THE PROVISION OF HEALTH CARE FACILITIES IN MAPUTALAND: A GEOGRAPHICAL ANALYSIS

BY

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DECLARATION

I hereby declare that this research study: *The provision of health care facilities in Maputaland: A geographical analysis*, represent my own work both in conception and execution. All the sources that have been used or quoted have been acknowledged by means of complete references.

Furthermore, it is hereby declared that the opinions and interpretations expressed, as well as conclusions reached, are those of the author and are not of the people cited and mentioned elsewhere in this document.

Amos Thembinkosi Mthembu
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DEDICATION

This work is wholly dedicated to Lindiwe, my loving wife and Nokulunga my little daughter for their love and support they have shown to me throughout this project. They are always my source of inspiration.
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ABSTRACT

This study attempts to examine the distribution and accessibility of health care facilities in Maputaland. The study is influenced by the view that for any country to be regarded as developed, it must be able to satisfy the basic health requirements of its people. For a country to be able to deliver medical services to its people, it must have sufficient medical facilities, which are affordable and accessible to its communities.

More specifically, the aims of this study are to:

(a) Determine the distribution, affordability as well as accessibility of health facilities to communities;

(b) Establish capacities and densities of health facilities, as well as the resultant quality of health care service prevalent in Maputaland.

(c) Reveal the local community’s perception of the provision of health care facilities and services in the study area.

A clustered random sampling procedure was used which yielded 400 respondents who are resident in Maputaland. The interview schedule was used to elicit the information from the population and authorities in the study area. Most of the information about the provision of health care services in Maputaland was obtained from the authorities in the four local hospitals.
The results of the study show that the facilities such as mobile clinics, and traditional healers were significantly accessible and appeared to be randomly distributed among the largest proportion of communities in the study area. However, the study also indicated that the mobile clinics, though accessible, were not available to the community all the time. On the other hand, residential clinics, general practitioners and hospitals were found to be significantly inaccessible to a larger percentage of the respondents. The study revealed that the emergency services were inaccessible to the majority of the respondents, and were also inadequately provided. Surprisingly, it was interesting to note that the majority of the respondents were somewhat satisfied with the manner in which the health care services were presently provided.

Regarding the notion of success of health care services, which are dependent on a good infrastructure and abundant natural resources and a high socio-economic level, the responds were moderately in favour of the existing situation.

The two of the main recommendations of the study are that the provision of health care services in Maputaland should be improved as soon as possible by increasing the frequency of mobile visits to communities. Secondly, respondents recommended that the building of new residential clinics, the improving of the local communication system and the infrastructure in the study area, ought to be given first priority.
CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

The provision of health care is a very important service to the national development in any country. Health is regarded as one of the development indicators that are used to assess the developmental status of a country (World Bank, 1988; Dauskardt, 1990). For any country to be regarded as developed it must be able to satisfy the basic health requirements of its people. For a country to be able to deliver medical services to its people, it must have sufficient medical facilities, which are affordable and accessible to its communities. On the whole, the accessibility of health facilities depends on their spatial efficiency. Spatial efficiency, however, is achieved when there is primacy and adequacy in the siting of health facilities which would reduce the distance traveled by the patients (Zwarenstein et al, 1991). After all, one of the main objectives in providing health facilities is that community members must be able to reach and enjoy the services provided.

It is important to emphasize that the success of any health care service in a country is directly dependent on factors such as the proper planning of the health delivery systems, their management and the adequacy of physical health facilities. These are some of the key motivating factors for undertaking a study on the provision of health care facilities in the Maputaland sub-region of KwaZulu-Natal. Health facilities tend to be better provided in urban areas
than in rural areas in South Africa. Since Maputaland is predominantly a rural area, it makes more sense to undertake this study at a place where the need for health, welfare, education and several such Reconstruction and Development Programme (RDP) activities is greatest. Without doubt the provision and development of health care services in Maputaland have a long history.

1.2 EVOLUTION OF HEALTH FACILITIES IN MAPUTALAND

Since the beginning of the twentieth century, missionaries associated with Christian churches have played an initiating role in the development of health facilities in the sub-region of Maputaland. Around 1902 the Methodist church is recorded as having established a mission station which later included a hospital in KwaNgwanase (Mountain, 1990). In 1908 Reverend Keys established the Mseleni Mission Station at Mseleni. Initially the medical work was carried out from the home of Reverent Keys and then later the hospital was built. By the end of that year the Lebombo Mountains area of Maputaland saw two hospitals being established: the Bethesda Hospital at Ubombo and Mosvold hospital at Ingwavuma. In 1917 the Threlfell Mission Station was established at Kosi Bay which also offered health services to the sub-region. Unfortunately, Threlfell Mission Hospital was later closed because of high running costs and geographical isolation.

From those early days until 1980, the missionaries administered the four hospitals: Manguzi; Mseleni; Bethesda and Mosvold. During that very year the Department of Health of the KwaZulu Government, which is now part of the KwaZulu-Natal Government, took over the administration of the four
missionary hospitals in Maputaland. These four hospitals are also responsible for health clinics that fall within the catchment area or health wards of the study area. Maputaland has a growing population of 260 000 which is highly dependent on the health services provided by these four hospitals. In spite of these existing health facilities there seems to be a growing need for additional health services of various sorts in the area. Some of these include residential clinics, mobile clinics, private paramedics and medical practitioners.

1.3 PRESENTATION OF THE PROBLEM

The studies done on the delivery of health services in South Africa (Van Rensburg and Mans, 1982; Krige, 1990; Grear, 1993; ANC, 1994a) have indicated that there is a wide disparity of provision among various communities. This disparity is not only existing on regional administrative lines but also between urban-rural dichotomies as well as white and black patients (Seftel, 1977). The result of this difference is that there is a distinct uneven progress in health services and development in such regions. More significantly, rural people tend to be more isolated from health services and facilities than urban people. The living conditions of most of the small urban communities in such regions tend to be of a better standard or quality.

Maputaland is predominantly a rural area with the same characteristics found in many remote regions of South Africa. Many of these areas have infrastructural limitations, which adversely affect the delivery of health care services. According to Vandeverre Apsey Robinson and Associates [VARA] (1989) access to amenities such as telephones, post offices, commercial shops,
supermarkets, schools and bus service is extremely limited for more than half of the population in Maputaland.

The discrepancy in the provision of health services also results from the socio-economic diversity of the South African population. The communities with low socio-economic status have low income, low levels of education, low rated occupation and poor housing conditions. These conditions seem to cause the communities with low socio-economic status to have inadequate opportunities and fewer suitable health care facilities. This situation emphasizes the need to make health services to be affordable and accessible to more people, and therefore justifies the need to investigate the provision of health facilities in the study area.

Another important problem associated with this study is its attempt to fill some of the gaps in existing policies (Larsen, 1989; Klopper et al, 1989 and ANC, 1994b) relating to the provision of health care services in the area. Considering that there is a deficiency of literary materials (Block and Koornhoof, 1979; Krige, 1990) which deal with health care issues in South Africa, this study is eminently suited to make a contribution in that direction. The study, therefore, seeks to pay particular attention to literature or studies, which deal with the provision of health facilities in the province of KwaZulu-Natal. It may be argued that the health delivery systems in rural areas, such as Maputaland, need to be revisited and investigated in the context of the Reconstruction and Development Programme [RDP] (ANC, 1994c).
1.4 AIMS OF THE STUDY

The aims of this study are to:

(a) Determine the distribution, affordability and accessibility of health facilities to communities in the study area;

(b) Establish the capacities and densities of health facilities, as well as the resultant quality of health care service prevalent within the Maputaland area;

(c) Reveal the local community's perception of the provision of health care facilities and services in the study area.

More specifically, this thesis attempts to address the following questions:

(a) How are the health care facilities spatially distributed in Maputaland?

(b) What levels of health care affordability characterize the usage and provision of facilities to communities in the study area?

(c) To what degree are the health facilities accessible to the individual community members in the area?

(d) What types of constraints are influencing the provision of health service?
(e) What are the planning and management priorities of the regional and local authorities regarding health provision in the study area?

(f) What forms and types of health problems or diseases are prevalent in the study area?

(g) What are the views and feelings of the community members towards the provision of health facilities in Maputaland?

(h) What are the prospects of health delivery opportunities in the study area?

These questions constituted the fundamental guidelines in the study of the provision of health facilities and services within the study area.

1.5 DELIMITATION OF THE STUDY

For purposes of easy analysis, the study area is delimited geographically into four existing health catchment areas or health wards in Maputaland. These health wards have four hospitals as the main service centres, and are the following: Mosvold, Manguzi, Bethesda and Mseleni hospital. In the province of KwaZulu-Natal, Maputaland is located in the North-most part of the province. It comprises the two magisterial districts of Ubombo and Ingwavuma (see Figure 1.1 and 1.2).

As reflected in its aims, the study is limited to principles of provision, distribution, accessibility and capacities of health facilities in Maputaland.
FIGURE 1.2: HEALTH INSTITUTIONS IN MAPUTALAND

Adapted from Vara, 1989.
The study does not extend itself to detailed consideration of concepts such as health services or health delivery systems. The reason is that the study accepts the health systems that are in place and does not purport to question the merits of the existing systems. Furthermore, the study regards the 'demand' of health facilities as falling outside its scope of investigation. However, some notions of 'demand' are included in some of the analyses.

1.6 DEFINITION OF TERMS

Unless there is an apparent contradiction in terms, the following operational definitions are employed in this study. These are therefore defined in a manner, which facilitates their precise and unambiguous meaning.

1.6.1 Health and Health Care
The concept health refers to a state of complete physical, mental and social well-being (Roper, 1989) of individual members of a country. Health care also relates to the proper offering and promotion of bodily and mental well-being through prevention of diseases, medical therapy and human rehabilitation. In this study the terms health and health care are used synonymously.

1.6.2 Health Services
Health services in this study refer to the performance of duties or activities relating to the promotion of health, curation and prevention of diseases, as well as human rehabilitation. The term is closely associated with health care, but also refers mainly to the delivery system of health care services in its broadest sense, at local and national levels (Roper, 1989).
1.6.3 Health Facility
As mentioned earlier the concept health refers to a state of complete physical, mental and social well-being (Roper, 1989) of individual members of a country. The term health facility in this study is used synonymously with 'health centre' and 'health institution' which refer to establishments designated to provide health care services to local communities.

1.6.4 Provision
The term provision has the same meaning with the term 'supply' of health care facilities. In this study the provision of health facilities relates more to the institutional or governmental delivery of health services, far more than the supply involving private sector and individual medical practitioners (Johnston, 1981).

1.6.5 Accessibility
The term accessibility is used here to indicate the ease or difficulty of movement between points in terms of cost, time, distance, and the related convenience (Monkhouse et al, 1983). There are various constraints, which are associated with accessibility and include political, geographical and socio-economic elements. In this study accessibility refers to the capability of health facilities being used in health care services, to provide satisfactory service delivery.

1.6.6 Geographical Analysis
Geography refers to the science of the earth and its life, which includes the description of land and the distribution of natural as well as cultural elements
as they affect the total environment. It relates to people and their cultural landscape with reference to the natural relations of these diverse elements (Stamp, 1961). The term geographical analysis therefore refers to the detailed study of human phenomena on the earth's surface as they relate to the physical sense as well as the cultural sense of human activity (Wittow, 1988). In other words, geographical analysis in this study means the study of the distribution of health facilities, which take into consideration the spatial dimension of investigation.

1.7 RESEARCH METHODOLOGY

This study is primarily a descriptive-empirical study. Descriptive-empirical studies are concerned with conditions that exist, practices that prevail, beliefs and attitudes that are held, processes that are on-going and trends that are developing (Lovell and Lowson, 1970). The methodological assumption of this study is that empirical evidence is assessed in relation to existing literary sources and theories, to reach sound conclusions. The methodology of this study deals with the selection of the sample, instrument for data collection and method of data analysis.

1.7.1 The Sample

The sample used in collecting data consisted of three groups. The first group consisted of regional planners and policy makers responsible for the administration of Maputaland. The second group included the authorities managing and working within the health facilities (hospitals and clinics)
within Maputaland. The third group was the general community members who live in the areas within the jurisdiction of health wards and rely on the health care services provided.

The sampling technique, which was followed for selecting the respondents in the third group, was a clustered random sample. The sample size was 400 members of the community. According to Behr (1988) the population from which a cluster sample is drawn, consist of clusters of which the cluster characteristics are similar while their unit characteristics are heterogeneous. The areas where the sample was drawn are similar in the sense that they are all in the rural area, yet the people who live in those areas differ widely on individual attributes, such as age, sex, home background, health and socio-economic status. Each area (population zone) in the study formed a cluster.

1.7.2 Instrumentation

The instrument used for collecting data was the interview schedule. Two sets of interview schedules were used: the self-administered interview schedule and the person-to-person interview schedule. The first schedule was administered to the officials responsible for planning and managing the health facilities. The interview schedule looked into the general information relating to health facilities. The second schedule was administered to the community members in Maputaland. It inquired about the information regarding the personal characteristics, the use of health facilities and how the local people perceived the provision of health facilities and services in the area.
1.7.3 Method of Data Processing

The analysis of data was achieved through the use of computers available within the Department of Geography and Environmental Studies at the University of Zululand. Computer programmes such as Statistical Analysis System (SAS), Lotus and Harvard Graphics were used. The SAS programme assisted in processing the frequency-tables, cross tabulations, and other statistical techniques such as correlation, and other non-parametric tests. Local aerial photographs and topographical maps were also analysed and collated to examine the evolution of the health care landscape of Maputaland.

1.8 SIGNIFICANCE OF THE STUDY

It is anticipated that this study contributes towards the planning and management of health care delivery services in the area. The study may go a long way in improving the application of the Reconstruction and Development Programme (RDP) in the Maputaland area. The ultimate goal could be the effective control and prevention of diseases in the study area.

It is anticipated that the study will make a contribution to the scarce literature dealing with health care services in South Africa and KwaZulu-Natal in particular.
1.9 STUDY DESIGN

The structure of the dissertation is organised into six chapters. Chapter One gives the introduction to the study and further clarifies and defines the terms that form the backbone of the discussion and later, the findings of the study. This chapter also put forward how and where the study was conducted.

Chapter Two focuses on the theoretical background, which forms the basis of the study. It is in this chapter that the paradigms and literary sources, which relate to the provision of health care facilities and related issues, are reviewed. This chapter further explores other studies, which have a bearing on health care matters in South Africa.

Chapter Three focuses on the spatial, locational and infrastructural settings of health facilities and their nature within the study area. This chapter leads the reader beyond the formal health sites to the informal ones within the study area, and further pays attention to the perceived participation patterns in health provision activities.

In Chapter Four the analysis and the interpretation of data is undertaken. The data is presented in the form of graphs and tables. These attempt to mirror details of the following variables: the demographic characteristics of respondents; health provision responses; authority’s management of health care facilities (hospitals and clinics); and the responses of local community members towards health care provision in specific health wards. The tables further indicate the perceptions and attitudes of local community members and officials towards health provision practices and the future of the health facilities. Data, which is in the form of tables and graphs is analysed in this chapter and interpreted to give meaning to the findings of the study.
Chapter Five gives the summary, conclusions and recommendations of the
study. The study draws conclusions from the empirical findings and puts
forward some recommendations based on health care delivery patterns. It also
gives the significance of the inquiry counterbalanced by existing literature and
proposes the need for further research in the field.

1.10 CONCLUSION

This chapter has attempted to outline some of the fundamental procedures and
methodologies followed in investigating the provision of health facilities in
Maputaland. It has shown the sampling method as well as the method of
collecting and analysing data. It is also hoped that this study will make a
valuable contribution towards setting up a participative planning and
management structure, which will assist in the delivery of health facilities in
Maputaland.

*********
CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter attempts to review the literature associated with the field of community health care and services as well as medical geography. The first part of the presentation deals with the main traditions of medical geography and then proceed to the evolution of medical geography. The second part deals with the factors, which affect health. The last part reviews the literature, which focuses on the South African health care delivery systems.

2.2 TRADITIONS OF MEDICAL GEOGRAPHY

The area of the discipline of medical geography has two distinct paradigms. One paradigm is the geography of disease, which is rooted in the tradition of disease ecology. The other paradigm is the geography of health care, which is about the spatial location, distribution, accessibility, and utilisation of health care delivery (Joseph and Phillips, 1984). Most of the medical geographers such as Philip and Verhasselt (1989) and Daukardt (1992) have shown some dissatisfaction with this division of medical geography into two traditions. They have agreed that there is a need for medical geographic research to follow an integrative approach between these traditions.
2.2.1 The Geography of Disease

The geography of disease is also known as geographical epidemiology or disease ecology. It is traced back to the work of Hippocrates (Mayer, 1982). The main focus of this paradigm is the analysis of spatial variations in mortality and morbidity and search for environmental and social conditions, which cause these variations (Curtis and Taket, 1996). The geography of disease is also concerned with the application of formal geographical theories in the analysis of the distribution of disease. The example of such theories is the formal diffusion theory used by Haggett (1976) where seven alternative models of an epidemic diffusion process were compared in the study of the distribution of measles. Hägerstrand (in Haggett, 1979) pioneered the phenomenon of spatial diffusion. A similar approach was used by Kwofie (1976) who demonstrated the applicability of spatial concepts and methodology to the problem of understanding the dynamics of cholera diffusion in western Africa. Mayer (1982) has identified two approaches within the geography of disease. The first one is the ecological approach, which seeks to determine the mutual influences of the environment, culture and disease. The second one is the locational approach, which is rooted in the spatial tradition of geography (Pattison, 1964; 1990). This approach is concerned with the identification of the location and distribution of disease. The related, analysis therefore, determines the structure of disease pattern within a particular area. Both approaches contribute to the understanding of disease dynamics and at the same time help to minimise the effects of diseases (Mayer, 1982).
Most of the medical geographers such as Cliff and Haggett (1988) who fall in this tradition employ cartographic methods when they determine the spatial patterning of disease and death. The medical cartographical studies provide a description of the location of deaths and diseases across space. The geography of disease paradigm is linked to environmentalism in mainstream geography (Curtis and Taket, 1996).

2.2.2 The Geography of Health Care

The geography of health care is comprised of all formal or informal activities, which are concerned with the provision of health care and the prevention of diseases. This component includes studies of formal health service organisation, provision and use as well as studies of the voluntary and informal sectors (Curtis and Taket, 1996). The main emphasis in this paradigm is the analysis of equity and accessibility of health services. Curtis and Taket (1996) have identified three components which fall under this paradigm. The first component includes studies of the structure and spatial patterning of health care facilities. This involves the use of cartographic techniques. The second component deals with studies which identify patterns of inequality in the provision of health care services. The third component deals with the manner in which the patients utilise the health care facilities. These studies also focus attention on the factors which influence the patients’ decision making when they choose the health facilities which they want to utilise (Ingram et al, 1978).
2.3 CONTEMPORARY MEDICAL GEOGRAPHY

The two paradigms of medical geography which have been discussed above are labelled as traditional medical geography because they stand at the roots of the identification of the sub-discipline as a distinct field of knowledge and enquiry (Curtis and Taket, 1996). They are linked to positivism in the main stream of geography because their approach aims to account for observed phenomena by the development of laws based on empirical regularities (Jones and Moon, 1987) and their adherence to the application of quantitative methods. The developments which occurred in medical geography have caused the paradigm shifts from traditional medical geography to contemporary medical geography which make use of qualitative methods. There are three distinct approaches found in the contemporary medical geography. These are humanistic approach; structuralist or materialist approach and the cultural approach (Curtis and Taket, 1996).

2.3.1 Humanistic Approach

Studies in medical geography have been influenced by humanistic approaches, which are widely used by main stream human geographers who emphasise that geographic knowledge can be acquired through human experience, intuition and behavioural procedures. Many of the studies in this category examine human awareness and creativity in searching beliefs about health-related behaviour and service utilization (Curtis and Taket, 1996). Usually an ethnographic approach is used which is coupled with the use of the in-depth interviews to examine the perceptions of people towards health related
services. This approach enables medical geographers to interpret health-related issues in terms of human experience.

2.3.2 Structuralist or Materialist Approach

The structuralist approach, also known as the materialist approach, draws different types of social theories into the field of health care delivery. Medical geographers who fall under this category have been influenced by welfare approaches propagated by mainstream human geographers such as Smith (1977) who emphasised the importance of health and welfare services in improving the quality of life. This approach explores the role of political and socio-economic processes and how they produce disparities in the distribution of health resources. One example of such a study is by Knox (1981) on the changes in the distribution of pharmacies in Scotland, which was brought by the processes of centralisation. The changes in the distribution of pharmacies led to the decline of the number of dispensing chemists' shops by 40% from 1950 to 1980. It was found that pattern of change in the distribution of pharmacies was not in line with the patterns of population change. The changes in the distribution of pharmacies had spatial welfare implications as the level of physical accessibility to pharmacies was dramatically reduced. The welfare implications of that scenario include the increase of time and the cost involved in travelling to pharmacies.

According to Curtis and Taket (1996) the welfare approach is concerned with the interactions between individual agency, structural and material constraints in the shaping of people’s experience of health and services. The
structuralists suggest that the only remedy for health problems is to change the structure of the society.

2.3.3 Cultural Approach

The studies under this approach have been influenced by cultural geography, which show the importance of space and place to individuals and their health (Curtis and Taket, 1996). The different settings of the environment may result into different therapeutic processes. Such settings of the environment include the sense of place, symbolic landscapes and territoriality. According to Gesler (1992) physical attributes of the treatment room, the thinking of the patient, and the relationship between the patients and the doctors play a role in the understanding of the healing process.

2.4 THE FIELD OF MEDICAL GEOGRAPHY

Medical geography is one of the relatively new and young sub-fields of geography, which is fast becoming popular. The field of medical geography has diversified itself into other special fields such as health care and community health. This section therefore gives a brief review of the elements and evolution of medical geography.
2.4.1 Elements of Medical Geography

The development of geography as a discipline in the last century has passed through a variety of approaches. These approaches have determined the methods and the manner in which geographic knowledge has been acquired. From the period between 1850 and 1940 geography was dominated by environmental determinism which emphasised the control of environment over man. There were other approaches, which followed environmental determinism, such as probabilism, positivism and phenomenology. Environmental determinism was one of the approaches which formed the basis of the tradition of disease ecology in medical geography as it studies the relationship between the pathological factors and geographical factors. The occurrence of most of the diseases is related to the physical environment (Pyle, 1969; Masako-Momiyama, 1978; Woods, 1979).

The study of human diseases involves a variety of approaches within the social sciences (Pyle, 1976). These social sciences include medical sociology, cultural anthropology, economics and history. All these social scientific approaches have relied upon the principles of spatial analysis in studying the human health problems. May (1950) who is one of the pioneers of medical geography has classified the pathological factors into causative agents, vectors, intermediate hosts, reservoirs and man. The geographical factors are classified into physical, such as climate and relief, social, such as population density and biological such as animal life on earth and in water.
As medical geography studies the man-environment relationship which is changing over time, the pattern of diseases also change over time. This has been evidenced by Momiya-Sakamoto (1975) who investigated the various aspects of seasonality in human mortality in Japan. It was found that as societies became more industrialised and more complex, it becomes impossible to attribute certain aspects of diseases to the natural environment.

2.4.2 Evolution of Medical Geography

Prior to the period of 1950's there were few attempts made which were aiming at understanding the spatial nature of human health problems in the field of medical geography (McKinley, 1935; Light, 1944). The study of McKinley (1935) was innovative and made a notable contribution to the field of medical geography, particularly where the tropically influenced diseases and some diseases related to temperate climates were identified.

Light (1944) described the processes of medical geography and put forth the suggestion for an atlas of disease, which would demonstrate the magnitude of the problem. The study which was conducted by May (1950) marked the turning point in the field of medical geography where the environmental influences on health were segmented into inorganic, organic and socio-cultural categories. Inorganic environmental influences included climatic factors such as precipitation, temperature, and humidity, which contribute to the risk of attracting diseases. Organic environmental influences included factors such as
plants and animals. The socio-cultural factors refer to the various aspects of behavior in human culture, which affect human health.

Around 1970's the emphasis was focused on the identification of overlapping conceptual approaches to various aspects of the geography of human health problems (Pyle, 1976). These approaches were environmental, genetic, epidemiological, behavioral and socio-economic in their outlook. For example the human health problem was viewed as an outcome of environmentally determined factors which are interacting with genetic, socio-economic and behavioural factors. The above mentioned approaches to the study of disease can be viewed as subsets within the larger field of medical geography (Pyle and Rees, 1971).

The field of medical geography is very diverse as it draws knowledge from a number of disciplines within the social sciences. These disciplines include cultural anthropology, economics, social psychology and history. Cultural anthropology enables the medical geographers to understand the effects of human customs in the distribution of diseases. Economics deals with the principles of marketing health services and the analysis of cost effectiveness of health related activities. The historian deals with the historical accounts of diseases and epidemics. It is important to note that all these social scientific approaches use the principles of spatial analysis.

As the society changed, so have the approaches to the study of the spatial aspects of the human health problems. Pyle (1976) has illustrated this point by showing the trends in the spatial study of human health problems as reflected in
the North American geographical literature of the 1960's. It is stated that the disease, which can be best explained through epidemiological methods at one point in time, may first shift to an overlapping of epidemiological and sociological explanations. The approaches to the study of a disease may continue shifting to such an extent that the approaches, which were appropriate 25 years ago, may not now help in developing a full understanding of health problems.

The environmental approach seems to dominate in the literature of medical geography. This approach advocates the association of diseases with the environmental factors. The classical example is the study of Mayberry and Hitchens (1978) which investigated the distribution of Crohn's disease in Cardiff. The study found that the cases of Crohn's disease were concentrated geographically in some areas, which were along the course of the river Taff. Higher concentration of the cases with Crohn's disease was found near the source of the river than its mouth. This study sheds more light on the idea that proximity to the river is related to the disease. Roudy (1976) found that in Ethiopia the altitudinal mobility of people exposed them to an epidemiology of communicable diseases. He also conducted another study, which aimed at determining the association of diseases with environmental factors. The study made new and interesting revelations about relationships between diseases and health, relative to the environment. It became evident that environmental location has strong influences on health patterns of specific areas.

While some environmental factors are associated with the distribution of disease, it has been established that distribution of diseases also influence the
settlement pattern. This idea was demonstrated by Kovacik (1978) who found that the risk of malaria strongly influenced the settlement pattern in South Carolina where people moved away from the coastal areas to better drained areas with sufficient wind.

2.5 TRADITIONAL MEDICINE

The two systems of health, which co-exist in most of the countries, are biomedicine and traditional medicine. According to Good (1987) traditional medicine is pre-scientific and ethnic. It is derived from diverse cultural, social and philosophical backgrounds as well as from different historical periods. On the other hand, the biomedicine is modern, scientific and derived from the western culture. Various names have been used to denote traditional medicine such as alternative medicine (Salmon, 1984) and complementary medicine (Curtis and Taket, 1996). It has been mentioned that the research focusing on traditional medical issues is very lean because medical geography has been conceptually bound to the problems defined within a biomedical framework (Good, 1987). This situation results in the lack of knowledge of geographic dimensions of traditional medicine and the patterns of use of such facilities. Geographic dimensions include the spatial distribution of traditional medical facilities and the underlying spatial structures and processes affecting the provision of health care services. Another constraint facing the operation of traditional medicine is the lack of government support in many countries, with the exception of India and China, though supports in these two countries are regarded as inadequate (Learmonth, 1988). The government support offered to traditional medicine in India and China includes the introduction of regulation
for licensing, financial support provided for training research, recognition of cultural roots of traditional medicine and efforts aiming towards preserving them as cultural heritage (Curtis and Taket, 1996).

Anyinam (1990) has classified the types of alternative medicine into comprehensive systems, dietary therapy, meridian therapy, manipulation and muscle retaining and psychotherapy and counselling.

Good et al. (1979) have illustrated the problems experienced in the provision of health care services in Africa. These problems include high economic costs of training doctors, a number of doctors who do not practice in their own countries, the high demand for health care services which is insatiable, and imbalances which exit in the provision of health care services between urban and rural areas. These problems result in the failure of the governments in adequately meeting the health care needs of people. It is in view of these problems that Good et al. (1979) have proposed integration of traditional medicine into the modern health system so as to produce a synergistic outcome that will maximise the use of scarce financial resources.

The study by Techatraisak and Gesler (1989) indicated that even in countries where traditional medicine is well-established problems are also experienced. This study analysed the locational characteristics and accessibility of the Thai and Chinese traditional medicine in Bangkok, Thailand. The researchers found that the distribution of traditional medical facilities indicated patterns similar to most of commercial enterprises and biomedical facilities. However, their growth pattern could not keep pace with the rate of population growth in the
city. Another complicating problem found in this study was that traditional medicine is declining in Bangkok in the face of competition from biomedicine.

Anyinam (1990) has demonstrated the need for medical geographers to consider the alternative medicine as an important component of health care delivery. The study of alternative medicine can help in providing the information on the patterns of use of different forms of alternative health care facilities and their spatial distribution.

2.6 HEALTH AND SOCIETY

The various forms of medicine are known to play an important part in shaping society. Alternatively, various demographic characteristics of society also play a role in determining the health status of a community. In other words, social factors are fairly good indicators of the types of diseases that can be contracted by a community. It therefore goes without saying that the more educated societies, with higher socio-economic levels, will have better health delivery systems.

2.6.1 Health and the Human Environment

The human aspects of the environment such as socio-economic conditions, housing conditions and lifestyles play a significant role in the distribution of diseases and mortality. As an example we find that low income families stay in cheaper houses which are characterised by over-crowding, poor ventilation, air
pollution, inadequate water and sanitation. These conditions are conducive for development of acute and infectious diseases.

The effect of the human environment on health is illustrated by Smith (1978) who demonstrated the role of the neighbourhood in community recuperation of mental patients in the areas within the health ward of Ypsilanti State Hospital. This study showed that the characteristics of the neighbourhood such as family and living situation, housing density and overcrowding contribute to the overall therapeutic nature of the community outside the hospital. Residential neighbourhoods differ greatly in their characteristics. Some neighbourhoods, which had overcrowded families and high housing density, were found to be stressful. This tended to add to the problems of adjustment of the mental patients to the environment. The neighbourhoods, which were characterised by less overcrowded families as well as low housing density, were found to be peaceful and helped to create a therapeutic community.

2.6.2 Health and Migration

The movement of people across the international borders has an important implication for the distribution of diseases (Prothero, 1977). Migrant labour in the mines constitutes a larger percentage of the labour force in South Africa, which come from Lesotho, Botswana and Swaziland. According to Van Rensburg and Mans (1982) the migrant labour system constitutes a very serious contribution of infectious and contagious diseases in South Africa. Jochelson et al (1991) have indicated the manner in which the migrant labour system is affecting the geographic and social spread of HIV-AIDS.
On the other hand the outcome of rural-urban migration is that many poor migrants from rural areas settle in the periphery of towns, forming the shack areas. These slum areas are characterised by the lack of health facilities and poor sanitation. These peri-urban settlements constitute a transition belt between towns and rural areas in terms of disease pattern (Prothero, 1965; Phillips and Verhasselt, 1989). The migrants bring ailments with them to the urban areas and at the same time become exposed to urban health problem such as water and air pollution. When these urban migrants arrive in rural areas they experience a lack of proper health facilities, and therefore are forced to go back to urban areas to get better health services.

The effect of migration on health has been demonstrated by Appleton et al (1996) when they identified possible public health consequences of *schistosoma mansoni* infections among migrants entering North-eastern KwaZulu-Natal, Mpumalanga and Northern Province from southern Mozambique. Appleton’s study has shown that the *schistosoma mansoni* prevalent among immigrants entering North-eastern KwaZulu-Natal might have public health implications as it could be transmitted to non-endemic areas. It became evident that a simple process of migration can have a synergistic effect in the lives of people who live in the non-endemic area. One example was the public health implications which would be further complicated by the rice paddy scheme which is developed at the Makhathini Flats (KwaZulu-Natal) as it is likely to create habitats suitable for the proliferation of *biomphalaria pfeifferi*, the snail host of *schistosoma mansoni*. Hunter et al (1982) have shown that the construction of man-made lakes in Africa, Asia and Latin America has led to the changes in the
ecosystems in the surrounding areas which finally aggravate health risks in the people. The health risks include *schistosoma mansoni* infections and malaria.

Osmond *et al.*, (1990) have shown that the effect of the initial environment in the health of the people persists even if the people migrate. This particular study used the sample of two million deaths drawn from England and Wales. Half of this sample consisted of the people who migrated from the place where they were born. It was found that the people born in Northern counties and in Wales had an increased risk of heart disease, which persisted whether or not they had moved to other parts of the country. In the study by Bentham (1988) where data on self-reported morbidity from the 1981 Census for Great Britain was used, it was found that migration also affected population health status in both areas of origin and destination. For example, the study showed that the mobility patterns of older people led to higher mortality and morbidity in areas with more and better medical service. As a result the population health status of the area of origin will rise whereas in the area of destination it will decline. It was also found that the areas of net out-migration of young and healthy migrants became characterised by less healthy population whereas the areas of net in-migration were be characterised by more healthy population.

From Bentham’s (1988) point of view it can be established that migration is a significant source of error in geographically based studies of the associations between diseases and the environment. This error can be misleading when the real environmental causes of disease are determined.
2.7 SPATIAL MEDICAL GEOGRAPHY

The field of medical geography has become important because of its capacity to relate medical issues of health and diseases in space or on maps. The advances in electronic mapping, such as geographical information systems [GIS], have contributed to the popularity of medical geography.

2.7.1 Mapping of Diseases and Mortality

The mapping of diseases and population mortality has been one of the main activities of Medical Geography (Jones and Moon, 1991; Dauskardt, 1992). The atlas of disease distributions by Cliff and Haggett (1988) is an example of this contribution. Mapping is an efficient means of portraying and communicating spatial data. Disease mapping helps to reveal environmental causes and to detect patterns of environmental effects. It is suggested that in order to obtain a maximum benefit of the spatial analysis of disease and mortality there are problems that need to be overcome (King, 1979). These problems include the choice and the applicability of measures of a disease, difficulties in representing the distribution of rates over space, the problems arising from auto-correlation and the problems of latency and migration which complicate the clear identification of potential causes of illness.

Mapping techniques can be used to show the spread of diseases such as the study by Wilson (1993) which used the historical population records to construct maps showing the spread of smallpox mortality among villages in Finland. Computer for the same villages simulated the diffusion of smallpox
morbidity. After comparing two maps, it was found that the maps of mortality diffusion showed general trends but had no direct spatial correspondence to underlying patterns of morbidity diffusion. The study shed some light on the fact that mortality maps cannot be used as a surrogate measure of infectious contact behaviour at micro scales of analysis.

With the development of Geographical Information System (GIS), the mapping of diseases and mortality has been made with little effort as this system is able to integrate the storage, management, analysis, modelling and mapping of digital spatial information (Blackemore, 1986). The GIS techniques is used in various aspects of medical geography such as the planning of health care facilities (Curtis and Taket, 1989) and to determine the distribution of hospital catchment areas and the number of people per hospital bed using the Theissen polygon analysis (Zwarenstein et al., 1991). While the benefits of GIS in medical geography cannot be underestimated, it is important to note that these benefits depend upon the availability of spatially referenced data which is accurate and up to date (Twigg, 1990).

2.7.2 Place, Space and Medical Geography

The importance of place in geography has been emphasised by Tuan (1974) where he described the consciousness people have of places which hold a special significance for them. This consciousness of place relates to home where people potentially feel in place rather than displaced (Porteous, 1976). According to Kearns (1993) the firmer the links between people and place, the more places satisfy the basic human needs for roots. Medical geography on the
other hand relates human diseases, culture and environment. The importance of linking place and health in medical geographic research has been emphasised by Kearns (1993). The main reason behind this move is that the health care centre provided to the community can give both positive and negative experience of place. This experience depends on whether the health centre contributes positively or negatively to the sense of place in a community. An argument by Kearns (1993) is based on the study conducted in Hokianga, which is one of the medical areas in New Zealand. Apart from using the medical areas for medical purpose, people used the medical centre in Hokianga for social interaction. It was found that the non-medical well being of the area was positively enhanced by the nature of health care provided.

There is a need for medical geography to maintain an active participation in analysing the links between health and place. Kearns (1993) maintains that without these links between health and place the medical geography would remain an unnecessarily placeless endeavour. A reformed medical geography must be seen to analyse the role of health care in contributing to the experience of place and adopt a place-centred approach (Kearns, 1993). Medical geographers such as Mayer and Meade (1994), and Dorn and Laws (1994) have not accepted Kearns’s (1993) approach to reformed medical geography. The main criticism stems from the fact that Kerns (1994) neglected the major traditions of medical geography such as disease ecology and the geography of health (Mayer and Meade, 1994). According to Dorn and Laws (1994) Kerns’s reformed medical geography approach ignores the possibilities proposed by advances in social theory which push the discussion of structure and agency beyond its static dualism. Dorn and Laws (1994) suggest that a truly reformed
geography should move a step further than that proposed by Kerns (1994) by considering the role of new health-based social movements in shaping the experiences of places. When medical geographers ignore the struggle of the social movements (such as environmental movements who help in solving the health-related problems) they will be missing the lessons of the social theory.

Jones and Moon (1993) have emphasised the important role of local place in the planning of health care system. This suggests that when policy makers formulate policies they need to ensure that the policies are related to specific local places rather than being general. This emphasises the importance of geography in the health care delivery. According to Jones and Moon (1993) the role of local place in the planning of health system will be achieved by making research in medical geography sensitive to the differences of local area and be comprehensive enough to understand the complex forces that operate at local level.

2.8 MEDICAL GEOGRAPHY IN SOUTH AFRICA

The literature focusing on studies by South African geographers on disease and health care is very lean, (Dausskardt, 1992). There are few of the studies, which were done by geographers such as Zietsman (1989); Dauskardt (1990a, 1990b, 1992) and Govender (1992). Most of the studies in medical geography have been conducted by non-geographers from various fields of study such as medicine (Pitchford, 1981; Rose and Fellingham, 1981; Botha et al, 1988; Cooper et al, 1991a, 1991b; Von Schirnding and Aucamp, 1991; Von Schirnding et al, 1991; Yach et al, 1991; Zwarenstein et al, 1991; Appleton et
al, 1996), sociology (Mills 1988a, 1988b; Gaigher et al, 1995), psychology (Edwards, 1986; Pillay, 1995) and anthropology (Ngubane, 1977; Simon, 1991). The state of the South African medical geography literature, which is reviewed, covers various aspects of health care delivery systems. Some of these aspects include: the effect of political and socio-economic factors on health; health and development matters; factors affecting the distribution of diseases in South Africa; traditional medicine in South Africa and planning for health care services.

2.8.1 Political and socio-economic factors

The role of political and socio-economic factors in the health care delivery is very important. The researchers who deal with the distribution of diseases may leave a lot of uncovered issues if they do not give attention to the socio-economic and political processes underlying the conditions of the environment (Dauskardt, 1992). Medical geographers have been challenged for divorcing health matters from their political and socio-economic context (Dauskardt, 1990b). The few studies which have paid attention to the role of political and socio-economic factors which affect health care provision in South Africa were conducted by Seedat (1984), Thurshen (1986) and Botha et al (1988). These studies determined the effect of the South African Government policy on health care services during the period of apartheid. Botha et al (1988) have recognised that the role of social, economic and political factors in determining the public health policy is larger than epidemiological principles. It is expected that such theoretical findings are likely to have an important influence on this reach project in Maputaland.
The study of Seedat (1984) showed how health care services were delivered in South Africa during the apartheid era. This study illustrated that the inequalities in the provision of health care for different race groups in South Africa where whites enjoyed one of the highest standards of health care while blacks' health care services were impoverished and overcrowded. The findings of Seedat (1984) concur with the case study of Turshen (1986) which was based on health and human rights in the Ciskei, a Bantustan that became 'independent' of South Africa in 1981. It was found that the South African Government policy of Bantustans subjected the population of Ciskei to involuntary removals, overcrowding, gross violation of human rights, deprivation and widespread malnutrition. Botha et al, (1988) recommended that the problem of maldistribution in health needs and services imposed by the policy of apartheid needed to be eradicated by fundamental political change. Another example of the influence of political factors in the health care delivery was highlighted by Gaigher et al (1995) in the study of community health workers who were working for the Venda care group. It was found that one of the political constraints which prevented the community health workers from performing well was the fact that they were faced with an unequal and fragmented health care system which was implemented by the South African government. This fragmented health care system precluded an integrated approach to community health. These studies illustrate that health care delivery services do not develop and operate in a social vacuum. However, these systems seem to be controlled and determined by the economic and political framework in which they are found (Dauskardt 1992). Such literary findings have important implications for
this research study. It is anticipated that such socio-economic and socio-cultural factors will play a role in influencing the results of this study.

2.8.2 Distribution of diseases

The studies on patterns of disease and related health services have recognised that certain geographical features influence the distribution of diseases (Rose and Fellingham, 1981; Zietsman, 1989). The study by Rose and Fellingham (1981) which examines cancer patterns in Transkei found similarities in geographical distribution of oesophageal and oral cancer in both sexes, which suggest a common risk to both sexes. The high incidence of oesophageal cancer was attributed to Xhosa practice of pipe smoking. On the similar score Zietsman (1989) investigated the relationship between the distribution of dental fluorosis in the Odi-1 district as well as excess fluoride content in local drinking water caused by geological factors. Although the study found a weak positive correlation between the fluoride content in water and the fluorosis occurrences parameters, it emphasised the importance of more careful attention to the spatial distribution of environmentally causative factors (Dauskardt, 1992).

Some studies, such as Pitchford (1981), have sought to reveal existing relationships between the weather and local diseases. Pitchford (1981) used three indices of temperature (monthly mean of the daily maximum, the monthly mean of the daily minimum and the monthly range) to determine the temperature regimes suitable and those unsuitable for the transmission of *schistosomes* in South Africa. The study found that lower temperature levels and high mean daily temperature ranges limited the distribution of *schistosomes*. 
Social processes like migration also form one of the main focuses in some studies, which determine the distribution of disease. One example of such studies is the one conducted by Appleton et al (1996) which determine the role of migration on the distribution of *schistosoma mansoni* in the North-eastern KwaZulu-Natal.

There are studies which place emphasis on the human aspects of the environment such as socio-economic characteristics, urban conditions and lifestyles. For example, Von Schirmding et al (1991) examined the impact of environmental risks factors associated with housing in relation to diarrhoea disease and acute respiratory symptoms in South African coloured children. The study found that absence of an inside toilet, not having a refuse receptacle, and overcrowding were important risk factors for diarrhoea disease. The important risk factors for acute respiratory symptoms were absence of electricity for heating purposes and not having a refuse receptacle.

2.8.3 Health and Development

For health care delivery services to succeed, it is important to combine them with community development programs. This has been illustrated by Gaigher et al (1995) in the case study of the Venda care group organisation. Apart from doing health care delivery services, the community health workers in the Venda care group were also involved with community development at grass-roots level. Community development helps in creating the environment that can enable the community members to improve their health status. Similar ideas were put forward by Mills (1988a) in the study of the occurrence of gastro-
intestinal disease in Maputaland, where it was suggested that any intervention to improve the health status of the people of Maputaland should be coupled with the overall development program.

2.8.4 Traditional Medicine in South Africa

Prior to the introduction of western medicine in South Africa, there were several systems of traditional medicine, many of which are still in existence. According to Ngubane (1977) traditional medicine in South Africa is divided into two main divisions, namely the divining and herbalism. Edwards (1986) has added the faith healer as the third division of traditional medicine. The diviner is usually a female and operates within traditional religious supernatural context as an accepted medium with the ancestral shades (Edwards, 1986). In most of the cases the diviners do not prescribe medicine. The herbalist specialises in herbal medicine (Dauskardt, 1990b). The faith healer operates within a Christian framework. Edwards (1986) has examined the relationship between traditional and modern medicine. It was found that there were significant agreement in diagnosis and treatment of patients despite the fact that the two medical systems operate from different theoretical orientations.

On the usage of traditional medicine Mills (1988b) found that people used the multiple therapeutic routes in the management of illnesses. The therapeutic routes included self-treatment, traditional medicine and biomedical options. In severe illnesses it was found that the therapeutic management was costly for the community to manage. Dauskardt (1990a) has stressed the importance of traditional systems in health care delivery, which need to be taken into
consideration in the development of policy. On the other hand Cunningham (1989) analysed the industry of traditional medicine and found that the success of herbal medicine trade results in depletion of medicinal plants.

2.8.5 Planning of Health Care Facilities

The role of planning of health care delivery services cannot be underestimated. The literature exist in South Africa under this topic deals with the use of geographic information systems (Hambridge and Krige 1991; Krige and Fincham 1991; Zwarenstein et al 1991) and the problems and benefits of decentralisation of health care services. These studies give some guidelines in the planning of health care services so that they become more accessible to the community.

2.8.6 Urbanisation and Health

When uncontrolled and unplanned urbanisation occur health conditions deteriorate. This pattern of urbanisation is common in most of the South African cities and such areas are characterised by poor sanitation, overcrowding and pollution. The South African literature covers various aspects of urbanisation and health, such as the effect of urbanisation on women’s health (Cooper et al, 1991a; 1991b) and the environmental health hazards of urbanisation (Yach et al, 1991; Von Schirnding and Aucamp, 1991).
2.9 CONCLUSION

This chapter has attempted to review the literature on medical geography. The first theme dealt the general literature of medical geography, which covered various aspects such as traditions of medical geography, approaches used in medical geography, elements of medical geography and traditional medicine. The second theme dealt with the literature of South African medical geography systems. It has been highlighted that the literature of South African medical geography is very scanty and needs to be augmented in some way. It was observed that a substantial number of the contributions come from non-medical geographers. This research study is therefore attempting to make a contribution in that very field.
CHAPTER 3

LOCATION AND INFRASTRUCTURE IN MAPUTALAND

3.1 INTRODUCTION

In this chapter an overview of the physical setting and related components of the study area is depicted. The location and infrastructure of Maputaland is described so as to better understand some of the inherent climatic and physiographic features playing a role in influencing the health, disease and mortality condition of the area. In the previous chapter it was argued that certain geographical features have been recognised to influence the distribution of diseases and health services (Rose and Fellingham, 1981; Zietsman, 1989). This chapter is therefore aiming at setting the scene for further presentation and analysis of that argument.

3.2 RELATIVE LOCATION OF MAPUTALAND

Maputaland region is found in the north-eastern area of KwaZulu-Natal province. This area is approximately 8300 square kilometres (DBSA 1991) which covers two magisterial districts, namely Ingwavuma and Ubombo (Figure 1.1). The region of Maputaland is bounded by Mozambique border in the north (26° 52'S), Swaziland in the west (32° 00'E), the northern shores of St Lucia in the south (27° 55'S) and the Indian Ocean in the east.
Maputaland can be regarded as the most north-easterly region of South Africa. It is approximately 600 kilometres north of the Durban Metropolitan Area, which is the main urban, commercial and industrial centre of the province of KwaZulu-Natal. Durban is also regarded as the medical and health core-area of the province, and therefore, supplied both medical facilities and expertise to the outlying regions such as Maputaland.

3.3 GEOGRAPHICAL FEATURES IN MAPUTALAND

There are a myriad of variable geographical features and elements that can be associated with medical geography. A few of these are directly important for an area such as Maputaland, and these are the ones that are presented in this section. The geographical features selected for this section cover the following: the climatic conditions, geomorphological landscape, vegetation, animals and the distribution of water resources in Maputaland.

3.3.1 Climatic Conditions

Maputaland is subtropical in climate with an erratic rainfall occurring mainly during summer months (Taylor, 1988). The rainfall varies according to ecological zones where the highest rainfall occurs in the coastal zone and the lowest rainfall is found in the Pongola flood plain (Appleton, 1977). The mean annual rainfall for Lebombo zone is 650-850mm, 550-650mm in the Pongola flood plain, 600-700mm in the Sand forest zone, 700-750mm in the palm veld zone, 750-850mm in the coastal lake zone and 850-1050mm in the coastal zone (VARA, 1989).
The area has high temperature and humidity levels. According to Thorton­Smith et al (1978) the mean daily temperatures in the coastal areas are between 24°C and 25°C and more than 25°C in the Lebombo zone. The climate of Maputaland varies from moist subtropical in the coastal zones to moderately dry subtropical inland western zones (Maud, 1980). When the Köppen climatic classification system was used by Schulze (1947) it was found that the climate of Maputaland is a tropical savanna type with summer rainfall and the application of Thornthwaites system reveals that Maputaland is a sub-humid warm climate region with sufficient moisture in all seasons.

3.3.2 Geomorphological Landscape

The geomorphological landscape of Maputaland is the same with minor variations in altitude and landforms according to the ecological zones. The present low-lying coastal peneplain was exposed by the regression of the sea during the late Pliocene or early Pleistocene (King, 1979). The Lebombo zone consists of rolling plateau with steep mountainous flanks formed by the volcanic rocks. The altitude of the Lebombo zone ranges from 300 to 600 metres. The Pongola flood plain consist of gently sloping stepped topography formed by alluvium sediments with altitude which ranges from 60 to 120 metres. The sand forest zone consists of well-drained aeolian sand, which form the gentle undulating ridge rising to an altitude, which ranges from 70 to 130 metres. The palm veld is a low-lying zone consisting of poorly drained sands, which form gentle slopes. The palm veld and the Mozi swamp was once a shallow waterway that linked Delagoa Bay with St Lucia via
FIGURE 3.1: MAJOR MORPHOLOGICAL ZONES IN MAPUTALAND

Key

- < 50m
- 50 - 100m
- 100 - 150m
- 150 - 300m
- 300 - 600m
- < 600m

Mkuze swamp (Mountain, 1990). It is believed that this waterway was once an earlier coastline of the retreating sea during the Pleistocene. The altitude of the palm veld zone ranges from 50 to 80 metres. The coastal lake zone consists of both well and poorly drained sands with altitude ranging from 50 to 90 metres. The coastal zone consists of rolling sand dune topography, which ranges from 0 to 90 metres above the sea level. The geomorphological landscape of Maputaland is shown in the map in Figure 3.1.

3.3.4 Vegetation and Animals

The vegetation of Maputaland varies according to the ecological zones, which are characterised by the distinct patterns of climate and soils. It is important to note that prior to 1950's the vegetation of Maputaland was in a very good condition. Local people lived in harmony with the environment (Moll, 1980). After the 1950's the survival of the vegetation of Maputaland was threatened by a number of development projects. Some of these included:

- The afforestation of pines at Manzengwenya and Mbazwana, which affected the hydrological balance (Tinley, 1971);
- The physical planning and development infrastructure, such as the improvement of road network and the building of the Jozini dam on the Pongolo river; and
- The coconut plantation scheme at Kosi Bay which affected the coastal grassland (Moll, 1980).
Moll (1977) has classified the vegetation of Maputaland into thirteen major types. In the coastal zone there is a dune forest. In the Lebombo zone we find the Lebombo bushveld, Lebombo forest, mixed bushveld, thicket and red-sand bushveld. This zone has the variety of animals, which include the blue duiker, and red rock hare.

Pongola zone has the flood plain vegetation which consists of the fig tree, Natal mahogany, water berry, and tassel berry. The animals of the Pongola zone include the crocodiles, hippos, duiker and fish. The flooding of the Jozini dam has disturbed the ecology of the Pongola flood plain (Derman and Poultney 1987).

In the sand forest zone there is sand forest thicket and pallid-sand bushveld. The sand forest zone has a lack of fertile soils, which results in the lowest diversity of vegetation in the zone. The animals include the elephants in the Tembe Elephant Park, grey duiker, and suni antelope.

Mozi swamp and palm veld vegetation is located between the sand forest and coastal lake zone. A distinguishing feature of the palm veld zone is the predominance of the ilala palm. A wide variety of products are derived from the ilala palm, which are valuable to the local community and have an influence on the local economy. Ilala palm leaves are used for making a variety of handicrafts. The sap from the ilala plant is used to make a nutritious wine called ubusulu, which is presently produced on a subsistence level.
Mozi swamp vegetation consists of a variety of aquatic plants, which include a variety of grasses, and reeds. In the north of the Mozi swamp there is swamp forest which consists of *umdoni* tree and wild frangipani. The wildlife in the Mozi swamp and palm veld zone includes reedbuck and duiker.

The coastal lake zone is characterised by a number of lakes, lagoons and swamps that are separated from the sea by a line of high coastal dunes. This zone consists of swamp forest and coastal grass veld. The dominant trees in the swamp forest are raphia palms, swamp fig, and mangrove trees. Mangroves play an important role in estuaries and lagoons by stabilising alluvial banks and providing a suitable habitat for a variety of organisms (Bruton and Appleton, 1975). The lake systems form a suitable habitat for Nile crocodiles, hippos and a variety of fish. There is a variety of bird-life in the area, which include kingfishers, herons, and palmnut vultures.

The coastal zone consists of the dune forest. This zone has been divided into five different terrestrial habitats, which include the beach, hummock dunes, seaward slopes, dune troughs and landward slopes (Tinley and Van Riet, 1981). The dominant trees in the dune forest include coast red milkwood, coast silver oak, and forest olive. There is a variety of marine life such as the loggerhead turtles and the leatherback turtles. The coral reefs form the natural attraction of fish species. The distribution of vegetation in Maputaland is shown in Figure 3.2.
FIGURE 3.2: VEGETATION IN MAPUTALAND

Key

- Dune Forest
- Coast Grassveld
- Swamp Forest
- Palm Veld
- Muzi Swamp
- Sand Forest
- Lebombo Forest
- Flood Plain Vegetation
- Pallid-sand Bushveld
- Red-sand Bushveld
- Thicket
- Mixed Bushveld
- Lembombo Bushveld
- Lake

SCALE 0 10 20 30 40 KILOMETERS

3.3.5 Water Resources

Rivers, swamps, lakes and ground water constitute the major sources of water in Maputaland. There is Pongola River, which runs through the Lebombo zone and Pongola floodplain. The Pongola flood plain with its pans covers an area of 130,000 hectares. Jozini dam, which has a storage capacity of 2.65x10^5 cubic metres, gets water from the Pongola River. Other major rivers are the Usuthu and Ingwavuma rivers in the north as well as Mkuzi river in the south. There are also minor perennial rivers such as Mseleni, Siyadla, Mbazwane, Gezisa, Swamanzi, and Nkanini. Lakes and swamps form the major water sources in the coastal lake zone. Such lakes include Kosi Lake system, Lake Sibaya, Lake Shengeza and Mgobezeleni Lake system. The zone, which lack water resources, is sand forest.

The various water sources, which have been listed above, show the abundance of water resources in Maputaland. However, this resource has not been sufficiently utilised because it is not accessible to the majority of the people. The majority of households spend more than two hours a day on water collection (VARA, 1989). Some attempts have been made with the help of water committees in the area to provide accessible and purified water to people. As a result of these attempts water schemes have been established. Such water schemes include Shemula Water Project which draws water from Pongola River and Manguzi Water Project which draws water from Lake Shengeza. In spite of the efforts of these water projects, the availability of water for domestic and productive uses is still a major problem in the majority of the households.
3.4 INFRASTRUCTURAL FEATURES IN MAPUTALAND

Infrastructural features, which are presented in this section are varied and include: the road network; transportation and communication features; health care, educational, commerce and industrial facilities; as well as recreation and tourism facilities. All of these facilities contribute directly or indirectly to the distribution and accessibility of health care facilities in Maputaland.

3.4.1 Roads, Transportation and Communication Features

The success in providing health care services depends on a sound road network, transport and communication system. Roads in Maputaland are divided into three categories. There is one main tarred road which run from Jozini through Bhambanana to KwaNgwanase. The second category consists of secondary gravel roads which join the major and minor focal points such as Mbazwana, Ingwavuma, Emanyiseni, Ndumu, Ubombo, Tshongwe, Mnqobokazi, Ophande and Mseleni. The condition of both the tarred road and the gravel roads is not good. The tarred roads have a lot of potholes. The third category of road system consists of tracks which are travelled only by four wheel drive vehicles. These tracks form links between the gravel roads and the homes of community members, mobile points, schools, as well as some of the residential clinics. The present road network in Maputaland serves as a system of transport only. It has not sufficiently attracted other activities and potential markets to develop along the various routes. It is hoped that the Maputaland corridor which is in the process of being developed, will be able to provide a fertile environment for the concentration of people and
FIGURE 3.3: ROAD NETWORK IN MAPUTALAND

Adapted from Vara, 1989.
also attract other activities and potential markets along its route. The road network in Maputaland is shown in Figure 3.3.

The lack of transport service is one of the main problems experienced in the health care delivery service in Maputaland. The area is served by both public and private transport services. KwaZulu Transport Service which operates 20 buses supplies public transport. Private transport service is supplied by the Taxi industry with an estimation of 120 mini buses registered in the area. Transport services operate in tarred and gravel roads; no transport operates along the tracks.

The fact that Maputaland region is very far from major towns and cities makes posts and telecommunication services very important. All telephone lines in the region are run on an automatic exchange. There are five postal offices in the area. Because of the large size of the area, the present posts and telecommunication service is not accessible to the majority of the households in Maputaland.

3.4.2 Primary and Secondary Health Care Facilities

Maputaland has four hospitals of which two are located in each magisterial district. Mosvold hospital is located in Ingwavuma with a catchment population of approximately 80 000, Bethesda hospital is located in Ubombo with the population of 122 000, Manguzi hospital located in KwaNgwanase with a population of 67 000 and Mseleni hospital with population of 36 000 (Department of Health Kwazulu-Natal, 1997). There are twenty three residential clinics distributed within the four health wards. Manguzi hospital has five residential clinics (Bhekabantu,
FIGURE 3.4: HEALTH CARE FACILITIES IN MAPUTALAND

Adapted from Vara, 1989.
KwaNdaba, Mahlungulu, Phelindaba and Zamazama), six for Mosvold hospital (Emanyiseni, Gwaliweni, Ndumu, Nkungwini, Nondabuya and Shamula), and five for Mseleni hospital (Mbazwane, Mduku, Mnqobokazi, Nibela and Ntshongwe) and seven for Bethesda (Jozini, Madonela, Makhathini, Mboza, Mhlekaazi, Mkuze and Ophansi). The distribution of hospitals and clinics is shown in Figure 3.4.

3.4.3 Educational Facilities

As indicated earlier, there are two districts of education in Maputaland, namely Ubombo and Ingwavuma. The boundaries of the districts of education follow the existing magisterial districts. Each district has four circuit inspectorial offices. In the Ubombo district of education there are following circuit inspectorial offices: Jozini, Bangizwe, Mbazwana and Tshongwe. Manguzi, Sambane Lebombo and Manyiseni are circuit inspectorial offices in the Ingwavuma district of education. There are 93 primary and 42 secondary schools in the Ubombo district of education. Ingwavuma district of education has 138 primary schools and 67 secondary schools. Unfortunately, there are no educational institutions of higher learning. However, health care training is offered in all the four hospital surveyed in the study area.

3.4.4 Commerce and Industrial Facilities

Trade and commerce contribute 5 percent to the Gross Geographic Product in Maputaland (VARA, 1989). There are two categories of retail trade operating in the area. The first category consists of furniture shops and large supermarkets
trading in groceries, clothing, hardware and building material. The second
category consists of general dealers, tea-rooms, butcheries and restaurants. There
are approximately 160 retail outlets in the area (VARA, 1989). This figure
excludes many informal enterprises operating in the area.

There are no large industries in Maputaland. The only main manufacturing
industry found in the area is the sawmill and timber treating plant located at
Mbazwana. There are small industrial centres established by KwaZulu Finance
Corporation located in Manguzi, Mbazwana and Ingwavuma. These small
industries are dealing with sewing, carpentry, shoe repairs, upholstery, welding
and cosmetic services. Most of the small industries are informal dealing with the
production of palm-wine, craftwork and the collection of reeds (Cunningham,
1984). These informal industries provide an income for more than 1000 people.
The lack of industries in Maputaland has serious negative implication in the rate
of unemployment in the area.

3.4.5 Recreation and Tourism Facilities

Recreation facilities for people in Maputaland are extremely limited with most
soccer and netball fields which are provided by the schools (VARA, 1989). The
area is endowed with a variety of natural recreation resources such as game
reserves, nature reserves, wilderness areas, indigenous forests, mountains, coastal
areas and large water bodies such as lakes, lagoons and estuaries. These natural
resources enable Maputaland to have great potential to be developed for tourism
which can contribute in the economy of the area. The few tourist destinations
FIGURE 3.5: TOURISTS DESTINATIONS IN MAPUTALAND

Key:
- Conservation Areas

Adapted from Vara, 1989.
found in the area have been established with an emphasis on environmental protection rather than for development. As a result there is still a need for more tourist destinations to be developed in the area. The tourist destinations available in Maputaland include the Ndumo Game Reserve, Tembe Elephant Park, Kosi Bay Nature Reserve, Maputaland Marine Reserve, Mkuze Game Reserve, Lake Sibayi Nature Reserve, Sodwana Bay Lodge, Mabibi Tourism Camp, Baya Camp and Rocktail Bay Lodge. The distribution of tourism facilities in Maputaland is shown in Figure 3.5.

3.5 CONCLUSION

The chapter has attempted to present the location, geographical and infrastructural features in Maputaland. It has been shown that the climate of Maputaland is moist subtropical in the coastal areas and moderately dry subtropical in the western zones. The geomorphological landscape is more or less flat with mountains in the Lebombo zone. Maputaland is endowed with a variety of natural resources which can be utilised for tourism development. It has abundant water resources which are not accessible to people. A larger portion of the area is not accessible by two wheel drive vehicles. The area is characterised by the lack of industries, which has a serious implication in the high rate of unemployment.
CHAPTER 4

ANALYSIS AND INTERPRETATION OF DATA

4.1 INTRODUCTION

Presented in this chapter is the analysis and the interpretation of data obtained from this study. As stated earlier, the central aim of this study is to determine the distribution and accessibility of health care facilities in Maputaland as well as the perception of the local community members about the health care delivery service.

The interpretation and analysis of data is presented simultaneously. The analysis and the interpretation of data in this section includes the personal background of the respondents, the use of health care facilities, accessibility of health care facilities, perception of respondents about the health care services, distribution of illnesses and the human resources in health care facilities.

4.2 PERSONAL BACKGROUND OF THE RESPONDENTS

The personal background of respondents which is discussed in this section includes gender, age, size of the family, marital status, education level, religious affiliation, place of birth, time spent in Maputaland and occupational status. These are presented with a view of revealing their nature, which will later be cross tabulated with some variables and statements occurring in the questionnaire.
4.2.1 Gender and Age of Respondents

The sample of the entire study consisted of 400 respondents. The majority of the respondents were females (75%) and the males constituted 25 percent. This unequal distribution between males and females is the dominant feature in the rural areas where the male population leave the rural areas to seek work opportunities outside their rural areas. Concerning the age of the respondents it was found that the majority of respondents (60%) were between 18 and 45 years old. There was a small number of respondents who were between 46 and 60 years (18%) and above 60 years (22%). The age distribution of respondents is shown in Figure 4.1.

**FIGURE 4.1: AGE OF RESPONDENTS**

![Age Distribution Chart]

- **18-30YRS (31.25%)**
- **31-45YRS (28.50%)**
- **46-60YRS (18.25%)**
- **ABOVE 60YRS (22.00%)**
4.2.2 Family Size of Respondents

It was found that the majority of the respondents (59%) were from the families which had a family size ranging from five to ten people. About 24 percent of the respondents were coming from families with more than ten people. The respondents who had a family size of less than five people constituted 17 percent of the sample. Besides the lack of family planning which results in large family size in Maputaland, the fact that extended families are acceptable in the area also increases family size in most of the households.

**FIGURE 4.2: FAMILY SIZE**

![Family Size Chart]

- Above 10 (24.25%)
- 0-4 (17.00%)
- 5-10 (58.75%)
Another positive point of view about large family size is that the size of the family is seen as a survival strategy. Larger families are able to deploy labour over a wider range of economic fronts, which help the family to survive in times of crisis (VARA, 1989). The family structure of respondents is shown in Figure 4.2.

4.2.3 Marital Status

Concerning the marital status, it was found that the majority of the respondents (65%) were married and other small groups constituted the respondents who were widowed and single (18% and 16%, respectively).

**FIGURE 4.3: MARITAL STATUS**
There was a very small group of respondents (1%) who were divorced. The marital status of respondents is shown in Figure 4.3.

4.2.4 Education Level
The education level of respondents in Maputaland is very low. It was found that a significant percentage of the respondents had no formal education (51%) and a small group had a primary and secondary education (28% and 20.7%, respectively). There was only one respondent who had tertiary education. The distribution of education level is shown in Figure 4.4.

**FIGURE 4.4: LEVEL OF EDUCATION**
4.2.5 Religious Affiliation

When the religious affiliation of respondents was determined, it was found that a large group of respondents (79%) were Christians. There was a small group of respondents (10%) who were affiliated to indigenous religion. The respondents who did not belong to any religious affiliation constituted 10 percent of the sample. The religious affiliation of respondents is shown in Figure 4.5. The importance of religion in health care delivery was emphasised by Dauskardt (1990) where it was shown that Faith healing in South Africa emerged from the Independent Church movements within black Christianity. This idea has been confirmed in this study where it was found that all respondents who were using divine healing as one of the options in the health care management were affiliated to Christian or indigenous religion.

**FIGURE 4.5: RELIGIOUS AFFILIATION**
4.2.6 Place of Birth

Concerning the place of birth, it was found that the majority of respondents (96%) were born in a rural area. The other two small groups of respondents who were born in urban and peri-urban areas each constituted 2 percent. The respondents were asked to state the length of time they stayed in the area. It was found that the majority of the respondents (69%) have stayed in the area for a long period (above 11 years). There was a small group of respondents (10%) who stayed in the area for a period, which ranged from 6 to 10 years. The respondents who stayed in the area for a period ranging of less than 6 years constituted 21 percent of the sample. The length of stay by respondents in Maputaland is shown in Figure 4.6.

**FIGURE 4.6: LENGTH OF STAY**

![Graph showing the percentage of respondents staying in the area for different time periods: Above 10 years (69.00%), 6-10 years (10.00%), and 0-5 years (21.00%).]
4.2.7 Occupation Status

The occupation status of respondents was determined. It was found that the majority of respondents (81%) are unskilled. There was a small group of respondents who were skilled and professional (6% and 1% respectively). It was found that a high proportion of respondents who did not have education was unskilled. This shows that the low level of education in the area is one of the main factors that lead to the high number of unskilled people in the area. The occupation status in Maputaland is shown in Figure 4.7.

**FIGURE 4.7: OCCUPATION OF RESPONDENTS**
The level of unemployment was found to be very high in the area. About 90 percent of the respondents were not employed. The number of employed family members of respondents was determined. It was found that about 29 percent % of respondents had no family members who were employed. A larger proportion of respondents (65%) had less than three family members who were employed. The distribution of family members who are employed is shown in Figure 4.8.

**FIGURE: 4.8: FAMILY MEMBERS EMPLOYED**
Despite the fact that there is a high level of unemployment in the area, there are activities in which people are engaged at home which form part of their survival strategy. It was found that the majority of respondents (60%) are engaged in agricultural activities. There was a substantial group of respondents (22%) that was engaged in the selling of goods. The respondents who were engaged in the household chores and house construction constituted 12 percent and 5 percent of the sample, respectively. The distribution of activities done by respondents at home is shown in Figure 4.9.

**FIGURE 4.9: HOUSEHOLD ACTIVITIES**
4.3 AVAILABILITY OF HEALTH CARE FACILITIES

The respondents were requested to indicate the health care facilities, which are available in the area. It was found that the health care facilities, such as mobile clinics, residential clinics, general practitioner, hospital and traditional healer were perceived by the majority of respondents (above 61%) as available in the area. There were very few respondents (9%) who mentioned that the divine healers were available in the area. The health care facilities such as

**Figure 4.10: Availability of Health Care Facilities**

<table>
<thead>
<tr>
<th>Health Care Facilities</th>
<th>Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faith Healer</td>
<td>10</td>
</tr>
<tr>
<td>Traditional Healer</td>
<td>85</td>
</tr>
<tr>
<td>Hospital</td>
<td>95</td>
</tr>
<tr>
<td>General Practitioner</td>
<td>85</td>
</tr>
<tr>
<td>Residential Clinic</td>
<td>50</td>
</tr>
<tr>
<td>Mobile Clinic</td>
<td>80</td>
</tr>
</tbody>
</table>

70
specialists and old age homes were not available in the area. The extended family practice in this area helps in the absence of old age homes because the domestic activities of other family members include taking care of the old aged members of the family. The availability of health care facilities is shown in Figure 4.10.

4.4 THE USE OF HEALTH CARE FACILITIES

The respondents were requested to indicate the health care facilities, which they use. It was found that the health care facilities, which were used by the majority of respondents (above 60%) were mobile clinics, residential clinics, hospitals and traditional healers. Divine healers were used by a small number of respondents (10%). It was also found that the respondents were using more than one type of health care facility in their health care management. For example a substantial group of respondents (ranging from 40% to 61%) who were using mobile clinics, residential clinics, general practitioner and hospitals were also using traditional healers. The use of health care facilities is shown in Figure 4.11.

A comparative analysis of the availability of health care facilities in the four health wards was done. It was found that a high proportion of the respondents (above 60%) from all four health wards agreed that the mobile clinics, general practitioners, hospitals and traditional healers were available. A different pattern of the availability of residential clinics in the four health wards was observed. The majority of respondents (above 59%) from Manguzi, Mseleni and Bethesda health wards agreed that the residential clinic was available.
There was a small proportion of the respondents from Mosvold health ward who agreed that the residential clinics were available.

**FIGURE 4.11: THE USE OF HEALTH CARE FACILITIES**

The frequency of usage of health care facilities was determined. It was found that the health care facilities, which were used by the majority of respondents (73%) on monthly basis, were mobile clinics. Residential clinics and hospitals were ranked the second highest in the usage by majority of respondents (20%).
and 16% respectively) on monthly basis. The hospital was used by the majority of respondents (69%) on six a monthly basis. The general practitioners and residential clinics were ranked the second highest in the usage by the majority of respondents (46% and 37%, respectively) on a six monthly basis. The majority of respondents (33%) used traditional healers on an annual basis. The general practitioners and hospitals were rated second in the usage by the majority of respondents (23% and 15%, respectively) on annual basis. Respondents (5%) who were using the divine healers on a six monthly basis dominated the small group of respondents, which was using divine healers. The frequency of usage of health care facilities is shown in Figure 4.12.

**FIGURE 4.12: THE FREQUENCY OF USAGE OF HEALTH CARE FACILITIES**

![Bar chart showing the frequency of usage of health care facilities by respondents for different categories: weekly, monthly, 2 to 6 months, and yearly. The chart shows the percentage of respondents using different types of health care facilities such as MOB clinic, RES clinic, GEN practitioner, HOSPITAL, TRAD healer, and FAITH healer.]
The frequency in the usage of health care facilities in Maputaland reflect that the Primary Health Care System has not been fully adopted where people are expected to use the local health care facilities, such as the residential clinics, more often than the district hospitals. For example, it was found that the proportion of respondents who use the residential clinics on six monthly basis (61% of respondents who use the residential clinics) is more or less similar with those who use the hospitals on a six monthly basis (69% of respondents who use the hospitals).

4.6 ACCESSIBILITY OF HEALTH CARE FACILITIES

The accessibility of health care facilities, which is discussed in this section includes the distance from the homes of respondents to the health care facilities. Accessibility depends on the mode of transport used by the respondents to go to health care facility, the cost of transport and the cost of health care service.

4.6.1 Distance to the Health Care Facility

The distance travelled by the respondents to the health care facilities was determined. It was found that the majority of respondents (83%) travelled a distance which was within 5km to the mobile clinic for a single trip. The geographical distribution of mobile clinics was found to be more satisfactory, but it must be noted that the majority of mobile clinics visit mobile points once a month. This means that the mobile clinics are only available to the community for the short period.
The general practitioner is located within a distance of 5km for the majority of respondents (65%). It was found that the majority of the centres where the general practitioners work were not operating throughout the day or throughout the week. The majority of the centres of general practitioners especially those outside the towns and focal points were operating once a week. In most cases one general practitioner used to run many centres alternatively.

**FIGURE 4.13: DISTANCE TO HEALTH CARE FACILITIES**
The traditional healers were located within a distance of 5km for 58 percent of the respondents. There were few respondents whose homes were within the distance of 5km from the residential clinics (about 22% of respondents) and hospitals (about 4% of respondents). The homes of about 41% of respondents were situated between 6 and 10km from the hospital. The majority of respondents (56%) were more than 10km away from the hospital which offer health care services for 24 hours. The residential clinics depict the same scenario, where it was found that about 46% of respondents’ homes were situated more than 10km away from the residential clinics. This percentage includes the respondents who reported that the residential clinic was not available in the area. The distance between the homes of respondents and the nearest health care facilities is shown in Figure 4.13.

A comparative analysis of the distribution of health care facilities in the four health wards was done. It was found that a high proportion of respondents’ homes (ranging from 63% to 88%) were situated within the distance of 5km from the mobile points in the four health wards. With the distribution of residential clinics it was found that only Mseleni health ward had the majority of respondents’ homes (50%) situated within a distance of 5km from the residential clinics. The majority of respondents’ homes in Manguzi, Mosvold and Bethesda health wards were situated more than 5km from the residential clinics.

The general practitioners were distributed within a distance of 5km to the majority of respondents’ homes (ranging from 59% to 80% in Manguzi, Mosvold and Bethesda health wards. It was found that only 37 percent of the respondents’ homes were situated within the distance of 5 kilometres from the
general practitioners. The distance travelled by the majority of respondents to the nearest hospital was beyond 5 kilometres in all four health wards.

The distance travelled by the majority of the respondents to the nearest traditional healer was within 5km in Manguzi, Mseleni and Bethesda health wards. Only 28 percent of the respondents' homes were situated within a distance of 5 kilometres to the traditional healers in Mosvold health ward.

4.6.2 The Mode of Transport

The mode of transport used by respondents to go to the health care facilities was determined. It was found that the majority of respondents (above 56%) walk to the mobile clinics, general practitioners and traditional healers. About 27 percent of respondents walked to residential clinics. There were three main reasons, which led the respondents to walk to the health facilities. The first reason was that the health care facilities were situated within a walking distance. For example a substantial proportion of respondents (ranging from 26% to 41%) were situated within a distance of 1 kilometre from the mobile clinics, residential clinics and traditional healers. The second reason was the lack of money to pay for transport. About 90 percent of the respondents were unemployed. The third reason was that there were no transport services in the area. It was found that the transport services were limited to the tarred and gravel roads. There were no transport services in the tracks because they are accessible by four-wheel drive vehicles, which are expensive.

It was found that bus and taxi was the most popular mode of transport used by the respondents to go to residential clinics and hospital. For instance about 26
percent and 45 percent of respondents used taxi to go to the residential clinic and hospital, respectively. About 50 percent of respondents used the bus to go to hospital. The bicycles and personal cars were used by very few respondents. The mode of transport used by the respondents to go to health care facilities is shown in Figure 4.14.

**FIGURE 4.14: MODE OF TRANSPORT**
A comparative analysis of the mode of transport used by the respondents to go to the health care facilities in four health wards was done. It was found that in all four health wards there was a similarity in the mode of transport used by the respondents to go to the mobile clinics and traditional healers. For example, the majority of respondents from all four health wards walked to the mobile clinics (above 52% of respondents) and traditional healers (from 28% to 81% of respondents).

The pattern of the mode of transport used by the respondents to go to the residential clinics was similar in Manguzi, Mseleni and Bethesda health wards. The respondents in these three health wards were divided into three groups in terms of the mode of transport they used to go to the residential clinics. The first group (ranging from 31% to 50% of respondents) walked. The second group (ranging from 21% to 40% of respondents) used the taxi and the third group (ranging from 5% to 18% of respondents) used a bus. The respondents from Mosvold health ward were dominated by the group which used a bus to go to the residential clinic.

The pattern of the transport used by respondents to go to the general practitioners was similar in Manguzi, Mosvold and Bethesda health wards. The majority of respondents (ranging from 59% to 84%) from these three wards walked to the general practitioners. The respondents from Mseleni health ward fell into three groups in terms of the mode of transport they used to go to the general practitioners. About 37 percent walked, 22 percent used the taxi and 14 percent used the bus.
The majority of respondents in Manguzi and Mseleni health ward (above 65%) used taxi to go to the hospital. This suggests that the majority of the respondents’ homes were situated away from the bus routes to Manguzi and Mseleni hospitals. The bus transport was used by the majority of respondents (above 78%) in Mosvold and Bethesda health ward to go to the hospital.

4.6.3 The Cost of Transport

The cost of transport for a return trip travelled by the respondents to health care facilities was determined. It was found that the majority of the respondents (ranging from 59% to 83%) did not pay for the trip to mobile clinics, general practitioners and traditional healers. The mean cost of transport was R0-22 to the mobile clinics, R1-50 to the general practitioners and R2-90 to the traditional healers. These results are related to the results for the mode of transport used by the respondents to health care facilities, where the majority of respondents walked to the mobile clinics, general practitioners and traditional healers. It was found that the majority of respondents (84%) paid between R1-00 and R10-00 for the trip to the hospital. This was followed by a substantial proportion of respondents (33%) who paid the same amount for the trip to the residential clinics. The mean cost of transport to the residential clinics was R3-39. About 14 percent of the respondents paid between R11-00 and R50-00 for the trip to the hospital. The mean cost of transport to the hospital was R7-86. There were very few respondents who paid an amount above R50-00 for the trip to the traditional healers. The majority of respondents who used divine healers did not pay for the trip since a large proportion of the respondents reached these healers by walking. The mean cost
of transport to the divine healers was R0-72. The cost of transport to the health care facilities is shown in Figure 4.15.

FIGURE 4.15: COST OF TRANSPORT FOR A RETURN TRIP

4.6.4 The Cost of Health Care Service

The cost of health care service was determined. It was found that the majority of respondents (ranging from 59% to 92%) paid less than R5-00 for each visit to mobile clinic, residential clinic and hospital. The medical cost for each visit to a general practitioner ranged from R21-00 to R60-00 for the majority of
respondents (70%). It was found that with the present health care system there is no money charged for health care services rendered to the children and maternity patients in the government clinics and hospitals. The fees charged by the traditional healers depend on the type of the illness and the duration of the treatment. The majority of the respondents who visited the divine healers were not charged for the services.

It was found that there was a great variability in the fees charged by the traditional healers. For instance, about 12 percent of respondents indicated that traditional healers charged between R5-00 and R20-00 for each visit and 31 percent of respondents were charged between R21-00 and R60-00 for a visit. There was another group of respondents (13%) who were charged between R60-00 and R100-00 for the visit. The maximum amount charged by the traditional healers exceeded R100-00 for 8% of the respondents. In some cases the payment for the services of the traditional healers was in the form of chickens, goats and cattle. This variability in the fees charged by the traditional healers was also noticed in the health wards. The cost of health care service in Maputaland is shown in Figure 4.16.

The comparison of the cost of health care services in the four health wards was done. It was found that the cost of health care services in the mobile clinics, residential clinics and hospitals was similar in all four health wards. For example, the majority of the respondents (ranging from 58% to 100%) in the four health wards reported that they were charged between R3-00 and R4-00 for health care services in the mobile clinics, residential clinics and hospitals. A similar pattern was found in the cost of health care services in the general practitioners, where the majority of respondents (ranging from 47% to 84%)
from all four health wards reported that they were charged between R20-00 and R60-00 for each visit.

**FIGURE 4.16: COST OF HEALTH CARE SERVICE**

4.6.5 Getting to Hospital or Clinic During Emergency

An investigation to determine how respondents get to the hospital or residential clinic in times of emergency was done. It was found that the majority of
respondents (93%) used a hired car or taxi. The respondents also go to the nearest neighbour who has a car and ask for transport assistance to the hospital or clinic. The respondents also pay an amount between R30-00 to R100-00 for the transport. This amount depends on the distance to the nearest hospital or clinic. There was a small proportion of respondents who used an ambulance (5%) and own car (2%) to get to hospital or clinic (see Figure 4.17).

**FIGURE 4.17: HOW TO GET TO HOSPITAL OR CLINIC DURING EMERGENCY**
4.7 PERCEPTIONS OF HEALTH CARE DELIVERY SERVICES

The perceptions of respondents about the health care delivery services in Maputaland which is discussed in this section includes the feelings of respondents about the fees charged for health care services and the management of health care services. In this section, the views of respondents about the institutions and individuals who should be responsible for financing health care services, are discussed.

4.7.1 Feelings About Fees Charged for Health Care Services

The respondents were asked to reveal their feelings about the fees charged for health care services. It was found that the majority of respondents (ranging from 60% to 95%) were satisfied with the fees charged in the mobile clinics, residential clinics and hospital.

On the other hand, the majority of respondents (ranging from 53% to 70%) showed dissatisfaction on the fees charged by the traditional healers and general practitioners. This is confirmed by the high amount charged by these institutions for each visit. A high proportion of the respondents was also satisfied with the fees charged by the divine healers (see Figure 4.18).
4.7.2 Feelings About the Management of Health Care Services

The respondents were asked to reveal their feelings towards the management of health care services in the area. It was found that a large proportion of respondents (ranging from 58% to 92%) have found the manner in which the health care services were provided in all types of health care facilities to be satisfactory (Figure 4.19).
There was a small proportion of respondents who rated the management of health care services to be very low. The respondents who were not satisfied with the management of traditional healers and hospital constituted 5 percent and 9 percent, respectively. This group is followed by a lower proportion of respondents who were not satisfied with the management of mobile clinics and general practitioners (each constituted 2% of the sample). The dissatisfaction was based on the following reasons:

(a) Time spent by patients in the out-patient department waiting for a service was too long.
(b) The frequency of the mobile clinic visits was not enough especially in those areas where the mobile clinic visits are conducted once a month.

(c) The money charged by the traditional healers is not standard. It varies from one healer to the next healer.

(d) Ambulance services are inadequate.

(e) Money charged by the general practitioners is high.

4.7.3 Perceptions of Health Care Financing

The respondents were asked to rank the institutions and individuals who should be responsible for financing health care services in the area. It was found that the national government (Rank score 1.5), local government (Rank score 1.7) and private companies (Rank score 3.2) were selected as having more responsibility in the financing of health care services. The family (Rank score 4.9) and individual patients (Rank score 5.2) were selected as having less responsibility (see Table 4.1).

<table>
<thead>
<tr>
<th>INSTITUTION/INDIVIDUAL</th>
<th>RANK SCORE</th>
<th>RANK POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Government</td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>Local Government</td>
<td>1.7</td>
<td>2</td>
</tr>
<tr>
<td>Private Companies</td>
<td>3.2</td>
<td>3</td>
</tr>
<tr>
<td>Community</td>
<td>4.3</td>
<td>4</td>
</tr>
<tr>
<td>Family</td>
<td>4.9</td>
<td>5</td>
</tr>
<tr>
<td>Individual</td>
<td>5.2</td>
<td>6</td>
</tr>
</tbody>
</table>
The respondents were asked to report on the main illnesses that have made them and their family members to seek medical attention. There were 400 respondents who provided information on the illness for 3110 individuals who were members of their families. The information obtained was based on the reported cases of illnesses rather than diagnosed cases. It was found that the most common illnesses which affected more than 0.8 percent of the family members included headache, diarrhoea, flu, high blood pressure, malaria,

**TABLE 4.2  RESPONSES ON COMMON ILLNESSES [%]**

<table>
<thead>
<tr>
<th>ILLNESS</th>
<th>MANGUZI</th>
<th>MOSVOLD</th>
<th>MSELENI</th>
<th>BETHESDA</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flu/Cold</td>
<td>3.3</td>
<td>3.0</td>
<td>2.0</td>
<td>1.2</td>
<td>9.5</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>1.9</td>
<td>2.4</td>
<td>1.3</td>
<td>1.4</td>
<td>7.0</td>
</tr>
<tr>
<td>Headache</td>
<td>1.4</td>
<td>1.8</td>
<td>1.0</td>
<td>1.4</td>
<td>5.6</td>
</tr>
<tr>
<td>Coughing</td>
<td>1.2</td>
<td>0.9</td>
<td>1.2</td>
<td>0.7</td>
<td>4.0</td>
</tr>
<tr>
<td>Malaria</td>
<td>0.5</td>
<td>0.4</td>
<td>0.1</td>
<td>0.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Asthma</td>
<td>0.5</td>
<td>0.3</td>
<td>0.2</td>
<td>0.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Sores</td>
<td>0.5</td>
<td>0.3</td>
<td>0.1</td>
<td>0.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Arthritis</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
<td>0.2</td>
<td>1.0</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>0.5</td>
<td>0.1</td>
<td>0.2</td>
<td>0.2</td>
<td>1.0</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>0.3</td>
<td>0.1</td>
<td>0.3</td>
<td>0.2</td>
<td>0.9</td>
</tr>
<tr>
<td>Dental Problem</td>
<td>0.5</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td>0.9</td>
</tr>
<tr>
<td>Bilharzia</td>
<td>0.3</td>
<td>0.1</td>
<td>0.3</td>
<td>0.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>0.3</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Body Pains</td>
<td>0.3</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td>0.8</td>
</tr>
</tbody>
</table>

asthma, coughing, sores, arthritis, TB, dental problems, malnutrition and body pain. There were illnesses which were not common (affected less than 0.8% of
the family members) such as diabetes, kidney problems, injuries, measles, abdominal pains, epilepsy and Mseleni Joint disease. The health care facilities also offered other services such as family planning, maternity, and immunisation. The distribution of the most common illnesses in Maputaland is shown in Table 4.2.

4.9 HUMAN RESOURCES IN THE HOSPITALS

The human resources, which were investigated in the four hospitals included the doctors and the nursing staff. It was found that the number of doctors was more or less the same in the four hospitals ranging from 6 doctors (Mseleni hospital) to 8 doctors (Bethesda hospital). There was a great variability in the number of nurses in the four hospitals, which ranged from 179 nurses (Mosvold hospital) to 253 nurses (Manguzi hospital). The number of nurses and doctors in the four hospitals is shown in Table 4.3.

<table>
<thead>
<tr>
<th></th>
<th>DOCTORS [f]</th>
<th>NURSES [f]</th>
<th>BEDS [f]</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANGUZI</td>
<td>7</td>
<td>253</td>
<td>251</td>
</tr>
<tr>
<td>MSeleni</td>
<td>6</td>
<td>185</td>
<td>119</td>
</tr>
<tr>
<td>MOSVOLD</td>
<td>7</td>
<td>179</td>
<td>246</td>
</tr>
<tr>
<td>BETHESDA</td>
<td>8</td>
<td>242</td>
<td>230</td>
</tr>
<tr>
<td>TOTAL</td>
<td>28</td>
<td>859</td>
<td>846</td>
</tr>
</tbody>
</table>

When the numbers of doctors and nurses were compared with the number of beds and patients in the hospitals a different picture of the distribution of human resources emerged. It was found that Manguzi and Mseleni hospitals,
which had more doctors were experiencing the high doctor-bed ratio. On the other hand Mseleni hospital which had the lowest number of doctors was experiencing the lowest doctor-bed ratio. The ratio of doctor to in-patients and out-patients was high in Manguzi and Mseleni hospitals. Bethesda hospital had a lowest ratio of doctors to in-patients and out-patients.

The ratio of nurses to beds revealed the same pattern as the doctor-bed ratio where Mosvold and Manguzi hospitals experienced high ratios. Mseleni hospital had the lowest ratio of nurses to beds. The distribution of nurses was compared with the number of in-patients and out-patients in the four hospitals. It was found that Mosvold and Manguzi hospitals had high ratios of nurses to in-patients and out-patients. The Bethesda hospital had the lowest ratio of nurses to in-patients and out-patients (see Table 4.4). The low nurse-bed ratio and high ratio of nurses to in-patients in Mseleni hospital indicate that the hospital experienced a very high number of patients and low number of beds.

**TABLE 4.4 STAFF RATIOS IN HEALTH CARE FACILITIES**

<table>
<thead>
<tr>
<th>HOSPITALS</th>
<th>RATIO PER DOCTOR</th>
<th>RATION PER NURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BED</td>
<td>IN PATIENT</td>
</tr>
<tr>
<td>MANGUZI</td>
<td>1:36</td>
<td>1:13561</td>
</tr>
<tr>
<td>MSELENI</td>
<td>1:20</td>
<td>1:10782</td>
</tr>
<tr>
<td>MOSVOLD</td>
<td>1:35</td>
<td>1:11375</td>
</tr>
<tr>
<td>BETHESDA</td>
<td>1:29</td>
<td>1:6697</td>
</tr>
</tbody>
</table>

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4.10 CONCLUSION

This chapter has attempted to present the analysis and the interpretation of data. The data analysis dealt with the personal background of the respondents, the availability and use of health care facilities, the accessibility of health care facilities, the perception of respondents about the health care delivery, the distribution of illnesses in Maputaland and the human resources in health care facilities.

The study found that the health care facilities that were used by the majority of respondents were mobile clinics, residential clinics, hospitals and traditional healers. The majority of respondents travelled distances within 5 kilometres to the mobile clinics, general practitioners and traditional healers. The average cost of transport to the hospitals and residential clinics was high. It was also found that the cost of health care services rendered by general practitioners and traditional healers was high. The majority of respondents were satisfied with the fees charged for health services rendered in the mobile clinics, hospitals and residential clinics. The study found that there was an uneven distribution of human resources in the four hospitals.
CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter focuses attention on the summary and conclusions reached in this research inquiry. The conclusions reached are discussed on the basis of the literature surveyed, the physical setting of the study and the integrated analysis and interpretation of data, that is, the empirical analysis of the study. Out of the presentation emerging from these aspects of analysis, recommendations have been constructed.

5.2 SUMMARY AND CONCLUSION

It is important to stress the fact that the success of any health care service in a country is directly dependent on the proper planning of the health delivery systems. In order to put the conclusions of this study in their proper perspective it is necessary to summarise its key points, restate its objectives and reiterate its main findings and conclusions.

This study has attempted to explore the geographical analysis of the provision of health care facilities in Maputaland. The aims of the study were as follows:

(a) To determine the distribution as well as affordability and accessibility of health care facilities to communities in the study area.
(b) To establish the health facility capacities and densities, as well as the resultant quality of health care service prevalent within the Maputaland area.

(c) To reveal the local community’s perception of the provision of health care facilities and services in the study area.

The above aims were met in the sense that the data revealed the extent to which the health care facilities are accessible to the community members in the area and the manner in which people perceive the health care delivery service in Maputaland.

The study has shown that the health care facilities which were used by the majority of respondents were mobile clinics, residential clinics, hospitals and traditional healers. The majority of respondents used mobile clinics on a monthly basis. It was found that more respondents were using the hospitals on a similar frequency of usage than were the respondents who were using the residential clinics and the general practitioners.

The study revealed that the majority of respondents travelled distances within five kilometres to the mobile clinics, general practitioners and traditional healers. It was highlighted that the fact that the mobile clinics and general practitioners appear to be situated within a short distance to the respondents’ homes does not mean that they are accessible to the community, as they do not operate all the time. The residential clinics and the hospitals, which operate for twenty-four hours a day, were situated far away from the majority of respondents’ homes.
The study has shown that the majority of respondents walk to the mobile clinics, general practitioners and traditional healers. The main reason for them to walk to these health care facilities is that they are situated near their homes. It was highlighted that the bus and taxi was the popular mode of transport used by the respondents to go to residential clinics and hospitals as most of these health care facilities are situated along the transport routes. There was a significant difference between the health wards in the use of the mode of transport to go to general practitioners, hospitals and residential clinics.

The study has revealed that the majority of the respondents did not pay for transport to the mobile clinics, general practitioners, divine healers and traditional healers because they walked to these health care facilities. The respondents paid the transport fee when they went to hospital and residential clinics.

On the cost of health care service it was found that the majority of the respondents paid a reasonable amount for each visit to the mobile clinics, residential clinics and hospitals. There were high fees paid for health care services rendered by the general practitioners and traditional healers. The study highlighted that there was a great variability in the fees charged by the traditional healers.

The study found that during the time of emergency the majority of respondents used hired cars or taxis to go to the nearest hospital or clinic. For this arrangement a large amount of money is paid for transport. The ambulance services were not accessible to the majority of the respondents in the study area.
The study revealed that the majority of the respondents perceived the fees charged for health care services rendered in the mobile clinics, residential clinics and hospital as satisfactory. The respondents were dissatisfied with the fees charged by the traditional healers and general practitioners.

The study has found that the majority of the respondents perceived the manner in which the health care services are provided as satisfactory. The study highlighted that some respondents were dissatisfied with the long time they spend in the hospital waiting for the service and the frequency of mobile clinic visits which was not enough, especially in the areas where the mobile clinic visits are conducted once a month.

The majority of respondents still perceive the national government, local government and private companies as having more responsibility in the financing of health care service. Families and individual patients were perceived by respondents as having less responsibility in the financing of health care service.

On the distribution of illnesses in Maputaland it was found that the most common illnesses were flu/cold, diarrhoea, headache, coughing, malaria, arthritis, TB, asthma, bilharzia and malnutrition.

Regarding the human resources in the hospitals, it was found that Manguzi and Mosvold hospitals were experiencing high doctor-bed ratio, doctor-inpatient ratio and doctor-outpatient ratio. The same hospitals were experiencing high nurse-bed ratio, nurse-inpatient ratio and nurse-outpatient ratio.

The study also found that the infrastructural features and natural resources such as road network, transport system and water which are important for the health
care delivery service were lacking in Maputaland. The lack of these resources and features makes the provision of health care services difficult in the area. It was also found that the majority of respondents were unemployed, which makes it difficult for them to pay for health care services.

5.3 RECOMMENDATIONS

The study has shown that the mobile clinics are well distributed in the larger part of the area. However, the majority of mobile clinics visit the areas once a month. It is recommended that the visits of the mobile clinics be made more often in those areas where there is great need of health care services.

It has been revealed that the residential clinics are not well distributed in the area. This has been shown by the long distances from homes of respondents and residential clinics. It is recommended that when new clinics are built in the area, attention be given to the areas that are further inland so that the residential clinics can be more accessible.

The study has shown that in the time of emergency the majority of the respondents use the hired cars from the neighbours to get to the nearest hospital or clinic. This is very costly in most of the cases. The respondents use the hired cars because there is no quick way in which the hospital can be contacted for an ambulance call. It is recommended that the ambulance services be improved in the area by improving the communication system. This can be done by installing more public telephones in the area and also by the use of two-way radios.

The study has shown that there is a great variability in the cost of health care service rendered by the traditional healers. There is need to form a policy
where there will be uniformity in the management of the services of the traditional healers.

The study has highlighted an uneven distribution of human resources in the four hospitals. It is recommended that a careful assessment of beds, in-patients and out-patients in the hospitals need to be done in order to have an equitable allocation of human resources. In this manner there will be no hospitals, which will be more overburdened than others in their health care delivery services.

The study has highlighted that the provision of health care services in Maputaland is affected by various factors such as poor road network, lack of sufficient transport services, high unemployment rates in the area, lack of purified, water resources, and an inefficient communication system. These factors impact negatively on the provision of health care services in Maputaland. It is recommended that any initiative aimed at improving the health care delivery in the area must go hand in hand with the entire community development of the area.

5.4 CONCLUSION

This chapter has attempted to outline the summary and conclusion of the study. It has also given the recommendations of the study. Further, this chapter has shown that while there are some health care facilities which are accessible to the community, there were other health care facilities which were not accessible to the community.

Finally, it can be generally concluded that the success of any health care delivery system in a country is directly dependent on the proper planning of the health care services provided as well as their efficient management. It can
therefore be said that the adequate supply of physical health facilities in Maputaland will go a long way in improving life-style in the area and make Maputaland to comparable to some of the urban areas.


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APPENDICES
## APPENDIX A

### QUESTIONNAIRE

THE PROVISION OF HEALTH CARE FACILITIES IN MAPUTALAND: A GEOGRAPHICAL ANALYSIS

<table>
<thead>
<tr>
<th>MAPUTALAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUB-REGION: ................................ (1)</td>
</tr>
<tr>
<td>LOCAL AREA: ................................ (2)</td>
</tr>
<tr>
<td>RESPONSE DATE: .......................... (3)</td>
</tr>
</tbody>
</table>

(A). PERSONAL CHARACTERISTICS

1. Gender:  
   [01] Male [ ]  
   [02] Female [ ]

2. Age:  
   [01] 18-30 [ ]  
   [02] 31-45 [ ]  
   [03] 46-60 [ ]  
   [04] Over 60 [ ]

3. Marital status:  
   [01] married [ ]  
   [02] single [ ]  
   [03] divorced [ ]  
   [04] widowed [ ]

4. Level of education:  
   [01] Primary [ ]  
   [02] Secondary [ ]  
   [03] College [ ]  
   [04] University [ ]  
   [05] No schooling [ ]

5. Place of birth:  
   [01] Urban [ ]  
   [02] Rural [ ]  
   [03] Peri-urban [ ]

6. Occupation:  
   [01] Professional [ ]  
   [02] Skilled [ ]  
   [03] Semi-skilled [ ]  
   [04] Unskilled [ ]

7. Family size:  
   [01] 0-4 members [ ]  
   [02] 5-10 members [ ]  
   [03] 11 and above [ ]

8. Religious affiliation:  
   [01] Christian [ ]  
   [02] Muslim [ ]  
   [03] Indigenous [ ]  
   [04] None [ ]  
   [05] Others (specify) .................... [ ]

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9. Length of stay in the area:

[01] 0-5 years  [ ]
[02] 6-10 years  [ ]
[03] Over 11 years [ ]

(B). EMPLOYMENT AND SUBSISTENCE

10. Are you presently employed?  [01] Yes [ ]
[02] No [ ]

11. How many people are employed in your family?

[01] 1-2 [ ]  [02] 3-5 [ ]
[03] 6-9 [ ]  [04] Over 10 [ ]

12. What types of work do you do at home?

[01] Household chores [ ]
[02] Agricultural activities [ ]
[03] Selling or marketing goods [ ]
[04] House constructing work [ ]
[05] Community health/divining [ ]
[06] Others (specify) [ ]

(C). HEALTH AND RELATED ISSUES

13. Mention the health facilities available in your area?
Indicate by placing a tick in the spaces provided.

[1] Mobile clinic [ ]
[2] Residential clinic [ ]
[3] General Practitioner [ ]
[4] Specialist [ ]
[5] Hospital [ ]
[6] Old age home [ ]
[7] Traditional healer [ ]
[8] Other (specify) [ ]
14. Which of the following health facilities do you and your family use? Show the frequency of usage using the following scale:

- [1] = Daily
- [4] = Two to Six-monthly
- [5] = Annually
- [6] = Never
- [X] = Not Applicable

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<th>HEALTH FACILITIES</th>
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15. What are the reasons for using these facilities as you do?

________________________________________________________________________

16. What is the distance of each single trip to these health facilities? Tick the correct distance on the following scale:

- [1] = Less than 1 Km
- [2] = 1 to 5 Km
- [3] = 6 to 10 Km
- [4] = 11 to 20 Km
- [5] = 21 to 50 Km
- [6] = More than 50 Km
- [X] = Not Applicable

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17. What are the reasons for travelling such distances to these facilities, as you do?

________________________________________________________________________
18. What mode of transport do you use when travelling to each of the health facilities? Indicate on the following scale:

\[1\] = Walking    \[4\] = Taxi    \[X\] = Not Applicable
\[2\] = Bicycling    \[5\] = Bus
\[3\] = Animal cart    \[6\] = Own car

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19. What are the reasons for using the modes of transport that presently use?

________________________________________________________________________

________________________________________________________________________

20. What is the cost of transport for a return trip to the health facilities? Indicate by ticking the appropriate column:

\[1\] = No charge    \[4\] = R31 to R50    \[X\] = Not Applicable
\[2\] = R1 to R10    \[5\] = R51 to R80
\[3\] = R11 to R30    \[6\] = Above R80

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21. What is your opinion of the cost of transport for a return trip to the health facilities?

________________________________________________________________________

________________________________________________________________________
22. What do you think of the fees charged for health care services and facilities in your area? Tick the appropriate column.

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[3] = Undecided         [X] = Not applicable

23. How much do you pay for health service in the following health facilities. Write the amount in the space provided.

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<tr>
<th>HEALTH FACILITIES</th>
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24. What is your opinion about the management of the each health care service in your area? Show your view by ticking the appropriate column below:

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</table>
25. Who do you think should be responsible for financing health care facilities in your area? Please rank the following responses on a scale of 1 to 6.

[01] Each Individual [ ]
[02] Each Family [ ]
[03] Each Community [ ]
[04] Local Government [ ]
[05] Private Companies [ ]
[06] National Government [ ]

26. Name the main diseases or illnesses that have made you and your family to seek health service in the local facilities.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

27. In times of emergency how do you get to the hospital or clinic, or medical services?

[01] Use an Animal cart [ ]
[02] Use a taxi/hired car [ ]
[03] Use an ambulance [ ]
[04] Get the doctor to come [ ]
[05] Other means (specify).................................[ ]

28. What improvements do you think should be made to the health facilities listed below:

(a) Mobile clinic: ____________________________________________________________

________________________________________________________________________
________________________________________________________________________

(b) Residential clinic:________________________________________________________

________________________________________________________________________
________________________________________________________________________

119
THANK YOU FOR YOUR PARTICIPATION.
TO WHOM IT MAY CONCERN

This is to certify that student A.T. Mthembu (830715) is a registered M.A. student at the above-named university in the Department of Geography and Environmental Studies. He is presently working on a research project which is part of the requirements for completing his Master's degree work. The title of his research project is:

The provision and distribution of health care facilities in Maputaland: A geographical analysis

Kindly help him with any kind of information or assistance, relevant to his research project, that he may request from you. All information will be treated with the strictest confidentiality possible.

Thank you.

Yours faithfully

[Signature]

PROF. L.M. MAGI
HEAD: DEPARTMENT OF GEOGRAPHY & ENVIRONMENTAL STUDIES.
DEAN: FACULTY OF ARTS.
The Medical Superintendent
Manguzi Hospital
Private Bag 301
KWANGANASE
3973

Dear Sir

PERMISSION TO CONDUCT RESEARCH

I am a student in the above mentioned institution. I am also doing a research project as part of the requirement for a degree in the Department of Geography and Environmental Studies. The title of the research project is:

"The Provision of Health Facilities in Maputaland: A geographical analysis"

I request to be allowed access to the sources of information in Manguze Health Ward.

Yours sincerely

Amos T. Mthembu
The Medical Superintendent
Bethesda Hospital
Private Bag 602
UBOMBO
3970

Dear Sir

PERMISSION TO CONDUCT RESEARCH

I am a student in the above mentioned institution. I am also doing a research project as part of the requirement for a degree in the Department of Geography and Environmental Studies. The title of the research project is:

"The Provision of Health Facilities in Maputaland: A geographical analysis"

I request to be allowed access to the sources of information in Bethesda Health Ward.

Yours sincerely

Amos T. Mthembu
University of Zululand  
Private Bag X1001  
KWADLANGEZWA  
3886  
18 July 1995

The Medical Superintendent  
Mosvold Hospital  
Private Bag X2211  
INGWAVUMA  
3968

Dear Sir

PERMISSION TO CONDUCT RESEARCH

I am a student in the above mentioned institution. I am also doing a research project as part of the requirement for a degree in the Department of Geography and Environmental Studies. The title of the research project is:

"The Provision of Health Facilities in Maputaland: A geographical analysis"

I request to be allowed access to the sources of information in Mosvold Health Ward.

Yours sincerely

Amos T. Mthembu
The Medical Superintendent  
Mseleni Hospital  
Private Bag  
SIBAYA  
3967

Dear Sir,

PERMISSION TO CONDUCT RESEARCH

I am a student in the above mentioned institution. I am also doing a research project as part of the requirement for a degree in the Department of Geography and Environmental Studies. The title of the research project is:

"The Provision of Health Facilities in Maputaland: A geographical analysis"

I request to be allowed access to the sources of information in Mseleni Health Ward.

Yours sincerely,

[Signature]

Amos T. Mthembu
Dear Mr Mthembu

PERMISSION TO CONDUCT RESEARCH

Your letter of 15 June refers.

Thank you for your request to conduct research. Your topic sounds very interesting and I am sure the results will be very beneficial to us.

I have no hesitation in granting you access to any sources of information in Manguzi Health Ward, subject to the following conditions:

(a) Confidentiality must be ensured if any individual patients are involved.
(b) Our assistance should be acknowledged.
(c) A copy of your completed project must be made available to us.

I would be happy to discuss problems you encounter and assist you in any way possible, within the limits of time available.

Yours faithfully

[Signature]

MEDICAL SUPERINTENDENT
IDC/jmn
Amos T Mthembu  
Dept. Geography & Environmental Studies  
University of Zululand  
P.Bag X1001  
KWADLANGEZWA  
3886

Dear Mr. Mthembu,

Thank you for your letter of 18 July asking for access to information in this health ward. In principal I have no objection to this request but would be interested to know what information you are likely to need.

Yours sincerely,

Dr. David Tyers
Dear Amos

RESEARCH PROJECT

It would be a pleasure to assist you in providing information on the Bethesda Health Ward. When you are ready I would require a copy of your aims and methods to be used in the study.

I look forward to meeting you.

Sincerely

[Signature]

MEDICAL SUPERINTENDENT
JJP ndm
Sorry for the delay in response to your letter of 18 July. I have been away for August.

I have no objection to you coming and collecting data for your research in the Mseleni Health ward.

Wishing you good success in your studies.

Thank you

DR. V.G. FREDLUND
MEDICAL SUPERINTENDENT