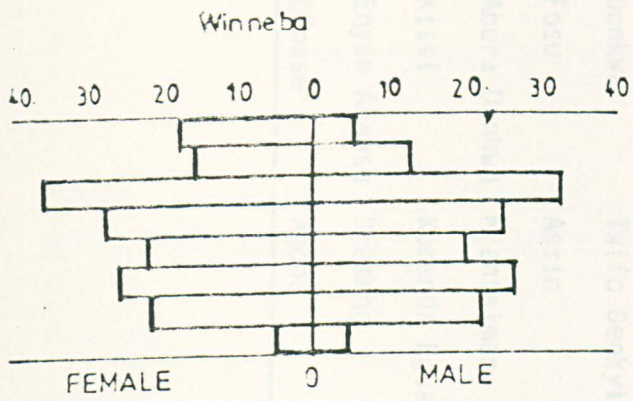
This picture tallies with the levels of education of the two urban areas. Winneba boasts greater numbers of highly educated people than does Dunkwa (Table 7.1iv). This is a fact not unexpected considering the longer association with Europeans and their educational activities.

The Semi-Urban Communities

There are within the Central Region some towns which have populations ranging from 3,000 to about 10,000 which do not qualify to be included in the genuinely urban areas, as many of them lack basic amenities such as

Figure 7.2

POPULATION PYRAMID FOR SELECTED COMMUNITIES



Source Based on Republic of Ghana 1984 Population Census

Table 7.1(ii)

THE SURVEYED TOWNS AND VILLAGES

Town	Health District	No. of cells	Total No. houses	No. of people interviewed	Population	
		Total selected	selected for interview		1970	1984
Winneba	Gomua Ewutu Efutu	9	87	212	30,778	26,200
Dunkwa	Twifo Denkyira Heman	6	58	110	15,437	16,900
Fosu	Assin	3	32	92	7,249	10,700
Abura Dunkwa	Mfantsiman	2	23	87	4,025	5,200
Kissi	Komenda Eguafo	5	21	73	3,535	4,210
Enyan Abaasa	Bremang	4	17	58	2,681	3,180
Ofoase	Agona	2	10	22	57	135

Table 7.1 (iii)

OCCUPATIONS OF URBAN POPULATION

Area/ Occupations	Winneba		Dunkwa	
	No. of employed	% employed	No. employed	% employed
Fishing	76	38.8	0	0
Farming	12	5.6	25	22.7
Forestry	0	0.0	10	9.0
Minig	0	0.0	33	30.0
Trader	30	14.1	12	10.9
Tradesman	32	15.0	6	5.4
Clerical workers	22	10.3	10	9.0
Professionals	19	8.9	8	7.2
Unemployed	22	10.3	6	5.4
Total	212	100.0	110	

Table 7.1 (iv)

EDUCATIONAL STATUS OF URBAN POPULATION

Level of Education	Winneba		Dunkwa	
	No. of people	%	No. of people	%
No. formal education	69	32.5	39	35.4
Primary school only	47	22.1	23	20.9
Middle School	39	18.4	19	17.3
Secondary School	30	14.1	17	15.4
College	18	8.9	8	7.3
University	9	3.8	4	3.6
Total	212	100.0	110	100.0

pipe-borne water and electricity supply. The majority of these towns owe their growth to local factors or agencies unlike the larger centres.

Altogether, there are some fifty of these distributed unevenly amongst the health districts. Twifo Denkyira Heman has only four towns which fall into this category, and the Enyan Breman District has the largest number, 12. The development of these towns was through successful agriculture, especially cash crop farming (cocoa) such as many of the Enyan Breman towns, and also through fishing such as some of the Mfantsiman towns - Biriwa and Abandze or the Gomua Efutu towns of Senya Beraku. Also route centres tend to draw in people and the development of Fosu, Abura-Dunkwa, Domenase had depended on this. Some of these semi-urban centres are simply old towns which have managed to retain the same numbers of people. Bedum in the Breman District, for example, has kept a steady population size of just over 2,000 since 1948. Other towns have only grown slightly. Nyanyanu in Gomua Ewutu Efutu district is such a town.

In addition, there are a few of these centres whose growth had been rapid. Domenase and Ekwankrom have increased their populations three to four fold over a ten year period. Ekwankrom is a quasi-religious commercial community.

For our study, three centres were selected: Fosu, Abura Dunkwa, Kissi. Fosu is the largest centre with a population of about 8,000. Its development has been rapid. In 1948, Fosu's population was just 2,000. An important route centre for both railway and road network, Fosu has tripled its 1948 population (See Table 7.2). Fosu at present has over 10,700 people and the town contains some 700 housing units. 32 of these were selected for the survey and the total number of people seen was 137.

Occupations here were not as wide-ranging as in the towns already considered. The majority of the women are engaged in selling food items, mainly along the streets, market or transport stations. There is also

an appreciable population engaged in farming, wood working, carpentry and forestry and in artisan work - shoe repairs and cloth-weaving. The few professionals work as teachers, clerks and nurses. There is also some concentration of labour in the railways. The educational standard are again not high. The majority of the women interviewed are illiterate, 12 per cent have had some primary schooling and only 3 per cent have had higher education. The proportion of educated men was greater: 26 per cent had primary education and 11 per cent have attended middle school; only 4.2 per cent have had higher education.

The Rural Areas

The two areas selected are Enyan Abaasa and Ofoase in the Bremang and Agona Health districts respectively. Enyan Abaasa is by many standards a town, having a population of more than 2,000; its population in 1948 had already passed the 1,000 mark.

The main economic activity is farming though there are one or two traders. There are nearly 300 houses in the area some of which are block and cement and roofed with sheets; of those houses visited, as many as 28 per cent were of this sort, the rest being constructed with mud.

However, its rurality lies in the fact that the educational standard of the population is low; there are no public services, no electricity no drainage systems, no proper streets between the houses. There is one main highway running through the centre of the town and a few side streets; the houses seem jumbled together within the remaining space.

The Findings of the Survey in Seven Localities

In this section, the findings of the survey in the seven localities are presented. Here, the individual findings have been aggregated to obtain the total numbers of houses depicting the elicited condition.

At the end of the section, we attempt a final assessment of the health needs of the localities.

There are five factors used in evaluating the household status as far as health of population is concerned. These factors included the nature of dwelling units, persons per room, availability of bathroom and the nature of water supply. Of the total of 248 houses visited within the seven selected areas, 18.1 per cent of these had dwelling units constructed purely of mud (floors and walls) and having small windows. With the exception of Winneba, all other localities had dwelling units belonging to this category; Ofoase being a rural area had 80 per cent of the buildings constructed with this method.

The houses which had cement plastered over the mud walls and floors totalled 72. In five localities, these formed the bulk of the better constructed dwellings. It was only in Winneba and Dunkwa that the bulk of the houses were constructed with blocks made of sand and cement, with concrete floors and adequate ventilation. On the whole, 52 per cent of the houses in all seven localities had buildings of such permanent nature. The remaining 47 per cent of the houses may require improvement. The need for improved housing is greatest in the urban slums than anywhere else.

The bathing and toilet facilities in the seven localities were also of a varying nature. There were houses in the localities which had neither bathroom nor toilet facilities in the household. Use was therefore made of public ones or shared with neighbouring houses. This state of affairs was more common in the urban centres of Winneba, Dunkwa and Fosu. In these three towns, public bathrooms were seen, especially in the older section of the towns. In Dunkwa, the miners' residential quarters had such communal facilities. In Winneba, the congested area near the beach had such facilities. In the smaller communities, all household visited

had private bathing places; the majority of which were simple enclosed spaces often without roofs and without running water.

Toilet Facilities

The case of toilet facilities was different. The rural areas of Ofoase, Enyan Abaasa and many houses in Abura Dunkwa did not have toilets in the houses. There were public ones used by all. Many rural folk culturally frown on having a toilet inside the house. However, in Enyan Abaasa 2.4 per cent of the houses had private toilets. The majority of the people, however, used communal pit latrines. These are built with two entrances facing opposite directions for male and females. The squatting holes are arranged in twos numbering between 5 and 7.

In the towns Kissi and Abura Dunkwa, both had 3.2 per cent of thier houses with private toilet facilities. In Abura Dunkwa, the percentage of those with the private facility increases to 7.2. The two urban areas showed that 16 per cent of the houses in the two areas had private toilets. The general state of affairs concerning the availability of toilets in the region is that the majority of the people use communal pit latrines, 53.6 per cent of the houses visited relied on communal toilets. The private facilities except for the pit latrines were difficult to maintain. In the case of the bucket latrines, the conservancy labourers were very few, and on account of scanty wages unwilling to work. Pans were also difficult to obtain so that where the pan was damaged, it was not possible to quickly replace it; and the carters avoid having to empty damaged pans.

Concerning the use of water closet, the greatest problem was water. Winneba is frequently hit by water shortages, the consequences of which are the finding of alternate facilities for temporary use. At the time of the survey, many people were planning to change over from other types

of toilets to pit latrines in their compounds.

Refuse Disposal

The main method of refuse disposal used in the houses surveyed is through containers. In the towns - Winneba, Dunkwa and in Fosu, Abura Dunkwa and Kissi- people kept cartoons, buckets, baskets into which household refuse was put. These were emptied regularly at collection dumps in various parts of the towns. The tips are not regularly attended to and large quantities of refuse had been allowed to pile up. In several places in the rural areas, refuse was not observed in the same conditions though a few tips were seen.

Composting was not a favoured method of refuse disposal. Most households of the urban areas especially did not know what it even meant. A third method of refuse disposal is simple discarding of rubbish along the roads or out in the bush. On the whole, 68.9 per cent used containers, 6.4 per cent used composting and 24.6 per cent discarded their refuse indiscriminately.

Water Supply

A fourth factor considered in the community survey was water supply and its source. 22.5 per cent of the household had private supply pipe-borne water, 60 per cent obtained pipe-borne water from public standpipes and the rest depended on wells, ponds and streams. Needless to say, the towns were better served with pipe-borne water than the rural areas. It must also be pointed out that the supply is often intermittent and people have to go in search of water for miles around. This frequently happens in Winneba where the capacity of the present reservoir is too small for the town's needs. Enyan Abaasa and Ofoase depended on streams for their water, though some 8.4 per cent of the people had wells within the household.

Room Occupancy

The survey showed that in the communities in the towns - Winneba, Dunkwa and Fosu- there were households where the ratios of persons per room were 8 or more, with rooms of an average size of 4 metres by 4 metres. None of the communities of the smaller areas had such a high ratio. This high occupancy ratio may be as a result of migration from the rural areas by people in search of jobs or new livelihood. Urban housing presents great problems for such people, leading to overcrowding.

Diseases

The diseases complained of were not different from those already discussed. Even though people were unwilling to name malnutrition as one of the major illnesses affecting children, we observed in a number of houses children who showed signs of emaciation and those who had protruding bellies and the brownish tint to the hair so characteristic of Kwashiorkor.

There were those who tried self medication - this accounted for 45.4 per cent of the total. Treatment was split between chemotherapy and the use of herbal preparations. 29.9 per cent of the respondents claimed they presented their complaints to the hospitals. 25 per cent did not seek any form of cure.

On the whole, the diseases presented are the common infective parasitic diseases. There were a few which appear to be localised. Guinea worm infestation for example was predominant in Enyan Abaasa where at any one time, all able bodied males may be afflicted with the disease; complaints, most probably cirrhosis, were common in Dunkwa where alcoholism seems to be a problem; there were cases of yaws in Ofoase, and the diarrhoeal diseases appeared predominant in Winneba as does high blood pressure.

Preventive Health Activity:

Attention was focussed on immunization for certain diseases, prophylaxis and health knowledge. The use of MCH facilities was confined to pregnant women. It appears that immunization of children against tuberculosis was the most predominant preventive activity. In six of the communities, 36.3 per cent had been immunized against measles, 40.1 per cent against T.B., 34 per cent against diphtheria, pertussis and tetanus. Adult immunization was very low and so was the general level of health knowledge.

Ofoase did not have anyone amongst respondents who had been immunized in the year previous to the survey. Enyan :Abaasa had 5.6 per cent of the people immunized against DPT and 7.2 per cent against tuberculosis. The proportions progress from Kissi to Winneba which has the highest numbers of people immunized against the diseases mentioned.

Prophylaxis:

In the case of prophylaxis, very few people take the trouble to use antimalarials, for example - less than 3 per cent. The use of herbal preparation was slightly more popular; 11.4 per cent used that as prophylaxis against certain illnesses and poisons. In Ofoase, a frequently used preparation was to prevent a person from being poisoned after a snake bite. Charms and prayers were also cited for their powers in preventing certain illnesses, for example infantile convulsions.

Health knowledge was also on a similarly low level. Few people in both the rural areas and the urban areas knew how certain diseases such as yaws and tuberculosis were caused.

Participation in health activity was also not very frequent in any of the communities surveyed. Indeed, it was only in Ofoase where the people worked together in building a new pit latrine when the old was filled up. The decision was jointly taken by the adults and the local head of

the village.

Ecological Niches in the Selected Areas

Using the findings obtained from the questionnaire survey, the data were analysed to try to discover possible ecological habitats and niches for the parasites in the region, through Principal Component Analysis.

The survey, which was directed at individual cells in the selected communities focussed on certain variables and health care activities.

Variables used to sort out the ecological habitats include nature of dwelling units, availability of toilets, water supply, refuse disposal and presence of diseases and health care activities (Table 7.2).

The data, comprising 18 variables, can be regarded as establishing a space of 18 dimensions in which each cell is located as a point. The analysis brings out a new set of combined variables from the former singular variable.

The first component which can be referred to as adequate environmental control comprises high levels of dwelling units and household amenities. The second component comprises availability of water supply toilet facilities and infectious parasitic diseases. The third and fourth components comprised a combination of those above. Together, these accounted for 63 per cent of the total variance of the original data set; the specific percentages being 27, 19, 10 and 7.

For the sake of brevity, the analysis was preceded with an interpretation of the first component directly, without the use of factor analysis. The latter can be used to bring out the variables more clearly. We considered the fact that the particular influence of the variables on the human health are already well known, hence not much fresh insight will be gained. Of greater interest, however, was the need to estimate the ecological limits. The positive end of the new dimension pointed

Table 7.2

CENTRAL REGION ECOLOGICAL STATUS OF COMMUNITIES

Variables	Winneba	Dunkwa Fosu	Abura Dunkwa	Kissi	Enyan Abaasa	Ofoase	Variable loading on First Principal Compon
1. Mud houses per cell	0.37	0.57 1.57	0.95	1.33	1.52	8.0	+ .58
2. % cells with mud houses	0.22	0.37 1.66	2.51	2.54	4.60	5.0	+ .65
3. Concrete houses per cell	1.11	1.87 0.21	0.24	0.30	0.30	0.0	+ .54
4. % of cells with concrete house	1.61	0.77 0.15	0.23	0.15	0.24	0.0	+ .56
5. Private toilet per cell	1.26	2.68 0.49	5.72	1.05	4.93	0.0	- .40
6. % of cells with toilet	0.66	0.89 0.29	0.96	0.47	0.96	0.0	- .14
7. Pipe water per cell	6.56	6.89 3.76	1.12	0.10	-	0.0	+ .60
8. % of cells with pipe water	0.88	0.91 0.66	0.53	0.06	-	0.1	+ .59
9. Adequate occupancy per cell	1.22	0.87 0.97	0.89	0.09	1.1	2.1	+ .30
10. % of cells in Adequate occupancy	1.53	0.99 0.32	0.30	0.38	0.85	0.3	+ .47
11. Refuse disposal per cell	1.51	0.01 0.01	2.87	2.68	3.88	1.2	- .29
12. % of cell with refuse disposal	0.72	0.79 0.83	2½04	0.83	0.83	0.8	- .38

Variables	Winneba	Dunkwa	Fosu	Abura Dunkwa	Kissi	Enyan Abaasa	Ofoase	Variable loading on First Principal Compo
13. Infect Parasitic	42	18	11	11		1.3	12	- .78
14. Systemic	5	12	13		4		0	+ .73
15. Treatment	33	5	18	5	4	8	0	+ .42
16. Immunization	5	17	15	4	2	3	0	+ .81
17. Prophylaxis	5	4	2	-	-	-	1	+ .41
18. Participation	1	1	1	-	-	-	2	- .30

to the variables already mentioned - nature of dwelling units, toilet facilities, pipe-borne water and others.

It was possible to assess the location or ecological status of each cell in the seven communities along this primary component (Table 7.3).

The cells ranged from Ponkoekyir in Winneba town with the widest ecological limits for infective parasitic diseases, where many parasites can flourish as the natural habitats and niches are amply provided for, to the STC, another area in Winneba, which has the narrowest ecological limit for the parasites. Map 7.4, shows a cartographical representation of the different ecological status. We grouped these into five classes; those with negative scores ranging from -3.20 to 3.00 represent the cells with the widest habitats and niches, from -2.58 to -1.99, the second widest ecological limit, followed by cells scoring -1.98 to -0.33. The fourth group obtained positive scores from +0.08 to +1.76 and the final group obtained scores above 2. These last two groups represent the areas with the narrowest ecological units for parasites to flourish. As can be seen from Map 7.5, the representation is confined to only those areas visited though conditions would not be dissimilar to the rest of the communities in the region. However, making such generalisation would entail arguing from the individual case to the general and one ought to be mindful of the precaution first drawn attention to by Robinson who called it the ecological fallacy.

The nature of the ecological cells derived from this tallies with the nature of the diseases with which infect the people. The cells with high ecological status show a certain measure of control over the natural environment. Here agents of disease are suppressed by greatly reducing not only their habitat but also the niches. The availability of concrete housing with cement plastered walls and floors eliminates the habitat provided by warm moist soils for microbes such as bacteria, and the ova

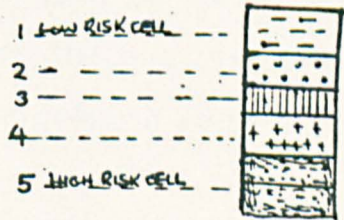
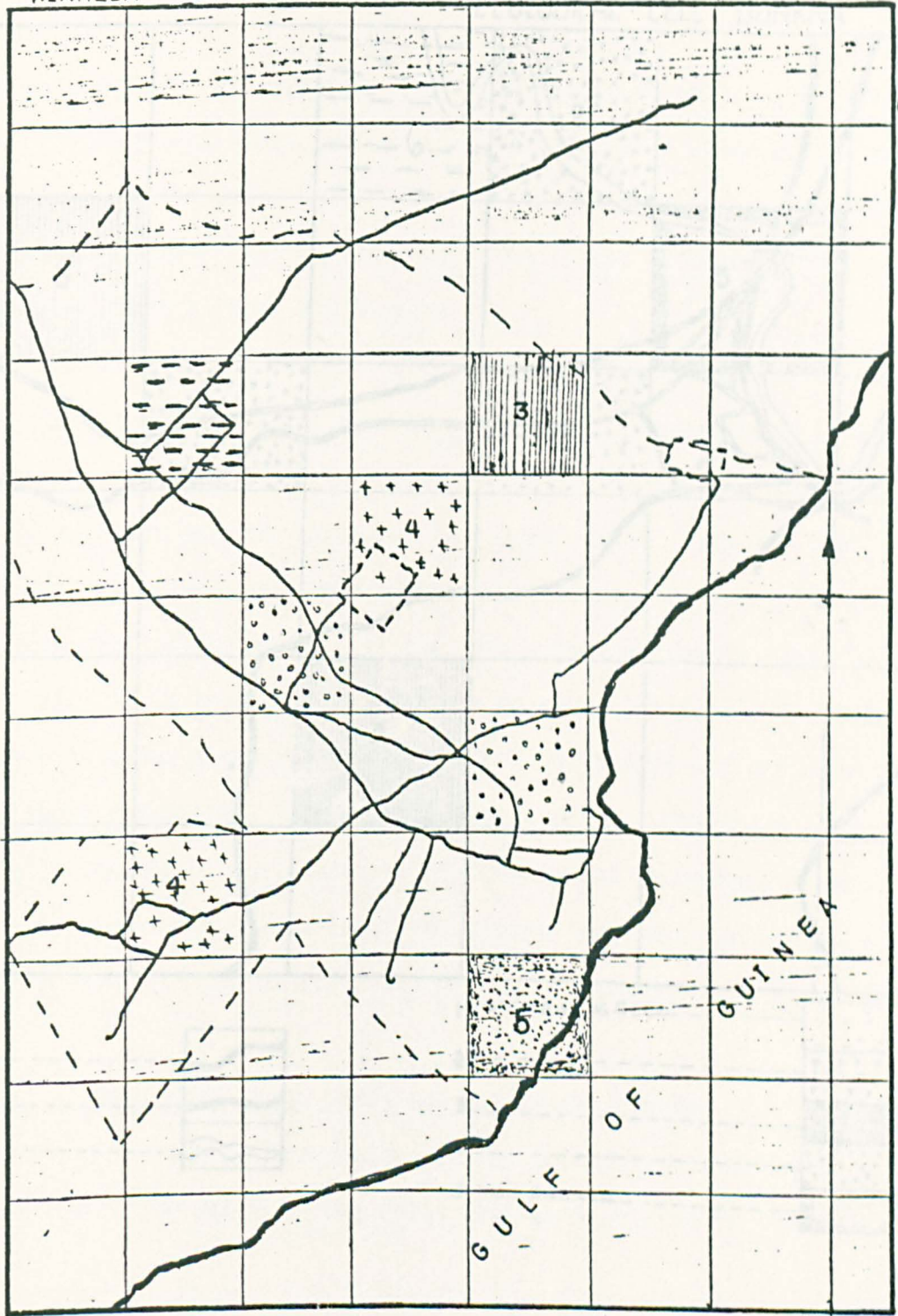
Table 7.3

THE SCORES OF 28 CELLS BASED ON THE FIRST PRINCIPAL
COMPONENT OF THE ECOLOGICAL DATA. FROM THE COMMUNITY
SURVEY DERIVED FROM SPSS PROGRAM 1978.

<u>Community Cells</u>	<u>Score on 1st Principal component</u>
Ponkoekyir	-3.20
Abaasa	-3.19
Kissi East	-3.18
Asem	-3.04
Zongo	-3.00
Ofoase South	-2.58
Bost Office Square	-2.38
Nkwantan	-2.26
Asibitsri	-1.98
Kissi North	-1.76
Sankor	-1.65
Anafo	-1.61
Town	-1.38
Amanfo	-1.30
Asem	-1.03
Enyinfra	-0.63
Yard	-0.33
Market Area	+0.08
Shell	+1.23
Anafo	+1.67
Post Office	+1.76
Kaasar	+2.09
Kumasi Road	+2.20
GRA	+2.45
Roman Hill	+2.68
Kukwadu	+3.01
Kodjo Bedu	+3.19
STC	+4.01

Map 7.4

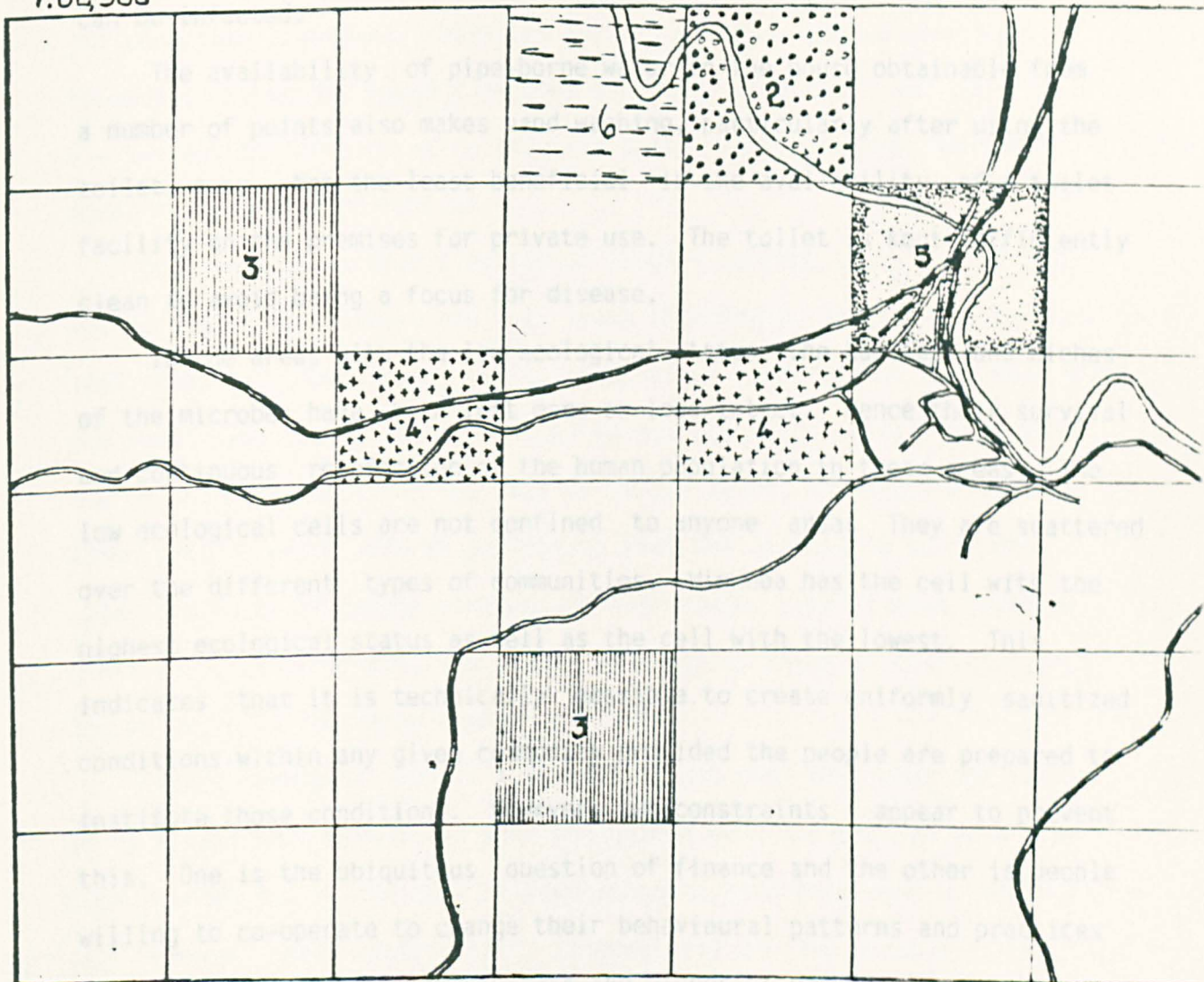
WINNEBA TOWNSHIP ECOLOGICAL CELLS 1:25000



Map 7.5

1:62,500

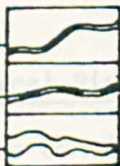
ECOLOGICAL CELL DUNKWA



ROAD

RAILWAY

RIVER



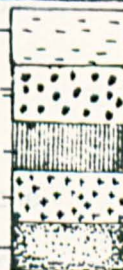
1 LOW-RISK CELL

2

3

4

5 HIGH RISK CELL



of certain worms. Coupled with adequate ventilation, satisfactory room occupancy ratio, bacteria and viruses are exposed to sanitized air and conditions, thus reducing their numbers and the numbers of people that can be infected.

The availability of pipe-borne water in the house obtainable from a number of points also makes hand washing, particularly after using the toilet, easy. Not the least beneficial is the availability of a toilet facility on the premises for private use. The toilet is kept sufficiently clean to avoid being a focus for disease.

In the areas with the low ecological status, the habitats and niches of the microbes have been left more or less intact. Hence their survival and continuous reinfection of the human population in these areas. The low ecological cells are not confined to anyone areas. They are scattered over the different types of communities. Winneba has the cell with the highest ecological status as well as the cell with the lowest. This indicates that it is technically possible to create uniformly sanitized conditions within any given community provided the people are prepared to institute those conditions. However, two constraints appear to prevent this. One is the ubiquitous question of finance and the other is people willing to co-operate to change their behavioural patterns and practices that serve to maintain the habitats and niches of pathogenic microbes.

Conclusion - Ecological Risks Cells and Health Care Needs

In conclusion, we consider below three selected diseases and examine the risks from these in the cells that were studied in three communities.

The ecological groups obtained from the analysis can be equated with ecological risk cells or communities. The lower the level of control over the niches and habitats, the higher the risks involved in living within

these areas. Thus in conclusion, we focus on infection with dysentery, yaws, guinea worm, indicating certain areas of health care needs. These are three important diseases whose endemicity in the Region has been known for more than a century. Diseases such as malaria, yellow fever and rheumatic fever are equally of long standing endemicity and could be considered, but consideration is given to the three diseases mentioned above for a number of reasons.

Malaria studies span a period of about a hundred years and as such all facets of the disease are well known (Learmonth, 1957; 1977; Prothero, 1965; Fonaroff, 1968; Cole, 1972). Successful control can only rest with the people who are at risk from the infection; with a little help from the health providers. In the case of yellow fever, the availability of immunization which affords protection from the disease is sufficient assurance that, if people were determined enough, the disease could be controlled. Furthermore, the levels of severity seems to be sufficiently low in spite of the large numbers attacked.

As for rheumatic fever, its severity has gone down over the years. It is a fact that dysentery, yaws and guinea worm infestation have also been studied and in the case of yaws attempts have been made at controlling it. However, their contribution to morbidity and the disability requires that something be done. Guinea worm infestation, for example, can immobilize a whole group of people for weeks. Yaws causes much suffering as well as deformity. As for dysentery, it can cause death if not promptly attended to.

Furthermore, the ecological risks involved in their spread amply illustrates what this chapter has attempted to elucidate. In Table 7.4, we present the absolute risks from the diseases involved in living in the various cells of the localities studied.

Table 7.4

ABSOLUTE RISKS OF DIARRHOEAL DISEASES, YAWS
AND GUINEA WORM IN THREE SELECTED AREAS

Winneba	Population interviewed	Number reporting diarrhoea	Absolute risk
Sankor	25	3	.12
STC	23	1	.05
Kodjo Bedu	21	9	.42
Post Office	28	6	.21
Nkwntanum	22	3	.13
GRA	17	1	.05
Asibitsir	28	3	.10
Ponkoekyir	26	11	.42
Shell	22	2	.09
Total	212	39	

Enyan Abaasa	Population interviewed	Number reporting	Absolute risk from Guinea worm
Anafo	35	12	.34
Abaasa	30	18	.60
Total	65	30	

Ofoase	Population interviewed	Number reporting Yaws	Absolute risk
Ofoase North	25	6	.24
Ofoase South	27	8	.29
Total	52	14	

Disease Ecology of Dysentery

Dysentery causes abdominal pains, diarrhoea and fever. The diarrhoea is contaminated with blood and mucus. This distinguishes dysentery from other forms of diarrhoea. Two parasites which cause dysentery are Entamoeba histolytica, a protozoa one-celled animal which is capable of movement and also forms cysts, and bacillus bacteria known as Shigella dysenteriae.

Entamoeba histolytica lives as an organism in the large intestine where it feeds on bowel contents without invading the tissues and without causing illness. Its typical niche therefore is in the lumen of the large intestine where sufficient fluid conditions with pH of 6.0 - 6.5 which has nutrients especially carbohydrates and bacteria cause it to multiply. It is believed that the interaction with bacteria leads to precipitation of the diseases when the trophozoites invade the walls of the bowels and cause alceration and excessive stools are passed (Mandell et al, 1979). Incubation however takes between 20 and 90 days (Manson, 1978). When conditions are not ideal, it forms a cyst in the bowel or outside the body in warm moist surroundings. Thus for its habitat, E. histolytica uses both the human bowel and an external source. Within the external source, the protozoa can remain for months. It has been shown that it can stay in water for weeks and even in salt water for at least 12 days (Manson, 1978). Infection is through the swallowing of the cyst which multiplies on reaching favourable conditions in the large intestine. The trophozoites are themselves destroyed in the stomach and therefore patients passing trophozpites are not infective to others.

Transmission of the disease is through the cysts which are passed from person to person. The route is a faecal-oral one where an infected person may have fingers soiled with faeces that may be left on objects or on food which is subsequently eaten uncooked. Flies and cockroaches

are also implicated in the spread of the cysts which they may pick up on their legs as they settle on infected faeces (Manson, 1978).

This type of dysentery occurs in a mild form and severe form, but both respond to treatment with various amoebicides that act on the lumen, the wall of the bowel, the liver and all other sites. It appears that its severity depends on the level of nutrition of the individual and hygienic standards of his surroundings, and it does not appear to offer much immunity to those who have had the infection previously.

Bacillary dysentery unlike amoebic dysentery, has a short incubation period - between 2 and 7 days. The S. dysenteriae are delicate organisms that die quickly in stools. To survive, the bacteria has to reach favourable habitats where temperatures are warm about 28°C - 30°C. Food kept at room temperatures can very quickly be infested with large numbers. The human large intestine and human food form the niches for this bacteria.

The bacilli are excreted in the faeces of patients with acute symptoms and subsequently ingested through the mouth leading to infection.

Again, as in amoebic dysentery, transmission is probably through houseflies where these are numerous, as they carry the shigella from infected faeces to food which becomes contaminated. Also transmission can be through unwashed hands.

The implication of the habitat and niche conditions in relation to the presence of dysentery in the study area is obvious. In the Central Region all the conditions described prevail. The area with the largest numbers of cases was Winneba, and though several of the cells studied reported cases of dysentery Ponkoekyir appears to have the highest numbers. Here the insanitary conditions, few toilets which are well kept, coupled with the general lack of water especially for hand washing after defaecating are contributors to the disease spread.

As for flies, these abound particularly at the onset of the rainy

season in June and July which also coincides with the mango season. The presence of cockroaches is one of the nuisances of living in the overcrowded conditions of this urban community with low levels of hygiene.

The Ecology of Yaws

Yaws is a disease caused by spirochaete bacteria known as *Treponema pertunue*. It has been said that this disease has been present in Africa possibly since pre-historic times (Hackett J., 1963). Its description is always prefixed by "a disease of primitive rural people", and it appears that this is indeed so in our study area, where cases were found at Ofoase. The bacteria treponemes survive in moist and warm tropical areas. Transmission is through contact with broken skin through which the treponemes enter - the use of infected objects and utensils especially by children. At the later stages of the diseases lesions which erupt also provide the escape route for fresh infections. Within these lesions, the treponemes can remain infective for some months. A period of latency occurs until the disease has manifested in the formation of primary and secondary lesions on skin tissue though later bone tissue may also be involved (Manson, 1978, p.570).

In cases where personal hygiene is maintained and skin scrupulously cleaned with soap and water, the treponemes cannot flourish. However, once a foothold is gained in the human skin which acts as the niches, transmission becomes difficult to control; this is on account of the period of time that lapses during which nothing seems to happen, i.e. the latency period after which there would be a relapse and lesions which subsequently appear may last up to five years. It is possible that this period offers some immunity (Manson, 1978).

It appears that new cases occur more frequently during the rainy season when conditions are moist (Chulay, 1979). Treatment with a

single dose of long acting penicillin has been noted (Mason, 1978, p. 577), but the later stages require longer treatment.

As a disease, its presence in the Central Region has been known for a long time (Chapter 6), and its presence in Ofoase, one of the communities studied, shows the difficulty involved in its control.

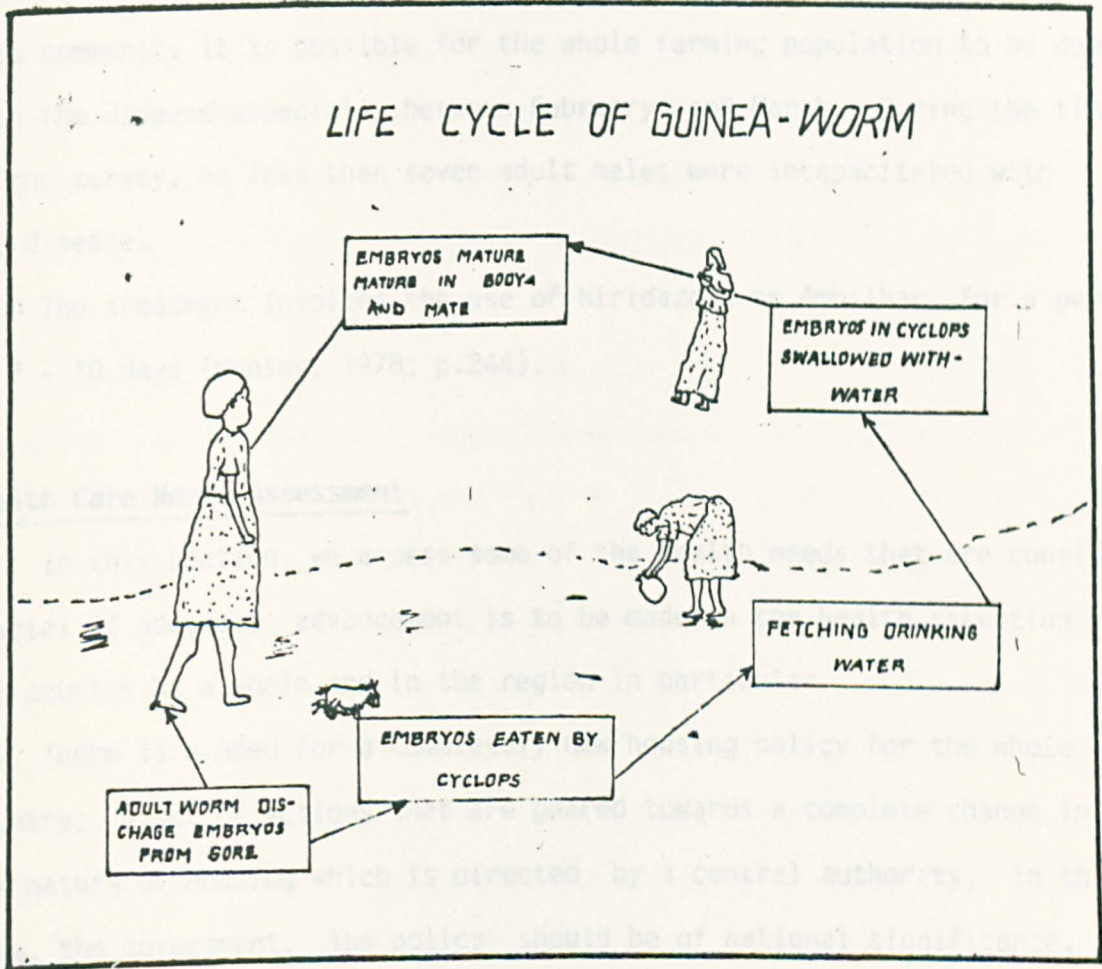
Ecology of Dracontiasis

The disease that is considered finally in this section is Guinea Worm infection or Dracontiasis. It is caused by a thin worm the Dracunculus medinensis which is found in parts of Africa and India.

The habitat is mostly found in the environment outside of the human body. The female worm which may be up to 1 metre in length distributes its eggs or embryos into the external environment, normally in fresh water. The eggs can live for 4 - 72 days in the water. Where cyclops are present, these swallow the eggs and act as intermediary hosts in which the embryos undergo a further stage in development. The cyclops, fresh water crustaceans, are predatory to the eggs which are discharged into water pools and small streams during the dry season. During this time, infected cases may use the water to wash the irritating blister caused by the female worm. In areas where the only source of water is from such pools, the ingestion of infected cyclops contained in the water through drinking is only a question of time (Figure 7.3).

Man becomes infected with the larvae which are released in the stomach. From here, the worms move to its niche, the small intestine where conditions allow it then to mature and mate. All this takes about ten months. The male normally dies but the female moves to the connective tissue from where it bores its way to the skin and causes a blister to appear. This takes about two months - before the eggs are finally discharged into water. The time period involved in this lengthy process

Figure 7.3



is one year and this explains the seasonal nature of dracontiasis in the Central Region community of Enyan Abaasa.

The community here depend on the Abaasa stream for domestic use. During the wet season, its channel is filled with water, but towards the end of February only rivulets and pools are left for people to use. In this community it is possible for the whole farming population to be down with the disease especially between February and March. During the time of the survey, no less than seven adult males were incapacitated with the disease.

The treatment involves the use of Niridazole or Ambilhar for a period of 7 - 10 days (Manson, 1978; p.244).

Health Care Needs Assessment

In this section, we assess some of the health needs that are considered crucial if adequate advancement is to be made in the health situation of the country as a whole and in the region in particular.

There is a need for a completely new housing policy for the whole country; a set of actions that are geared towards a complete change in the nature of housing which is directed by a central authority, in this case, the government. The policy should be of national significance, all areas will necessarily be included in the operation.

If a housing policy, embracing all people living in all areas can be operationalised, one would feel justified in thinking that for once government has attempted to fulfil its obligation to the people.

Such a policy should insist on the use of locally available material prepared to certain specification, and available for all areas and to all areas and to all the people at a minimum cost. It is only through the adoption of such a policy that some of the shortcomings of housing which we saw in the preceding section can be met. These include the damp

rooms which provides ideal conditions for the spores and cysts of certain disease organisms; the darkened, ill-ventilated rooms which provide a cover for mosquitoes and bedbugs. With a policy such as this, its implementation would also require the release of land from the hands of traditional owners for everyone to have access. A standardised minimum room occupancy must be insisted on, with specific rooms or spaces provided for kitchen, toilet and bathroom and space for animals. Such a policy would go a long way towards reducing the burdens of the urban dweller for space, and for the rural people would provide, an improved and healthier living environment.

Alongside the provision of improved housing is the possibility of standardizing the method of refuse collection and disposal and water supply. Water supply constitutes one of the areas of greatest need in the rural areas of the Central Region. Of course it is no less so in the urban areas. Where cost would prohibit the immediate extension of the network of pipe-borne water, possibilities exist for the protection of water sources. Fencing off of stream and springs, building of parapets to protect wells, the digging of proper troughs in place of pools where water can collect are all measures that can be directed against the problem of polluted water supply.

If the need of standardised housing, refuse disposal and water supply is met, more than two kinds of the health problems would be solved. Anything short of an overall governmental policy will simply serve to perpetuate the existing inequalities, which exist in the environmental quality of the different areas which gives rise to the different ecological risk cells.

It is important to note here that in the consideration of public policy, one big stumbling block is the ideological stance. Will the government ever adopt such a policy? Welfare considerations and social

justice demand that government should adopt a stance on social improvement. It has been long overdue. Conditions of poverty, ignorance, disease and misery have existed in most of the rural areas for a long time and there does not seem to be any hope for improvement. The year 2,000 has been targeted as the time when definite gains must have been achieved in the health status of the world's population. However, with poor environmental control, such as has been documented in the preceding section, how can the country hope to meet that target without taking an ideological stance in an all embracing social development? Piecemeal improvements on a checkered time scale will never bring about the changes we desire to see in the life of the people.

There is a need to have a system of health care in which the people in their ecological setting will be taken care of. In such a system, both the illnesses that affect people and the underlying causes will be dealt with. This is the only meaningful way that the basic health problems can be successfully tackled.

In summary, this chapter has attempted to consider the ecological aspects of diseases in the Central Region. As discussed in Chapter Two and in parts of this chapter, every area (geographical focus) has a set of organisms that interact, as they struggle to survive. It was thought that for the geography of health, the community level represents the proper level to focus analytical attention on. This is because it is within this level that each organism must find its own niche where its food and reproductive requirements would be met; ancillary resources necessary for niche requirements include time, space and a habitat free from predators. In the geography of health these niches have variously been referred to as "environmental risk cells" and "natural disease foci". It is in such areas that one could talk of an equilibrium or steady state situation in which disease organisms and the human and animal life are

balanced.

It was considered that these risk cells could represent the crucial framework for health care provision especially with regard to the control of infectious parasitic diseases. With this in mind, the seven selected localities from the study area were subdivided into smaller standard cells containing between five and nine houses. These cells represent the actual ecological unit of interacting organisms. Within these 'cells' which are indeed ecological communities, it is possible to have the niches and habitats of the different organisms and hence control measures can be directly brought to bear on these areas.

The Principal Component Analysis of survey material from the seven localities brought out five different ecological groupings ranging from group one which has the highest ecological status and hence is the area with the least disease risk, to group five, the area with the highest disease risk. As we saw, Winneba, an urban area which has been an important town in the past, had both the best ecological community and the worst. The differences in the level of environmental control is glaring; where the newer areas of the town are both fashionable, well served with amenities and clean; the older areas are congested, dirty and very poorly served.

Yet Winneba, in view of its long standing status as a town, should have achieved uniformity in the level of environmental control by now. That this has not happened shows the inherent difficulty facing many developing countries to achieve equal social development for the population. For, if there are such yawning gaps within urban areas which receive some grants for development, then the inequalities between towns and rural areas can only be wider.

That this is so, is also obvious in the Region. In terms of healthiness, however, there are certain positive advantages that the

rural areas have over the urban areas. Again as we saw from the analysis of the community survey, rural communities offer some escape from the overcrowded conditions of urban slum areas. Furthermore, the greater expanse of land ensures that refuse, even if discarded, could be more readily covered up by other organisms, especially detritus organisms as compared to the urban areas. In both rural and urban areas, the presence of poverty and economic wants operates to maintain the presence and spread of diseases due to insanitary conditions, insufficiency of water of personal hygiene, lack of soap for disinfecting body and hands.

Unfortunately, the current and perhaps never-ending economic recession that the country makes the future of health care provision, which will make essential amenities equally available for all, a mirage. There is an urgent need for the people themselves to use their initiative and materials that can be found locally, to improve their conditions. On the whole the nature of the findings of this chapter has shown that for certain diseases, the people in the community have developed a certain amount of immunity which allows them to go about their duties without undue interference. For other diseases such as guinea worm infection, such immunity is not available. Diseases that occur occasionally in epidemic forms such as cholera must be tackled by immunization. Yet availability of the vaccines, their logistical distribution to the people and their willingness to come forward, all present problems for the health care providers.

In the concluding chapter, we consider the implications of the above findings for the health care provision, its organisation and the types of care that ought to be provided for the communities within the Central Region in particular and in the country as a whole.

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CHAPTER EIGHT

CONCLUSION

This concluding chapter focusses on two main objectives. One concerns the primary health care concept and its applicability to the Ghanaian situation as documented in this study. The second objective concerns the study itself. Here, the major conclusions reached are related to the primary health care concept. The implications of this study for future research are also considered.

The first objective deals with questions related to the following:

- (i) the inputs for primary health care that can be found locally;
- (ii) the utilization of these inputs for the institutionalization of primary health care in the Region;
- (iii) the leadership involved in setting goals and priorities for primary health care at various levels;
- (iv) the implementation and evaluation of the goals.

Concerning the second objective, an attempt is made at summarizing the main conclusion of the study through a synthesis of all the major conclusions of the different chapters; and relating these to the conclusion of this chapter. Another issue related to the objective is to place the study in a proper perspective. Here reasons underlying the choice of 'health care provision an needs assessment approach' for the Geography of Health are provided. Its major contributions and limitations are highlighted, pointing out any implications it may have for future research.

Primary Health Care - Some Justification

In Chapter Two, an explanation was offered concerning the serviceability

of the concept of 'community' as the lowest level for the provision of health care. In Chapter Seven, an ecological definition of a community was offered as this was deemed to embrace the idea of an ecological niches for groups of population. As was explained in the same chapter, the niche is the areal unit within which an appropriate mix of ecosystem phenomena can be found. This provides a suitable habitat or shelter from predators and from the direct physico-chemical components of the environment. Within this areal unit, are all other necessities such as food, which allows the organisms to survive.

Primary Health Care (phc), on the other hand, is the provision of a comprehensive personal health care at the local level. The latter is often regarded as the village or an urban neighbourhood, for practical purposes. This connotation is sociological, in the sense that its consideration is on the broad socio-economic groupings. As was shown in Chapter Seven, it is however possible to have several communities even within a predominantly urban area, as was the case in Winneba. These can be considered as ecological cells within which different groups of organisms are able to survive. It is in this latter sense that is used in connection with phc.

As the illustration provided in Chapter One showed, phc is part of an overall health care provision which includes two other levels—secondary and tertiary health care. The view of this study is that ultimately phc may assist the development of an area. Hence its insistence on the use of 'local' resources at the community level. In the following section, we consider our first objective relating to the applicability of phc in the study area, but first a brief introduction of the concept is considered appropriate.

One of the earliest references made on primary care dates to the 1920s when Lord Dawson reported on the appropriate nature of health care

provision for the U.K. (Dawson Report, 1920). Focussing on the primary level, a call was made for the provision of health centres from where ambulatory services would be provided for the local population defined in numerical terms. This basic idea was subsequently recommended for Ghana, then Gold Coast, in 1952 following the Maude Commission of Enquiry into the health needs of the population (See Chapter Four). In both areas - Ghana and the U.K. - these health centres have been created to provide health care for the local population.

During the early 1970s, it was recognised that by providing mainly curative care these health centres at the primary level were addressing only a small part of a community's health problem. In 1973, a joint WHO/UNICEF Study was commissioned of health care on a broad horizontal basis as against what was referred to as a vertical health services system. The report which pointed to a seven-point plan of action was approved in 1975. In it, primary health care was considered as an integral part of development on an areal basis contributing to the general and social improvement of the physical environment in which people live.

To institute phc, the report noted the importance of an initial formulation of concrete proposals touching on different aspects of care for the given area. Here emphasis was put on the need for and role of the community. Its role in the building, staffing and functions of the health centre, as well as financial support, was emphasised. The report also stated that special attention should be given to preventive measures and health promotion through improved nutrition and personal hygiene. Maternal and child health services were not to be neglected. Furthermore, efforts should be made to associate the phc system with the traditional forms and practices of health care.

In summary, phc concept as provided by the Joint Committee enlarged the idea of health care, making it a possible dynamic contributor to

overall social development. In the developing world, with so much poverty, squalor and a predominance of environmentally related diseases, the significance of phc cannot be over-emphasised. Also, in the absence of an all-embracing social policy, which has the welfare of the people as its main objective¹, coupled with ineffectual legal system already limited in its applicability and weak in its sanctions, phc is the best alternative². The phc concept which provides for community involvement may offer the same stimulus for improvement in public and environmental health as the public health laws did for England in the nineteenth century.

Finally, in the light of this study in particular, phc cannot but have a special appeal especially with regard to its insistence on the necessity of paying attention to peoples' needs. It must be recalled that in Chapters One and Two, attention was drawn to the geographical concern with welfare considerations. Welfare normally grows out of needs-expressed or felt - and miseries of people who are forced to live in poverty. There is a lack of basic necessities such as food, clothing and adequate shelter. In such cases, the state must intervene and relieve poverty. In many European countries - U.K., Sweden, Denmark, to name a few - such governmental interventions have succeeded to some extent in bridging gaps that may exist in the satisfaction of basic human needs. Also, as we argued in Chapter Two, the socio-political system sets limits on the extent to which such interventions may be provided.

Unfortunately, many developing countries appear to be drifting along as far as the welfare of their citizens are concerned. Thus an adoption of the phc concept by the developing countries offers a ray

1. Such as applies in socialist or communist system, such as the Chinese revolution in health care.
2. This was the early experience in 19th century in the U.K. where following some commissions of enquiry into the state of ill health viz, Chadwick, Southwood Smith et al, some laws were passed charging local governments and individuals with responsibility of providing public health measures.

of hope for some social improvement and an improvement in the health status of the population.

We end this introductory section with a consideration of a definition provided by the Director General of WHO in 1975 which is quoted in part below:

"Primary health care is taken to mean a health approach which integrates at the community level all the elements necessary to make an impact on the health status of the people. Such an approach should be an integral part of the national health care system. It is an expression or response to the fundamental human needs of how a person can know and be assisted in the actions necessary for a healthy life A response to such need must be a series of simple and effective measures in terms of cost, technique and organisation".

The definition provided above shows a much widened scope of health care provision. Curative care is regarded merely as a facet, the role and place of the community being elevated. The realisation that the world's health situation requires improvement led to the declaration of 'Health for all by year 2,000'. The global strategy that was proposed considers primary health care an important pre-requisite for the improvement of health of a population.

The rest of the health care system is organised in such a way as to support the primary level of care. The two other levels, secondary and tertiary, are dependent on the first level curative care for all cases except perhaps for emergency and accident cases. All other cases must be referred and must pass through proper channels to get to secondary and tertiary level care. The schematic representation in Chapter One, Figure 1.3, shows the three levels and their components parts or sectors. The primary level care takes up three components or sectors of the continuum - promotive health care, disease prevention and curative care. All three types of services are to be provided for each individual community, though socio-medical and rehabilitative care are to be provided for groups of communities.

It should be possible for the health promotion sector to so change peoples' unhealthy habits that the effects can be readily seen in the drop of morbidity rates from certain diseases. Such activities as fall under personal hygiene, especially hand hygiene, activities with domestic water supply that lead to its pollution; the building and use of toilets and latrines in order to avoid indiscriminate defecation are a few of the positive moves.

Health promotion has a beneficial influence on health care in general and curative care in particular. There is an accompanying reduction in infective parasitic diseases as documented in several cases from China to the Philippines, to name a few (Newell, 1975). Even in the study area, Kissi is a town, which some fifteen years ago had guinea worm infestation as one of the most rampant illnesses. However, the introduction of pipe-borne water in the mid-1960s had led to a complete disappearance of dracontiasis in Kissi, so much so that younger generation do not even know anything about the disease.

Disease prevention through immunization against specific diseases and vector control also have attested benefits on health care provision. In the developed world, the very low levels of infective parasitic diseases are a result of the combined efforts in both health promotion and preventive health care activities.

There are obvious incremental benefits that accrue to health care where consistent planning and careful implementation are carried out for health promotion and disease prevention. The immediate evidence is the reduced morbidity rates from infective parasitic diseases. Even the higher levels of curative care - secondary and tertiary levels - benefit from this proper foundations of health care. Thus not only is the basis for primary health care rational, it also confers cumulative benefit to health care provision in general and curative care in particular.

The infection cycle mentioned in previous chapters, whereby a person is cured after he has had an infection only to be re-infected again within a short period, can be broken if health care is pursued in the manner that we have been discussing. Furthermore, it is not only in the area of infective parasitic diseases that phc proves beneficial. Even the degenerative diseases such as hypertension can be studied at this level. It should be possible to find out from the primary level and within the community what possible underlying factors may be implicated in the onset of such diseases or disorders. Indeed, an ongoing community-based WHO project on cardiovascular disease in Ghana has shown that morbidity from hypertension amongst the coastal urban dwellers may have as one of its remote causes the high intake of sea salt (Ikeme, 1976).

The above considerations give credence to our original position which envisaged that an appropriate stance to take for health care provision is one which has its base firmly located in the community. At this level, the interaction between all the living organisms and with the external physical environment which offers benefits while at the same time gives rise to conditions inimical to man's health can be studied and improved upon. The geography of health with its focus on an area, health and disease and people's welfare cannot but endorse the adoption of primary health care as the appropriate approach to health care provision in developing countries especially. The ecological framework within which communities can be defined is therefore indispensable. This tallies with the position suggested by the human ecologist, Hawley. His premise is that a population improves its chances of survival in its environment when it develops an effective organisation for dealing with its problem (Hawley, 1971; p.11). Phc provides populations with such an organisation which has proven effectiveness in dealing with the problem of disease and health care.

Primary Health Care and Health Care Provision in Ghana

Phc has several distinguishing features but those that are of direct relevance to us are as follows:

- (i) a total environment within which phc can be operated;
- (ii) the needs generated by living within the ecological units to which phc must respond and which act like inputs in a system;
- (iii) the actual processes that must be set in motion to bring about changes in the health situation of the people.

We consider each of these briefly below.

The total environment

This is the basic framework within which phc can be operated. In the preceding sections and in Chapter Seven attention was drawn to the fact that an ecological unit or community contains within it all the interacting factors that lead to ill-health or improved health. Herein lies the geographical focus which deals with the spatial and temporal aspects of health care. As was shown in Chapters Six and Seven, there are broad ecological groupings within the region from urban through semi-urban to rural areas. However, as was shown in Chapter Seven, it is possible to discover yet smaller communities within these three main groupings. Winneba town, for example, has both the best community in terms of certain health indices and the poorest community as well. Within the latter, conditions in rural Ofoase are even better, in terms of housing and refuse disposal for example.

These communities or 'ecological risk cells' are in five categories ranging from the modern, fashionable urban quarters where all the basic sanitary arrangements and requirements have been provided to urban slums where conditions of sanitation, water supply, refuse disposal are in deplorable state. Thus health care needs vary from one community to

another and hence different approaches may be required. In the area of high ecological status, health promotion through changes in dietary habits, reduction in the consumption of certain foods and excessive use of alcohol and cigarettes are all that might be necessary. In the Central Region, such communities exist in Cape Coast, Winneba, Dunkwa and, to a smaller extent, Saltpond.

Inputs in the Health Care Process

Another requirement of phc is the specific inputs that must be processed. In Chapter Three there was a discussion on the necessity of welfare guiding the provision. Where the government has the avowed interest of the people in view, the care that is provided is geared towards the satisfaction of specific needs. The needs which arise in each community range in accordance with the nature of the existing ecological niches.

Where environmental conditions have been sufficiently controlled, the nature of the interactions, if any, with the other organisms will be minimized. The activities of phc may differ from that which will obtain in a community where very little has been achieved by way of control over the environment.

Each area's needs must therefore be assessed and Chapter Three also drew attention to some of the attendant problems of needs assessment. Attempts have however been made throughout the study, to assess the health needs of the population and the corresponding care that would be required for the same. In this case, it would be necessary for felt or expressed need to be guided or complemented by professional or normative assessment. This is to allow proper and adequate measures to be taken.

All these activities could be undertaken in the spirit of communal egalitarianism, in which all people in the region will have their needs equally attended to, to ensure improved health for all the members of

the communities. At present, this is far from the case as the gap between the best ecological cell and that of the lowest cell is a wide one; in fact, it could have a ratio of ten points to one.

These principles of need determination could apply even in the case where high levels of environmental control has been achieved as in the developed countries. Here the ecological cells may be larger in size and it should be possible for the dominant diseases such as the cancers, health disease and accidents to be managed at that narrowed locus. Any gains from research can be properly, smoothly channelled down to the level of the individual. In this way attempts can be made towards changing people's behavioural patterns. As was pointed out in Chapter Five, the need for community level care has been realised in the developed countries. In the United States, it has been estimated that there are approximately 11,000 communities with less than 1,000 people (Kay et al, 1982) and facilities especially emergency care are not readily available. Howe has also reported that a new attempt at community provision of primary health care is proving beneficial to small communities (Howe, 1977). At the ecological level therefore, all the primary health care requirement - from promotive health care, through disease prevention and curative can be so smoothly organised.

Thus the thrust of inputs into the ecological cells with low risks may be health promotive. The content might be health education. The main area of this health education may revolve around talks related to food intake and excessive use of alcoholic beverages and cigarettes, as well as focus on how to prevent the spread of diseases transmitted through contacts. The health promotion activities will therefore be confined to those activities that might result in behavioural changes.

In the second group of ecological cells where again a great deal of environmental control exists, the phc emphasis may again be promotive

in nature, also seeking behavioural changes.

The areas that would require greater allocation of inputs are the three remaining categories of ecological cells. In the third group of ecological cells, the risk might arise from the lack of pipe-borne water in the house, inadequate sleeping and living space, lack of private latrines or toilet, or indiscriminate disposal of refuse. The phc thrust would need to be tackled, whichever is overwhelming within the cell. In addition, health education would be needed to prevent the situation from reverting back to its original position.

The ecological cells that would require the greatest inputs would be high risk cells. In the urban slum areas as well as the rural areas, some drastic action may be required. There might be good reasons to pull down some of the existing houses and have them rebuilt according to better specification. This might sound rather grandiose, but when it is considered that all it takes is improved methods of brick making and laying with some extra time for foundation laying, building new houses are not such inaccessible undertakings. A committed government will get her scientists to design a local kiln - built in situ - which can be used anywhere and the local clay mixed with minimum cement can easily be used in manufacturing the bricks. For such a purpose, a number of communities can get together and contribute services and some cash to see that this project materialises. There is no reason why clay pipes cannot be used for constructing small drains for rural houses. The usual thatch could be improved through some treatment and used for roofing.

It would be possible for the new structures to include all the necessary amenities. If pipe-borne water to individual houses cannot be made available, alternative arrangements can be made to get clean treated water from nearby streams or ponds. Water treatment through filtering, boiling, chlorinating and even simple storage can reduce the

bacteria and other parasites which so easily contaminate water. In urban areas, some control should be exercised against possible pollution by industrial wastes.

The disposal of refuse and other wastes must also be carefully considered for the whole community and not just on an individual basis. What would repay attention to individual households is health education and the efforts to raise people's awareness. A talk organised for a large group does not always have the desired impact as people fail to directly relate these to their life situations. Amongst the population of several communities, there is an urgent need to improve and increase their awareness of disease causation, so that essential behavioural changes can be made and also monitored.

Furthermore, there would be need for disease prevention through vector control and immunization. In all the ecological cells such inputs would not be out of place. It is in the area of preventive care that the germaneness of operating phc within the ecological community milieu is brought into sharp focus. Within this milieu, individual's preventive care needs could be directly answered. Decisions to immunize will no longer be left to the discretion of the individual. It would be required by the community for all its residents to be adequately immunized against specific diseases. Children and babies will therefore be routinely seen to and adult use of prophylaxis where these are available encouraged.

Another area of preventive care that would benefit from such an approach is disease vector control. There is no other framework within which such control can be carried out in a spatially consistent manner. In the past, such control measures, sporadic in time sequence and patchy in real extent, make the effort futile. This is on account of the ease with which the vectors can escape from control measures from one area during the time when the exercise is on to another area.

Furthermore, the possibilities that exist for the use of different control methods can be better explored in the framework of an ecological niche. We are thinking here of both chemical and biological methods of control. The malarial mosquito, for example, ought to be attacked by more than one method. These methods can only be discovered at the community level. It is known, for example, that mosquito larvae feed on microbes growing on the surface of leaf detritus (Fish et al, 1982). Leaf species differ in their abilities to support mosquito growth and therefore if each community can find the type of malarial mosquito that exist within the niche and its breeding habits control measures can be worked around these peculiarities. In the study area, people are aware of the fact that the leaf of the lime tree is an expellent of the mosquito and its larvae. The lime is widely cultivated in the region, so application of this to mosquito control is possible.

It is also known that the ordinary room spider has a preference for the anophelies mosquito which it devours when it gets trapped in the web. This could be a step in the direction of eradication. Thus the mosquito can be destroyed in a variety of ways other than by spraying and swatting which are the conventional methods employed. Also, since it is known that rapidly decomposing leaf litter supports more mosquito growth (the leaves of most of the grains - corn and sugar cane for example) than slowly decomposing litter, efforts could be made at the community level to inhibit these favourable breeding habitats from developing. Possibly, after havesting, the fields could be quickly cleared of the stalks and leaves of the grains in order to prevent the action of rain water and high temperatures from causing rapid decomposition of the leaves of the havested crops. Obviously, there is some kind of a race which would have to be undertaken by man against the mosquitoes. It is only at the community level that this race can be properly run with the

hope that man would beat the disease vectors.

In Chapter Seven, we also mentioned the possibility of using certain species of fish predators against the vectors of guinea worm, the C. Fenkarli. It was also indicated that guinea worm infection is highly seasonal; there is no transmission during the rainy season because the cyclops cannot stand the volume of water nor its turbidity. Thus before the dry season (when transmission goes on) it ought to be possible for the people to get together and temporarily dam up the water in order to increase the volume. This is in the absence of building a parapet to stop people from wading in the water or better still providing pipe-borne water. It has also been shown that the mosquito larvicide (Abate) added to such water can prevent the cyclops from breeding though it is safe for human consumption (Muller, 1971).

The third area in which phc can respond to needs concerns the provision of curative care. Within the ecological units, it would be easier to present and manage short-term episodes of diseases that are minor and require only simple handling. The advantages of having local treatment points is that the health worker would be more conversant with the everyday problems of the immediate community and would have built up a level of confidence that smooths contact between professional and patient. In particular, facilities for maternal and child welfare should be made an integral part of curative care within the ecological cells or communities.

The Processes

This third feature of primary health care is the most important. As it involves the operation of a number of factors through which inputs are manipulated to meet needs, it requires careful consideration.

An important factor that determines the success or failure of primary

health care is the people who live in the different communities. Since they are in need, they can initiate and set the pace for the activities that must be undertaken to meet those needs. The problem here is that it might not be possible nor indeed desirable for each member of the community to be involved. Thus the question of leadership arises. Leaders may be elected to articulate the communities' needs and interests, in addition to helping with an assessment of the needs of the population, which can then be subsequently conveyed to the phc organisers.

In the Central Region, the leadership role within the communities is played by chiefs and other traditional heads of villages or wards. However, one other way of selecting leaders is through the cooption of members of the society such as teachers, religious leaders and others of importance. This may in reality be more complex than it has been portrayed here. In the urban areas, particularly in the more affluent areas, people may not be too keen on community development as such. This is in view of the effort and resources they have invested in building their houses, and the immediate environment around their houses to the extent of several thousands or millions of cedis. In the poorer areas of the town and in the rural areas, people's interest and cooperation may be enlisted for the very reasons that would cause the more affluent to be reticent.

The survey material tried to tap the possibilities that exist for such participation and the urban areas showed lower rates of such involvement. To get their interest, phc in such areas may be orientated to suit their own background - through the establishment of clubs, for example, where education by demonstration may be provided. It is in this area of participation that the question of ideology, considered in Chapter Two, becomes important. Where the sociopolitical framework allows ideology to play a role, such a concept as phc would be given governmental weight

or backing which would make it necessary for everyone to get involved. This is the experience in Cuba (Elling, 1975) and China, for example, where complete overhaul of the health care system had to be undertaken. Of course Ghana has not been without its own brands of ideologies since independence. The earliest years can be remembered for a somewhat socialist stance; in more recent years, the pronouncements of the military government make one wonder about the direction in which the country is drifting. There are however, some committees formed to whom leadership roles could be assigned.

Known as the People's Defence Committees (PDCs), these were later changed and redesignated Committees for the Defence of the Revolution (CDR). Having said that we must hasten to add that there is a need to exercise caution in view of corrupt leadership. In the recent past the same leaders of these committees had diverted resources meant for their members' use to their own benefit. If the phc that is being envisaged here is to materialise, especially in the event of improvement of the existing houses, then the danger of corruption could be a serious factor to consider.

In the Central Region, as in other parts of the country, leadership roles could be played by religious leaders for whom considerations of honesty and accountability are important. Traditional rulers and their appointees could also be useful here, provided they have the time.

Another crucial question to discuss in this area of leadership is the extent of the community participation.¹ The people would have to participate in the development or creation of the new environment - housing, water supply, refuse and other waste disposal. Possible procedures would include the invitation of the members of the locality

1. For recent successes of community participation in health care, see Rijkkin, S.

to take part in discussions of general environmental improvement. Depending on how well attended these are, committees can then be formed to take greater part in decision making.

These discussions will then help the health care providers to see the problems facing the people and help find ways of allaying their anxieties especially where some demolition is envisaged. People must certainly be given a chance to build their own new houses first.

Secondly, the discussion will also help to bring health care closer to the people, and it might reduce the 'apathy' and 'indifference' so often levelled against people by the health care providers. Certainly paternalistic attitudes might be reduced, as people learn to appreciate government's problem and constraints.

The final plan for the creation of new environment and new procedures will be drawn by both the health personnel and the people. Here, both felt needs and professional assessment of needs would be combined and measures instituted to meet these can be agreed on jointly.

Apart from the question of leadership, there is the problem of support, especially financial, to meet the needs. In order to ensure that the needs of the community are indeed tackled, the bulk of the resources should come from within the community. For this reason, it is important to separate those types of care for which institutional procedures are required from those that may be undertaken by the people themselves with some technical guidance.

As is well known, curative care has always been institutionally based. Professional management is a necessity if human life is not to be played with. However, it is also possible to train first level workers who come from the community in a few basic skills to handle simple ailments.

In preventive health care, immunization also requires some professional handling, thus external resources might again be relied upon. In the

case of vector control, community members could contribute significantly if they are guided by a technically qualified person. Indeed in this area an interested community willing to be involved in controlling the pests and vectors of disease is a greater resource than any financial backing.

In health promotion, a lower grade health worker trained in environmental and personal health may suffice. At present in the Central Region, the latter type of worker may play a far greater role in bringing about improved health than the high level health personnel the country has so far relied upon.

Financial support may come from specific projects sponsored by the communities purposely for phc. It would not be realistic, in view of the current financial situation to ask people to contribute cash in the form of a levy, and expect to raise a meaningful amount. It has been suggested that there could, for example, be a community farm, the proceeds of which will go directly to phc. This could then be supplemented by cash contributions or payments for specific tasks performed for the individual members. For example, where houses are to be improved, householders will be expected to pay towards the cost. It might be necessary for the community to work hard in raising their resources before embarking on any of the discussed activities. Subsequently, there would be a need to decide on the proportions of the resources that should be devoted to health promotion, disease prevention and curative care. The proportion would obviously depend on the existing needs.

The above has concentrated on the features that are necessary for the implementation of phc in any given area. It has been shown that phc is the most appropriate framework to use in the provision of health care in a developing country whose major health problems arise from the nature of the ecological relationships. The relevance of phc to the health care situation lies in its all embracing nature, tackling both the people and

the aetiological aspects of the disease in the environment. Furthermore, in the absence of a general policy on social development, an adoption of the phc strategy may be the easiest means of achieving social change, which for many rural and urban slums, is long overdue.

It is also important to indicate that in the consideration of phc strategy, our focus has been on its operation within the ecological unit. This is a limited focus to take, as phc has ramifications in the larger areas such as the district level and even the regional level. Phc merely acts as a pivot for the other levels of care whose loci may not correspond to the ecological unit. We highlighted the ecological unit mainly because our original premise was on the articulation of health needs and the resources for meeting those needs at the local level. Without national policies and directives this may not materialise at all.

In the pages that follow, we consider the extent to which the strategy has been adopted for use in Ghana indicating convergences with or divergences from the version presented above, that may exist.

Primary Health Care in Ghana

In 1978, the Ministry of Health issued a policy for improving the health situation in Ghana (Health Policies, 1978). Its goal was to achieve for Ghana primary health care for 80 per cent of the population by 1990, and also to effectively attack disease problems. This was to be carried out at three levels - the community, local council subareas and the district. At the community level, the scheme will be handled by three types of workers - those who will see to maternal and child care; those who will be responsible for family health including personal health improvement, and those whose tasks will involve them in environmental control. This last group will need to mobilise the public to carry out certain tasks. It is suggested that the workers should be selected for

training by the community members themselves. The Ministry of Health will take responsibility for the training and monitoring the technical aspects of health care as well as provide drugs and other supplies. It is envisaged that the community will also provide some of the resources. The size of the community is defined in terms of population, ranging from 200 people to 5,000 people, the smaller areas being given first consideration.

This is one area where this policy diverges from the standpoint of this study. Whereas it was considered that an ecological niche containing about 9 - 10 houses will represent the community in all areas - urban, semi-urban and rural areas, in the national strategy, the full area of locality is to form one focus. As was also stated, the smaller rural communities will receive priority consideration on account of the fact that in the past, they have been ignored. The implication of this is that urban areas which may have urgent needs may have to wait until smaller areas which may be better off are provided for. The principle of equal needs receiving equal treatment has been ignored here.

The second level or local council sub-areas will be provided with a health station to be located within 8 kilometre of every community, i.e. level of workers. This will represent the first referral point for curative care, and also contact with Ministry of Health staff. The level of training for the staff here will include support and technical supervision of level A workers, diagnosis and treatment or referral of patients from level A. The policy statement contains much detail about the training and the interactions that should go on between the two levels. It is envisaged that these second tier workers would be equipped with motor bikes to enable them to visit the community level and also envisaged is a radio link between the local council area and district level.

The third level in phc is the district level. This is to be the base for planning management and supervision of the phc programme. It

will be under the direction of a management team. At this level there would also be a district hospital to which cases can be referred from the local council level. At this level, the training of higher personnel will be in line with the requirements laid down by the West African College of Physicians.

The logistical considerations given to the strategy appears cumbersome and somewhat unrealistic. There is an undue emphasis on staffing and training which is reminiscent of the current system of health care. There is also little attention paid to how the community itself might be mobilised to provide for their needs. Furthermore, the envisaged assumption of responsibility by the Ministry of Health for the provision of drugs and other supplies appears ominous since the Ministry can hardly cope with the present limited responsibility. Indeed, there is even a suggestion that some form of foreign aid might be required.

Very little consideration was given to the possibility of joint decision-making by the staff and the community leaders. The Ministry has characteristically made a pronouncement on all areas of the country and the fear is that the community might not really get a chance to participate in decision-making, let alone in the management of the services. It appears that old practices and attitudes die hard, and in health care provision traces of pater-nalistic attitudes of the health professionals can be clearly seen in the way things are going to be done. There is the mention of the use of Health Inspectors who could be given additional training in community development. Their traditional role as health policemen and the attendant punitive measures meted out to recalcitrants who did not obey sanitary laws make their contribution to the new health care development doubtful. It is about time the traditional healers are properly trained and utilised. Fortunately, trials have been made to this end and the results have been encouraging (Chapter Five) and it

should be possible to extend the practice. There is even the possibility of using the herbalists and the knowledge that has been gained from the Plant Medicine Research instituted more than ten years ago, to produce herbal preparations to supplement government importation of drugs.

Even though this strategy was first proposed in 1977, its progress in reducing the load of infection within the population has been slow. Within the study area, some localities have shown interest, for example, Kissi, but others have been understandably skeptical. In this instance, some apprehension is felt that this strategy may go the way of several others without achieving the desired change in people's way of life that would result from improved health. Some of the underlying reasons for this fear are as follows:

There is a continuous concern over finances. The planners seem anxious as to which foreign source they could tap - UNICEF, USAID and other international agencies. Yet as some of the providers point out, the only new staff are the level A workers whose payments are to be arranged with the community that sponsored them.¹ Self reliance is not being emphasised enough.

There is also a bias towards professionalism which does not leave enough room for the individuals to manoeuvre to change their situation without referring matters. A further problem arising from this is the curative leanings for phc which is providing some leverage for the trained level A workers to consider themselves as medically qualified people, who could engage in their own brand of private practice and extort money from the people. It appears that phc, in view of these constraints cannot function in the way that is envisaged here. Certainly its role as a proxy for social development given the way it is being

1. Report on Primary Health Care Seminar 12 - 16 May 1980. p.21

handled at present, cannot materialise.

As was pointed out earlier, phc forms a hub around which secondary and tertiary health care can be organised. In the case of the secondary level care, there are the already existing health centres and hospitals. The health centres which number 42 and which are distributed in an uneven manner in the region, can be reorganised to receive referred cases from the primary level. Here, there could be the usual professional staff who would take care of ambulatory cases as well as handle difficult environmental conditions which may arise from the basic level. Cases from the secondary level can be further referred to the tertiary level units where facilities for admission, surgery and other sophisticated methods of management will be employed. In the region, the Cape Coast General Hospital and the specialist hospitals could be reorganised for this purpose.

Summary

Here conclusions drawn for individual chapters are brought together and related to the conclusion of this chapter. In Chapter One, the subject matter presented the emergent points as follows: the Geography of Health presents a useful perspective to health care studies, vis-a-vis the other social science perspectives, especially with its concern over space and man-environmental relationship. The increasing interest shown in welfare concerns, further justifies its usefulness for the study of health care. The second point that emerged concerned the ecological nature of disease in the study area and the need to link up health care with it. Attention was also drawn to the need for health promotion and disease prevention. There are areas which the ecological framework and by implication geographical contribution are important. Finally, the idea of community was also introduced as the appropriate spatial unit

for provision of health care, a point which is expanded on in Chapter Seven, and attention is drawn to it again in terms of phc with which this chapter has been concerned.

Chapter Two continued with the argument that the community concept provides an appropriate framework both for study and for the provision of care especially when considered from the geographical concept of territorial welfarism. This necessarily entails the consideration of needs, the satisfaction of which becomes an issue of importance for all well-meaning governments. It was decided that for territorial welfare to be operative, the traditional geography approach of relevance and welfare summarized as 'who gets what and where' is too narrow. The Rawlsian view of equal treatment of needs was better, though for the peculiar context of a developing and struggling country, needs assessed with the participation of the ordinary people who would also contribute to the means of achieving the same had to be considered. Hence the adoption of communal egalitarianism as the principle on which changes in the health care system should be based. The chapter also considered the constraints imposed on health care systems by the socio-political, historical and financial characteristics of the country, but insisted that a pragmatic and philosophically sound system can be worked out based on primary health care which focuses on the community.

It was necessary to provide a methodological framework for obtaining the relevant empirical data that would help to assess the needs that existed in the Central Region with respect to health care. Chapter Three contains the information on our data: the collection, analysis and presentation.

Using information obtained from past records and other sources, Chapter Four provides explanation for the circumstances that led to the introduction of western medicine to Ghana and the prevailing patterns.

An account is provided of how the different types of health care activities were instituted. It was shown that the historical underpinning remains dominant in the contemporary provision of health care in the country. Curative care, geared towards satisfying individual demands for care dominates, rather than the collective benefits that would be derived from meeting collective needs. The bias towards the urban location of facilities has been on account of European presence in those areas. Integration with traditional forms of health care has been difficult on account of the original policies pursued. All these have direct bearing on the current difficulties being faced in the implementation of phc in Ghana.

Chapter Five provided an account of how provision is effected for curative, preventive and promotive health services. Assessing the health care needs from a five point scale, it was shown that the services are predominantly curative in nature, recurrent budgets for hospitals place heavy burdens on the authorities and forestall efforts to shift emphasis to other more relevant areas of health care, for example preventive and health promotion. These represent some kind of structural constraints on the provision of care at the primary level which would make use of local people and local resources. With government relying solely on the professionals and on foreign sources for most of its inputs, only a limited result in terms of disease control and prevention can be achieved. Hence the inadequate performance of the health care system on the whole.

In Chapter Six, consideration was given to the pattern of diseases that were prevalent in the region. It was found that infective parasitic diseases have dominated the scene since scientific care was introduced towards the end of the last century, and there does not appear to be any reason to think that the pattern will change drastically. Then more

alarming is the increasing number of cases of degenerative disease. It is therefore crucial that those diseases whose control and eradication measures are already well known be done away with. Funds could then be released for tackling the degenerative diseases.

To this end, Chapter Seven focussed on the ecological unit as the most appropriate level at which control activities can be initiated through the phc strategy which was the main concern of this Chapter Eight. Analytical attempts were made at extracting ecological units from seven localities selected for study in the Region using principal component analysis.

The final conclusions of this study have been discussed in this chapter, and they are that the most appropriate approach to the provision of health care in a developing country like Ghana is the primary health care approach. It is the only available means for effective health care delivery that would tackle the major health problems at the roots. It goes beyond mere curative care which treats symptoms thereby permitting the cycle of infection-cure-infection to continue. Based at the level of the ecological community rather than on the socio-economic rural or urban community, it should be possible to focus control measures on the immediate habitats and niches of disease-causing organisms as these survive and interact with man. The participation of the local people is such an important requirement for success that where this is not possible primary health care cannot really be said to exist. Even though it has been adopted, its progress is slow on account of its attachment to the Ministry of Health. To this end, some of the usual constraints impinging on the main system of health care provision has started acting on the strategy. It appears that in this realm, the sociopolitical system is still able to exert a powerful influence (viz - the incipient corruption of the level A workers). Perhaps a more optimistic note on

which this section can be ended is that there is still cause to hope for an improvement so long as people will respond favourably to dedicated leadership.

Implications for Future Research

The main underlying reason for the choice of the subject matter, 'the provision of health care - need assessment approach' in the study area, the Central Region of Ghana, has been the nature of the prevailing infective parasitic diseases which dominate the health scene and cause needless suffering and death as shown in Chapter Six and part of Chapter Seven.

The latter is considered needless because measures for the control and eradication of these diseases are already well known, thanks to 19th and 20th century research efforts by the scientists of the developed world. Yet Ghana with its meagre resources continues to devote a greater proportion of its health budget to curative care as was shown in Chapter Five. It was shown in that chapter that preventive and curative care did not receive complementary consideration despite the fact of their proven efficacy in preventing infection with parasitic diseases.

What is more, people have come to equate health care with curative care, so much so that the demand for it is often out of proportion to what is provided, making it necessary for other essentially preventive care to succumb to the pressures for curative care. It is important that great efforts be made to reverse this trend and bring the proper perspective to bear on health services. Within the last decade, the concern over the deteriorating state of many developing countries' health care systems, and the ever-downward spiralling nature of the finance for the services in the developed countries, caused many scholars to focus

attention on health care studies. Many disciplines even from unlikely sources such as theology made significant contribution. Welfare considerations drove others to consider social justice and health care provision focussing on under-privileged areas. Thus this study makes, in spite of its avowed geographical focus, unrestrained use of ideas from politics, philosophy, ecology and of course medical science, making it somewhat eclectic in nature.

Conceptually, the study has tried to spell out the spatial unit within which health care should be appropriately provided. This is the ecological community considered fundamental to provision of care at the primary level for the purpose of dealing directly with the determinants of diseases. With this framework, which is justifiable on the principles of equality and social justice, it is possible to meet specific needs of all areas, and all the people who live in the area as far as care is concerned. In order to show how this was possible, the study focussed on the services provided and the diseases that were prevalent in the region, and the nature of the latter was related to the measures best suited for dealing with them. In a way, it is a study which has stressed the need for a normative or prescriptive approach to health care provision and the need assessment appears a germane one to use, particularly for developing countries.

The specific implications of this type of study for the future is that it can help direct research towards the traditional system of health care such as exists in Ghana. Furthermore, other sectors of the health care continuum, for example the need for rehabilitation and socio-medical care were not considered in any great detail, and so future research can be carried out in this area. Even more importantly, other studies could direct their research efforts into consideration of how provision of incentives and operation of processes in other social areas which

have important bearings on health, such as agriculture and social welfare, can contribute not only to health care, but to social improvement and social change as a whole.

For geography of health care, a contribution which may be of some significance is that the framework suggested provides a unified focus for both in terms of disease ecology and health care delivery. It would be worthwhile if this framework can be equally applicable in areas other than the developing world. It would be useful also if as geographers we could suggest ways of by-passing the sociopolitical system and effect some changes that are considered to be long overdue in the society. In the provision of health care, the phc strategy is certainly useful and its areal component could perhaps provide the starting point for any independent manoeuvres.

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APPENDICES

APPENDIX A

BIBLIOGRAPHY: - LIST OF MAIN DOCUMENTS USED

A. PRIMARY SOURCES

i. MEDICAL & HEALTH

1. ANNUAL MEDICAL & SANITARY REPORTS 1896 - 1955, 1967, (4 Copies not available).
2. ARMY MEDICAL DEPT. REPORTS 1850 - 1880.
3. BLUE BOOK FOR THE GOLD COAST. COLONIAL REPORTS (ANNUAL) 1892 - 1900.
4. BRITISH PARLIAMENTARY PAPERS (1815 onwards)

ii. HISTORICAL

1. BRITISH PARLIAMENTARY PAPERS.
2. FURTHER CORRESPONDENCE ON THE GOLD COAST.
3. TOGO REPORTS.
4. VARIOUS COLONIAL REPORTS (SPECIFIC ONES MENTIONED IN NOTES)

B. SECONDARY SOURCES

i. MEDICAL & HEALTH

1. MEDICAL JOURNALS - GHANA : WEST AFRICA : BRITISH
2. PUBLIC HEALTH PAPERS (VARIOUS REPORTS BY COLONIAL DOCTORS).
3. W.H.O. BULLETIN.
4. ANNUAL REPORTS, MINISTRY OF HEALTH, U.K. (1920 - 70)

APPENDIX B

Health Services Provision Inventory

Name of Health Unit: _____

Name of locality: _____

Type of Health Unit (a) Government (b) Mission

(c) Private. Each of the following requirements

of health services provision to be checked under

the categories below.

Service	'Satisfac- tory	Adequate	Inade- quate	Rarely Provided	Never Provided
1. Out patient Care					
2. No. of Staff					
3. Hospital Care					
4. No. of Beds					
5. Meals					
6. Laboratory Culture					
7. Stool, Urine					
8. Heamatology					
9. X-ray, Chest					
10. Bone, Limbs					
11. Barium, Meal & Enema					
12. Pregnancy					
13. Dental					
14. Theatre-General Surg.					
15. Orthopaedic					
16. Minor Operation					
17. Major Operation					
18. Pharmacy					
19. Immunization					
20. Advice on Health Care					
21. Community Work					
22. Environmental Work					
23. Vector Control					
24. Material & Child Care					
25. Specialist Clinics					

APPENDIX C

Interviewing Schedule for Selected Communities in
Central Region

(Members of Community)

Sex: Female (1) Male (2)

Age: (0 - 99)

Occupation: Farmer (1) Fisherman (2) Trader (3)
Professional (4) Office Worker (5) Tradesman (6)

Educational Level: Primary (1) Middle (2) Secondary (3)
College (4) University (5) None (6)

Area of Residence: Urban (1) Rural (2)

Type of Dwelling: Mud and Thatch (1) Mud and roofing sheet (2)
Mud Plastered mud and roofing sheets (3)
Block and concrete and roofing sheets (4)

Household Amenities: Toilet and bathroom (1) Refuse disposal (2)
Water Supply source (3) No. of rooms (4)
No. of people (5)
Any activity which can be a nuisance in the house-
hold? (6)

ILLNESSES

1. During the past month have you suffered from any disease or illness? Yes (1) No (2)
2. If yes, what sort of disease was it?
(5) Have you recovered now? Yes (1) No (2)
3. Did you get any treatment for it? Yes (1) No (2)
4. What type of treatment was it? From a health centre (1)
Self medicated (3)
Traditional healer (3)

Awareness of Preventive Care

1. Have you had any immunization during the past year?
2. Do you take any medicines which will prevent an illness from occurring? Yes (1) No (2)
3. If yes, what type of medicine is it?
(a) Traditional herbal preparations
(b) Patent drugs of anti-malarias.

Do you (if a woman) or your wife (if a man) attend any maternal and child welfare clinic? Yes (1) No (2)
4. What is the source of your water supply PB; BH; RV; WL; eh
(5) If it is not already protected, Do you first
Boil it (1) Filter it (2)
5. Do you take regular baths? (Yes) (No)
Wash hands after defaecating and before eating? (Yes) (No)

Health Education:

Have you any idea how one gets infected with malaria?
Yaws, Tuberculosis or Leprosy?
Name things you have learnt concerning your health.

6. How did you come to learn that?
I read it myself (1) Someone told me (2)
A health worker explained it to me (3)
I heard it on the radio/Television (4)
7. What do you do when you have learnt something new?
I practice it (1) I forget about it (2)

Participation

- (1) Has there been any activity carried out here in which you took part e.g. clean up campaign, (2)
protection of water supply (2)
digging of latrines (3)
- (2) Who decided to carry out that activity?
Were you consulted first before the decision was taken?
Yes (1) No (2)
3. Do you contribute anything? e.g. money, toward running cost?
Yes (1) No (2)

* Newly announced hospital fee.

APPENDIX D

Medical Care Needs; Health Unit Interview*

Medical Care

1. Age:
2. Sex:
3. Address or area from where patient came:
4. Time, Cost and Mode of transport to care:

Illness Presented:

Diagnosis:

Whether visit recorded is 1st, 2nd, 3rd, 4th.....

Whether complaint for the last illness has been persistent

.....

Treatment prescribed for last illness

Whether patient has ever been admitted to hospital and for what illness .

.....

Duration of stay in hospital

Facilities required for his treatment, e.g. operation theatre,
orthopaedic services, maternity services, X - ray etc.

.....

Subsequent complaints of the same illness after discharge.....

.....

.....

* At outpatients clinics, patients are given their hospital cards to be presented to the doctor on consultations.

C. Health Education

- (a) Does this facility offer any health education?
- (b) What main methods does your facility use for health education?
- (c) How often is Health Education given?

D. Any Unused Facilities

- (a) Does your service have any facility which is underused but could be used at a future date?
- (b) Do you of any other health facility providing care in this area?

APPENDIX E (i)

Disease Incidence for the Health Units

Health Unit:

Health District:

Year:

<u>Disease with codes</u>	<u>Frequency</u>	<u>Total</u>
Infective Parasitic	000 - 136	
Neoplasms	140 - 239	
Endocrine, Nutritional, Metabolic	240 - 279	
Diseases of the blood & blood forming	280 - 289	
Mental disorders	290 - 315	
Diseases of the nervous system & sense organs	320 - 458	
Diseases of the circulatory system	390 - 458	
Diseases of the respiratory system	460 - 466	
Diseases of the digestive system	520 - 577	
Diseases of the genito- urinary system	580 - 629	
Condition of pregnancy childbirth & the puerperium	630 - 678	

Diseases with codes	Frequency	Total
Diseases of the skin and subcutaneous tissue 680 - 709		
Diseases of the musculo skeletal system and connective tissue 710 - 738		
Congenital Abnormalities 740 - 759		
Certain cases of perinatal morbidity and mortality 760 - 779		
Symptoms & ill-defined conditions 780 - 796		
Accidents, poisoning and violence		

APPENDIX E(ii)

STATEMENT OF OUT-PATIENT

Sample Format

Institution:

Medical Statistical Form I
for month ending

District:

Regions:

Age Groups	B. Out-Patients					
	NEW		OLD		TOTAL	
	Male	Female	Male	Female	Male	Female
Under 1 Year						
1 - 3 Years						
- 5 Years						
- 10Years						
- 15Years						
20Years						
- 40Years						
- 60Years						
- 70Years						
Over 70 Years						
All Ages						

APPENDIX F

I TECHNICAL STAFF

<u>Medical Practitioners</u>		<u>Gov't</u>	<u>Mission</u>	<u>Mines</u>
1.	Reg. Med. Officer of Health	1	-	-
2.	Sen. Med. Officers of (Health)	1	1	1
3.	" " " " (Clinical)	8	3	-
4.	Medical Officers	20	-	-
5.	Housemen	-	-	-
6.	Dental Surgeons	3	-	-
Total		33	3	1

Nursing Division

1.	Regional Matron	1	-	-
2.	Hospital Matron	5	3	1
3.	Health Centre Superintendent	25	-	-
4.	Nursing Sister/Masters (All grades)	59	-	-
5.	Nursing/Midwifery Supt.	2	-	-
6.	Nurses S.R.N.	1	-	-
7.	" Q.R.N.	38	-	-
8.	Staff Nurse Midwife S.R.N.	7	-	-
9.	" " " Q.R.N.	58	-	-
10.	Senior Staff Midwives	6	-	-
11.	Nursing Tutors	7	-	-
12.	Nurse Anaesthetists	10	-	-
13.	Nurse in Training S.R.N. (Enrolled)	244	-	-

	<u>Gov't</u>	<u>Mission</u>	<u>Mines</u>
14. Ward Assistants	102	-	-
15. Enrolled Nurses	160	-	-
Total	723	3	1

Nursing Division (Public Health)

1. Reg. Public Health Nurse	1	-	-
2. Area " " "	4	-	-
3. District Public Health Nurse	4	-	-
4. Senior " " "	-	-	-
5. Public Health Nurses	6	-	-
6. Community Health Nurses	80	-	-
Total	95	-	-

Dental Department

1. Dental Technicians	2	-	-
2. Dental Assistant/Attendants	5	-	-
Total	7	-	-

Pharmacy Division

1. Senior Pharmacist	4	-	-
2. Regional Pharmacist	1	-	-
3. Technologist	-	-	-
4. Pharmacist	7	-	-
5. Dispensary Assts/Attendants	48	-	-
Total	68	-	-

<u>Laboratory Department</u>		<u>Gov't</u>	<u>Mission</u>	<u>Mines</u>
1.	Senior Medical Officer (Path)	-	-	-
2.	" Technologists	1	-	-
3.	" Technical Officers	1	-	-
4.	Technicians	13	-	-
5.	Laboratory Assistants	7	-	-
6.	" " Trainees	-	-	-
7.	" orderlies	-	-	-
Total		22	-	-

<u>X-Ray Department</u>				
1.	Superintendent Radiographer	1	-	-
2.	X-Ray Operators	8	-	-
3.	Darkroom Attendants	-	-	-
Total		9	-	-

<u>Health Inspectorate</u>				
1.	Regional Health Superintendent	-	-	-
2.	Principal " "	1	-	-
3.	District " "	9	-	-
4.	Cleaning Superintendent	-	-	-
5.	Health Inspectors	12	-	-
6.	" " Assistants	75	-	-
7.	Public Vaccinators	-	-	-
8.	Health Overseers	16	-	-
Total		113	-	-

II. MFANTSIMAN HEALTH DEPARTMENT (SALTPOND)

- | | |
|--------------|------------------|
| (a) Assakyer | (g) Mankesim |
| (b) Narkwa | (h) Moree |
| (c) Dominasi | (i) Abura Dunkwa |
| (d) Ayeldu | (j) Abakrampa |
| (e) Edukrom | (k) Asebu |
| (f) Anomabu | (l) Otuum |

III. GOMOA AWUTU HEALTH DEPARTMENT (WINNEBA)

- | | |
|------------------|--------------|
| (a) Dewurampong | (e) Mumford |
| (b) Apam | (f) Legu |
| (c) Gomoa Oguaa | (g) Bawjiase |
| (d) Gomoa Tarkwa | (h) Afransi |

IV. DENKYIRA TWIFU HEALTH DEPARTMENT (DUNKWA-ON-OFFIN)

- (a) Diaso
- (b) Twifo Praso
- (c) Chichiwere
- (d) Hemang
- (e) Jukwa

V. ASSIN HEALTH DEPARTMENT (FOSO)

- (a) Fanti Nyankumasi
- (b) Manso
- (c) Bereku
- (d) Jakai

VI. BREMAN AJUMAKO HEALTH DEPARTMENT (ASIKUMA)

- (a) Ajumako
- (b) Odoben
- (c) Bedun
- (d) Abaasa
- (e) Nkwantase
- (f) Bisease

VII. AGONA HEALTH DEPARTMENT (SWEDRU)

- (a) Agona Abodom
- (b) Agona Duakwa
- (c) Agona Bobikuma
- (d) Agona Kwanyaku
- (e) Agona Nsaba
- (f) Agona Asafo
- (g) Agona Mankrong
- (h) Agona Nyakrom

Table 1.5

NURSES TRAINING SCHOOLS

(a) State Registered Nurses	- One
(b) Midwifery Training School	- Nil
(c) Enrolled Nurses	- 3
(i) Cape Coast intake	Output
(ii) Apam intake	"
(iii) Winneba intake	"
(d) Public Health	- Nil
(e) Community Health Nurses	- Nil
(f) Mental Nursing Training School	- 1

APPENDIX G

PRIVATE HEALTH CARE

LIST OF PRIVATE CLINICS:- 10

- | | | |
|-----|---------------------------------|--------------|
| 1. | Dr. H. Mercer-Ricketts | - Cape Coast |
| 2. | Dr. Kulwiushi Memorial Hospital | - Winneba |
| 3. | Modern Revival Clinic | - Swedru |
| 4. | Bethel Clinic | - Apam |
| 5. | Sunkwa Clinic | - Winneba |
| 6. | Gilbralka Clinic | - Cape Coast |
| 7. | Christiana Clinic | - Cape Coast |
| 8. | Ghana Sugar Estates | - Komenda |
| 9. | Nana Mensah Clinic | - Cape Coast |
| 10. | Abora Clinic | - Cape Coast |

LIST OF PRIVATE MIDWIVES:- 11

- | | | |
|-----|------------------------|----------------|
| 1. | Mrs. Elizabeth Sackey | - Elmina |
| 2. | Mrs. Esi L. Armah | - Cape Coast |
| 3. | Mrs. Alice M. Owusu | - Kwanyaku |
| 4. | Mrs. Getrude A. Banson | - Cape Coast |
| 5. | Mrs. Georgina Quayson | - Elmina |
| 6. | Mrs. Harriet B. Appiah | - Cape Coast |
| 7. | Mrs. Mabel Chintoh | - Winneba |
| 8. | Mrs. Cordelia Quashie | - Brakwa |
| 9. | Mrs. C. J. Oware | - Dunkwa |
| 10. | Miss C. Lartey | - Agona Swedru |
| 11. | Miss. R. Agyepong | - Winneba |

APPENDIX G (i)

OUTPATIENT CARE-REFERRALS (1978-79)

Health Centre	No. of patients	Referrals Xray		Referral Laboratory		Referral other hospital	
		No.	%	No.	%	No.	%
Cape Coast	109,535	1,302	1.20	1,463	1.33	41	.03
Dunkwa	69,269	1,163	1.60	179	0.25	113	1.50
Winneba	104,166	146	0.14	158	0.15	119	0.11
Saltpond	53,799	169	0.31	129	0.23	121	0.22
Ankaful (Lepro)	9,656	92	0.95	918	9.5	0	0
Ankaful (Ment.)	14,931	41	0.27	29	0.19	0	0
University	29,258	2,178	7.4	3,831	13.0	5	0.01
Dunkwa Mines	21,085	1,178	5.5	1,579	7.4	120	0.56
Apam	31,664	189	0.59	631	1.9	312	0.98
Foso	34,266	263	0.76	8,152	2.3	418	1.2
Breman Asikuma	46,525	197	0.42	219	0.47	181	0.38
Ahmadiya Swedru	32,520	299	0.91	483	1.48	145	0.44
Diaso	24,699	278	1.12	363	1.46	148	0.59
Elmina	20,150	315	1.56	433	2.14	102	0.50
Twifo Praso	25,134	127	0.50	183	0.72	28	0.50
Abura Dunkwa	19,889	165	0.82	224	1.12	188	0.94

APPENDIX G (ii)

IMMUNIZATION IN THE CENTRAL REGION (MCH CLINICS)

Small Pox

<u>Age in years</u>	<u>Total</u>	<u>No. successful</u>	<u>No. failed</u>
Under 1 month	105	85	20
1 - 5 months	2,893	2,285	607
6 - 11 months	1,270	946	324
1 year	758	453	305
2 year	325	246	79
3 - 6 years	916	238	678
Over 6 years	989	64	925
Total	7,256	4,317	2,938

IMMUNIZATION FOR CHILDREN AGED 1 - 5

	<u>D.P.T</u>	<u>Measles</u>	<u>Tetanol</u>	<u>Polio</u>	<u>BCG</u>
1st Dose	4,120	980	9,356	1,379	3,718
2nd dose	1,986	-	3,381	321	-
3rd dose	1,102	-	-	-	-
Boster dose	44	-	18	-	-
Total	7,252	980	12,755	1,700	3,718

INTERNATIONAL INOCULATION ADULTS 1978 - 79

	<u>Small Pox</u>	<u>Yellow fever</u>	<u>Cholera</u>	<u>TAB</u>
Prim	222	1,087	1,949	323
Succ.	214			
Revacc	1,134			
Total	1,256			

Inland Facilities

Abakrampa - Nkroful	5
Nyenase - Twifo Hemang	19
Nyenase - Twifo Praso	6
Opponso - Twifo Praso	30
Opponso - Chechewere	9
Dunkwa - Chechewere	15
Dunkwa - Diaso	38

APPENDIX H

DISTANCES SEPARATING FACILITIES IN THE CENTRAL REGION

<u>Facilities along the Coast</u>	<u>Distances (KM)</u>
Kissi - Komenda	4
Elmina - Agona Abrem	8
Ankaful - Cape Coast	9
Cape Coast - Yamoransa	14
Otuam - Apam	18
Apam - Winneba	10
Yamoransa - Anonaba	5
Anomabu - Saltpond	9
Saltpond - Otuam	22
Otuam - Essuahyia	15
Otuam - Winneba	22
Winneba - Senya Bereku	14
 <u>Inland Facilities</u>	
Winneba - Swedru	24
Swedru - Nyakrom	12
Nyarkrom - Nkum	7
Nkum - Odoben	8
Nyarkrom - Bodwease	27
Fosu - Assin Mamo	19
Entumbil - Bisease	10
Assin Manso - Fanti Nyankumasi	18
Fanti - Nyankumasi - Abura Dunkwa	8
Abura Dunkwa - Nkroful	8

APPENDIX H(i)

INFORMATION ON JOURNEY TO CARE (in %)

Health Institution	Type of Journey			Estimated distance			Estimated cost 1979 (in cedis)		
	Direct Walk %	Walk one stop, transport	Walk, transport 2 stops	2km	2-4km	6km	2 Cedis	4 Cedis	6 Cedis
Cape Coast	32	47	23	51	23	26	41	39	200
Winneba	39	31	30	38	29	33	43	32	25
Dunkwa	41	36	22	39	31	30	45	31	24
Saltpond	58	31	11	37	41	28	46	34	20
University Hosp. (Cape Coast)	51	31	18	36	39	25	31	49	20
Dunkwa Mines	59	31	10	42	33	25	51	30	19
Foso	39	42	19	43	41	16	49	41	19
Apam	41	39	20	44	39	17	58	28	14
Breman Asikuma	40	41	19	51	27	22	59	30	11
Ochiso	31	40	29	36	38	26	56	31	13
Elmina	39	31	30	42	42	16	53	32	15
Agona Swedru	31	43	26	51	30	19	42	29	19
Diaso	38	34	28	36	39	25	41	28	31
Agona Brakwa	31	44	25	42	38	20	53	36	11
Abura Dunkwa	39	38	23	38	29	33	52	38	10
Fanti Nyankumasi	32	49	19	31	27	42	49	31	20
Assin Manso	30	51	19	42	28	30	48	30	22
Assin Beraku	41	46	13	45	30	25	51	32	17
Twifo Praso	39	39	28	47	31	22	47	29	24
Chechewere	48	41	11	39	30	31	42	28	30

Health Institution	District walk %	Type of Journey		Estimated distance			Estimated cost 1979 (in Cedis)		
		Walk one stop, transport	Walk, transport 2 stops	2km	2-4km	6km	2 Cedis	4 Cedis	6 Cedis
Anomabu	41	36	23	46	29	25	43	31	26
Essuehyia Ekumfi	49	33	18	39	21	40	53	33	14
Otuam	37	32	31	41	30	29	55	31	14
Enyan Abaasa	33	37	30	38	38	24	50	26	24
Gomua Oguaa	41	31	28	40	31	29	58	30	12
Senya Beraku	30	39	31	42	21	63	50	35	15
Bawjiase	41	47	12	38	29	33	49	32	19
Odoben	44	39	17	39	27	34	48	28	24
Biseasi	39	45	16	38	26	36	45	32	23
Opponso	38	52	10	42	25	31	57	28	21
Kissi	34	41	25	39	26	35	53	29	28
Nkwantanum	34	39	27	31	27	42	42	31	20
Nkum	49	21	20	38	39	23	52	23	25

APPENDIX I

CENTRAL REGION : FURTHER INFORMATION ON ILLNESSES AS
TESTED IN THE LABORATORIES - 1976

BLOOD:

Blod Films		3,379
Malaria parasites	1,583	
Microfilaria	-	
Yrypanosomes	-	
Haemoglobin estimates		14,831
WBC counts		3,758
RBC "		33
Differential counts		1,535
Reticulocytes counts		3
ESR		2,057
Platetets counts		-
Bleeding Time		3
Clotting Time		2
Sickling Total		10,427
Sickling positive	1,726	215
Electrophoresis Total		
A/A	CC-1	30
AS	AC-3	146
SC		15
SS		19
SF		1
Grouping and Rhesus Typind Total		2,079
Rhesus Negative	36	1,038
Cross Matching Total		-
Total		39,390

STOOLS:

11,990

Total number examined	1,820	
Hookworm ova	2,045	
Ascaris Ova	1	
Taenia Ova	401	
T. Trichiura	401	
E. vermicularis Ova	2	
S. Stercoralis Larvae	373	
S. Mansoni Ova	2	
H. Nana	3	
Intestinal Flagellates	1,041	
Balantidium coli	11	
RBCs	232	
Pus Cells	265	
E. Histolytica cysts & Vegetative	73	
N. Coli (Cyst & Vegetative)	41	
Occult Blood Total		64
Occult Blood Positive	31	
Total		12,054

URINES:

Total number examined		12.647
Proteins	9,659	
Specific gravity	363	
Sugar Positive	323	
Acetone	67	
Bile Pigments	28	
Bile Salts	28	
Unobilinogen	-	

Pregnancy Test Total		688
Pregnancy Positive	247	
S. Haematobium Ova	211	
T. Virginalis	249	
Pus Cells	6,920	
Epithelial Cells	6,834	
Red Cells	1,127	
Cysts	720	
Total		13,335

CHEMISTRY

Blood:-

Blood Sugar		1,416
blood Urea		745
Total Protein		255
Thymol Turbidity		-
Thymol Flocculation		-
Serum Bilirubin		646
G.T.T.		12
C.S.F.		50
Pleural Fluid		4
Asciltic Fluid		3
Electrolytes		-
G6PD		15
Creatinin		-
Inorganic Phosphorus		-
Total Cases Tested		2,796

HISTOPATHOLOGY

Biopsies Total		381
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Autopsies Total		421
<u>Miscellaneous:-</u>		
1. Sputum		801
<u>Total Examined</u>		
AFH Present	218	
2. Urethral smears Total		83
GNID found	60	
3. Vaginal Smear Total		490
GNID found	104	
T. Vaginalis	21	
4. Skind scrapings		-
B. Leprae	-	
5. Skin snips Total	-	142
(mf.) O. Volvulus	30	
6. Semen Analysis Total		59
7. Gland Punctures Total	-	-
Trypanosomes found	2	
8. Nasal Swabs		-
B. Laprae found	1,342	
Total		1,575

BLOOD CULTURES TOTAL

Salmonella isolated	15
Staphylococcus pyogenes	181
Esch. Coli	219

STOOLS CULTURE

Shigella	14
Salm. Typhi	82
Salm. group A	14

Salm. Group B	-
" " C	-
" " G	-
Salm. Typhimurium	μ
Pathogenic Esch. Coli	148

URINE CULTURES TOTAL

Esch. Coli	121
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APPENDIX J

HEALTH SERVICE INDICES: CURATIVE HEALTH CARE

<u>Region/Hospital</u>	<u>Ownership</u>	<u>Beds</u>	<u>Cots</u>	<u>Total</u>
Central		1,302	208	1,510
Cape Coast	Government	1,030	109	1,140
Saltpond	"	56	34	90
Winneba	"	96	39	135
Dunkwa	"	90	35	125
Ankaful Mental	"	499	1	500
Ankaful Leprosarium	"	190	-	190
C.D. Hospital	"	22	-	22
University of Cape Coast		215	93	308
Apam	Mission	60	45	105
Assin Foso	"	59	8	67
Bremam Asikuma	"	66	30	96
Ahmadiya	"	30	10	40
Dunkwa	Mines	34	6	40

(1) MEDICAL FIELD UNIT:- 6^M

1. Assin Foso
2. Bremam Asikuma
3. Twifu Hemang
4. Cape Coast
5. Winneba
6. Swedru

(2) HEALTH DEPARTMENT

CAPE COAST HEALTH DEPARTMENT

- (a) Elmina
- (b) Komenda
- (c) Kissi
- (d) Amisano
- (e) Abrem-Agona

APPENDIX K (i)

SYMPTOMATIC ILLNESS PRESENTED AT HEALTH INSTITUTIONS- 1979-80

<u>Symptom</u>	<u>No. of Respondents</u>	<u>% Respondent Answer</u>
Coughing with cold	44	8.8
Fever Malaria	43	8.6
Diarrhoea with or without blood or mucus	24	84
Fever and headache	35	7.0
Chest pain, difficulty in breathing	33	6.6
Dizziness and headache	25	5.0
Nausea and Vomiting	28	5.6
Abdominal pain	23	4.6
Discharging painful eyes	23	4.6
Fever and Anaemia	20	4.0
Sore Throat, tonsillitis	18	3.6
Rashes measles and sore mouth	16	3.2
Measles	18	3.6
Yaws	16	3.2
Helminthiasis	14	2.9
Loss of weight	14	2.9
Backache, waist pains	13	2.6
Loss of appetite	13	2.6
Boils	11	2.2
Septic Spots	10	2.0
Whooping Cough	8	1.6
Painful Micturition & Menstration	8	1.6
Swollen Puffy Face	8	1.6
Dental Caries	6	1.2

APPENDIX K (ii)

DISEASE EPISODES: MINOR AILMENTS

<u>Diagnosis</u>	Episodes during Survey	
	<u>Total Nos</u>	<u>% of Total</u>
1. <u>Infective Parasitic</u>		
Intestinal Infections: Diarrhoea dysent. Infective Hepatitis	51	
Malaria	43	
Measles, whooping cough, chicken pox, Tuberculosis	41	
Yaws, Helminthiasis	30	
Gonorrhoea and others	8	
Hookworms	8	
	<u>181</u>	36.2
2. <u>Disease of Respiratory System</u>		
Cough and cold	32	
Tonsillitis, sore mouth, throat	<u>18</u>	
	50	10.0
3. <u>Symptoms, Ill-defined Condition</u>		
Headaches and fever	30	
Nausea and vomiting	20	
Backache and pains	<u>13</u>	
	63	12.6
4. <u>Diseases of Nervous System, sense Organs</u>		
Conjunctivis	23	
Otitis Media	15	
Accidents and Injuries	<u>5</u>	
	43	8.6
5. <u>Disease of the Skin</u>		
Boils	11	
Scabies	<u>10</u>	
	21	4.2
Total	371	71.6

APPENDIX K (iii)

DISEASE EPISODES: MAJOR ILLNESS

<u>Diagnosis</u>	<u>Episodes during survey</u>	
Pneumonia/Bronchitis	33	
Acute Abdominal Pains	25	
Hypertension (high blood pressure)	15	
Diabetes	8	
Palpitation Heart Disease	5	
Bleeding in Pregnancy	5	
Hernia/Prostate	5	
	96	19.2
 <u>Chronic Conditions</u>		
Sickle cell anaemia	5	
Anaemia	8	
Painful menstruation	8	
Rheumatic Pains	8	
Asthma	5	
Burkit's Tumor	2	
	33	6.6
<u>Total</u>		129
		25.8
 All Illness presented	 500	

APPENDIX L

THE COMMUNITY SURVEY: NUMBERS OF ORIGINAL CELLS AND NEW CELLS

<u>Area</u>	<u>New Cell Number</u>	<u>Original number of cells</u>
Winneba	1. Sankor	82
	2. STC	12
	3. Kodjo Bedu	15
	4. Post Office Lane	41
	5. Nkwantanum	63
	6. GRA	42
	7. Asibitsir	53
	8. Ponkoekyir	121
	9. Shell	8
Dunkwa	10. Quarters	32
	11. Zongo	14
	12. Anaafo	19
	13. Kukwadu	7
	14. Kumasi Road	24
	15. Town	11
Fosu	16. Yard	21
	17. Kaasar	11
	18. Market Area	9
	19. Roman Hill	6
Abura Dunkwa	20. Enyinfra	6
	21. Post Office Square	11
	22. Asem	8
Kissi	23. Kissi North	9
	24. Kissi East	16
Enyan Abaasa	25. Anamfo	6
	26. Abaasa	9
Ofoase	27. Ofoase North	1
	28. Ofoase South	2

APPENDIX M

CENTRAL REGION COMMUNITY CO-ORDINATES

	Winneba	Dunkwa	Fosu	Abura Dunkwa	Kissi	Enyan Abaasa	Ofoase	No.	Totals % 248 houses
Dwelling Units	212								
Mud floor walls, small windows	0	5	6	.7	6	8	8	45	18.1
Plastered mud walls floor, small windows	18	12	15	11	12	7	2	72	29.0
Concrete house + windows	69	41	11	5	3	2	0	131	52.8
Bathroom in house	60	41	20	23	21	17	10	192	77.4
Communal bathhouse	27	17	12	0	0	6	0	56	22.5
Latrine in house	32	37	16	5	8	0	0	104	41.9
Private W.C.	9	3	2	3	0	0	0	17	6.8
Communal latrine	46	18	14	15	13	11	10	133	51.4
Persons per room									
3/1	21	19	10	15	13	16	10	104	41.9
5/1	31	23	12	8	8	1	0	83	33.4
8/1	35	16	10	0	0	0	0	71	28.6
Refuse-container	87	41	21	10	9	3	0	171	68.9
compost	-	-	5	5	2	4	0	16	6.4
discard	-	17	6	8	10	10	10	61	24.0

APPENDIX M (contd)

	Winneba	Dunkwa	Fosu	Abura Dunkwa	Kissi	Enyan Abaasa	Ofoase	No.	Totals %
Water supply									
Pipe borne in house	27	15	8	3	3	0	0	56	22.5
Pipe borne outside	60	40	16	15	18	0	0	149	60.0
Well	-	3	8	5	0	5	0	21	8.4
Stream/pond	-	0	0	0	0	12	10	22	8.8

APPENDIX M (i)

CENTRAL REGION PREVENTIVE ACTIVITIES IN SELECTED COMMUNITIES

	Winneba 212	Dunkwa 137	Foso 90	Abura Dunkwa 85	Kissi 73	Enyan Abaasa 65	Ofoase 52	No 714	Total %
Immunization									
None	20	10	10	11	6	9	0	66	9.2
BCG	33	30	15	12	12	6	0	108	15.1 (33.6)
Cholera	3	5	0	0	6	0	0	14	1.9
Yellow fever	0	6	3	0	0	0	0	9	1.2
Measles	45	21	18	14	11	14	0	129	18.0 (40.1)
DPT	45	21	20	11	8	6	0	111	15.5 (34.5)
Small pox	6	8	10	0	0	0	0	24	4.1
Prophylaxis									
None	13	15	6	-	8	7	0	49	6.8
antimalarials	5	3	0	10	0	0	0	18	2.5
Herbal preparation	5	5	6	8	7	11	40	82	11.4
Prayers	9	3	3	6	0	0	0	21	4.0
Charms	6	5	0	5	3	0	12	31	4.3
Use of MCH	28	12	8	6	5	4	0	63	
Health knowledge									
Yaws	0	0	1	0	1	0	1	3	.42
TB	0	0	0	0	0	0	0	0	0
Others	0	0	0	1	0	1	1	3	.42
Participation									
Local community	0	5	0	6	0	5	18	4	.50
Decimal Maker	0	0	0	0	0	0	1	1	

APPENDIX M (ii)

CENTRAL REGION: ILLNESS IN THE COMMUNITY OVER PAST MONTH

No of people inter.	Winneba		Dunkwa		Fosu		Abura Dunkwa		Kissi		Enyan Abaasa		Ofoase		Total	
	212		137		90		85		73		65		52	714		
Illnesses:																
Infective parasitic	73	10.2	40	5.6	15	2.1	14	1.9	10	1.4	8	1.12	8	1.2	168	23.5
Diarrhoea/Dysentery	12	1.6	30	2.8	19	2.6	12	1.6	12	1.6	6	0.84	13	1.8	94	13.1
Measles	10	1.4	9	1.2	18	2.5	5	0.7	8	1.1	8	1.1	3	0.4	51	7.1
Worms	14	1.9	11	1.5	11	1.5	3	0.4	5	0.7	10	1.4	4	0.5	58	8.1
Coughs/Colli	3	3.2	10	1.4	8	1.1	5	0.7	12	1.6	3	0.4	0			8.5
Guinea worm	0	0	2	0.2	3	0.4	6	0.2	3	0.4	20	2.8	4	0.5	64	8.9
Yaws	0	0	6	0.8	5	0.7	9	1.2	0	0	0	0	4	0.5	24	3.3
Systemic																
High Blood Pressure	4	0.5	0	0	0	0	1		0	0	0	0	0	0	5	0.7
Pneumonia	6	0.84	3	0.4	0		0		3	0.4	1		0		13	1.8
Hernia	3	0.4	6	0.8	7		6	0.8	2		5		11	1.5	40	5.6
Diabetes	2	0.2	0	0	0		0		0		0		0		2	0.2
Injuries-burns	7	0.4	9	1.2	3		3		6		3	0.4	4	0.5	35	4.9
No. illness	60		21		3		11		12		1		0		35	4.9
Treatment:																
Self medication																
Drugs-chemical	68		39		22		18		16		6		0		169	23.6
Herbal	20		30		12		18		25		19		32		156	21.8
Hospital	97		26		30		20		15		21		0		209	29.2
No treatment	27		42		26		28		17		19		20		176	25.0

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