PLANNING FOR RURAL HEALTH SERVICES:
A CASE STUDY OF SOUTH IMENTI DIVISION -
MERU DISTRICT.

BY

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(A THESIS PRESENTED IN PARTIAL FULFILMENT
OF THE REQUIREMENTS OF THE DEGREE OF MASTER
OF ARTS IN PLANNING).

DECLARATION

This Thesis is my original work and has not been presented for a degree in any other University.

Signed: ______________
(Candidate)

This Thesis has been submitted for examination with my approval as University supervisor.

Signed: ______________
(Supervisor)

DEDICATION

This work is dedicated to my dear Father and Mother for their love and contribution to my academic pursuit.
ACKNOWLEDGEMENT

I wish to extend my gratitude to all those who in their official capacities or as individuals helped me in one way or another during the preparation of this study. It is nevertheless not possible to mention everyone of them by name.

I wish however to register my indebtedness to my supervisor Mr. S.V. Obiero for his numerous invaluable suggestions, comments and necessary corrections of detail all through the course of the study.

I am also grateful to Dr. G.M. Mwabu for the materials generously put at my disposal. To Mr. Z. Maleche, Chairman, Department of Urban and Regional Planning, University of Nairobi for his suggestions, comments and encouragement at the crucial time of the study. All the officials in Meru hospital and especially those of South Imenti division provided essential information for this study. I also thank Mrs. Sarah K. Lugusa and Mrs. Mary M. Muthigo for kindly agreeing to type this work.

Last but not least, my thanks go to my very dear friend Speranza Muthoni for her encouragement and assistance in many crucial respects all through the course of the study. Needless to say, however, responsibility for the form and content of the study rests entirely with me.
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<tr>
<td>CBHC</td>
<td>Community Based Health Care</td>
</tr>
<tr>
<td>CBR</td>
<td>Crude Birth Rate</td>
</tr>
<tr>
<td>CHW</td>
<td>Community Health Work</td>
</tr>
<tr>
<td>CO</td>
<td>Clinical Officer</td>
</tr>
<tr>
<td>ECN</td>
<td>Enrolled Community Nurse</td>
</tr>
<tr>
<td>FHFE</td>
<td>Family Health Field Educator</td>
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<tr>
<td>FHFO</td>
<td>Family Health Field Officer</td>
</tr>
<tr>
<td>FP</td>
<td>Family Planning</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GOK</td>
<td>Government of Kenya</td>
</tr>
<tr>
<td>HEO</td>
<td>Health Education Officer</td>
</tr>
<tr>
<td>MCH</td>
<td>Maternal and Child Health</td>
</tr>
<tr>
<td>MEPD</td>
<td>Ministry of Economic Planning and Development</td>
</tr>
<tr>
<td>NFWC</td>
<td>National Family Welfare Centre</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Government Organization</td>
</tr>
<tr>
<td>RHC</td>
<td>Rural Health Centre</td>
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<tr>
<td>RHF</td>
<td>Rural Health Facility</td>
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<tr>
<td>SDP</td>
<td>Service Delivery Point</td>
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<tr>
<td>RHU</td>
<td>Rural Health Unit</td>
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<td>TBA</td>
<td>Traditional Birth Attendant</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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ABSTRACT

Development of Kenya cannot be separated from the health of the individual Kenyan. One of the objects of development is to enable the individual to live a healthier and therefore happier life. It is true that when there is much ill-health, people are neither happy nor productive, so that the development of their country is delayed.

This study thus set out to study factors that affect and influence the state of health prevailing in most rural areas with a aim of providing socio-economic, cultural and physically determined solutions to the health problem. The theme of the study is to show how the health of the rural areas can be improved as quickly and as economically as possible. For its study area, the study has taken South Imenti Division of MeruDistrict as an example of a typical rural area and examined the physical, economic and social factors as they affect the health of the people.

The study has established the fact that health and the provision of health services encompasses many factors, such as poverty, communication, environmental sanitation, housing conditions, water supply, education, agriculture and other health-related services and not
just additional investments in medical care. It has also found out that the Kenya's health approach where curative services have so far dominated the development of the health care system should be re-evaluated to increase the share of primary, preventive and promotive health care.

The study area was characterized by lack of health services in general and in many cases services of a similar type are irrationally located in relation to the distribution of population such that they become duplicated within a small area. Hence unnecessary costs are incurred and services themselves are under-utilized.

The study thus considered that to rectify this situation and to rationalize the distribution of health services, the national service centre policy which aims at guiding spatial development should be given sufficient attention by all the agencies responsible for provision of health services.

Taking the problems prevailing into consideration the study finally comes up with a number of recommendations. In the first place, it is recommended that a more comprehensive planning approach to health care is required. This should aim at involving all the sectors and coordinating all the agencies responsible for provision of health care at all levels.
Secondly, it is recommended that there is a need to adopt an approach integrating all the elements necessary to make an impact on the health status of the people, particularly the under-served groups. One approach which could respond to the various needs identified is that known as "community based health care."

The study has made an attempt to describe by reference to the present health situation (needs for health and health services) the problems that require resolution and how to go about it.
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<td>(b) A modern dispensary common in the study area.</td>
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CHAPTER ONE

1.0 INTRODUCTION

Health is taken by World Health Organization (WHO) as a state of complete physical, mental and social well-being, and not merely the absence of disease or infinity. From this definition it is clear that health care encompasses more than has hitherto been understood, and includes services in such sectors as agriculture, education, environment, etc. These services can be grouped under two broad categories:

(i) Curative and supportive services, and

(ii) Preventive and promotive services (including such services as health education, nutrition services and immunization).

Health is also an essential component of over-all development. The quality of life in human settlements, invariably depends on the state of health care which in turn is linked with and dependent upon the availability of adequate food, water, waste disposal, transportation and housing.

Health services in Kenya are currently provided by the Central Government, local Authorities, church missions, industrial health units and private institutions and individuals. The Central Government now deploys health services through a network of
provincial, district and sub-district hospitals and through health centres, sub-centres and dispensaries.

Many health schemes in Kenya have failed to serve the majority of the population, or even those most in need because the most health services are concentrated in a few urban areas and are therefore geographically, socially and economically most accessible to the rich, meaning that they serve those who need them least. This state of affair need to be corrected before it worsen.

1.1 STATEMENT OF THE PROBLEM

Health conditions vary greatly not only from country to country but also from region to another, even within a particular country. Inspite of tremendous strides in medicine and technology, the health status of the majority of people in the disadvantaged areas of most countries of the world remains low. It is a clear phenomena that throughout the developing world the health conditions are substantially inferior to those in developed countries. According to Sector Policy paper (1980), a report by World Bank, for the developing countries as a group, life expectancy at birth is about 53 years. Life expectancy increased by a dramatic 50 percent between the early 1940s and the early 1970s, but this trend began to falter in the 1960s, and has continued
Life expectancy at birth in Africa is now about 47 years; in South Asia it is about 49 years, and in Latin America, about 61 years. In contrast, life expectancy in the developed regions is about 70 years as depicted by table 1 below.

Table 1.1: Life Expectancy at Birth in some major areas of the World (in years).

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<tr>
<td>Developing regions</td>
<td>42.5</td>
<td>45.7</td>
<td>48.7</td>
<td>51.3</td>
<td>53.2</td>
</tr>
<tr>
<td>Africa</td>
<td>37.5</td>
<td>39.8</td>
<td>42.2</td>
<td>44.5</td>
<td>46.5</td>
</tr>
<tr>
<td>Latin America</td>
<td>52.0</td>
<td>54.9</td>
<td>57.2</td>
<td>59.3</td>
<td>61.2</td>
</tr>
<tr>
<td>East Asia</td>
<td>47.5</td>
<td>51.7</td>
<td>55.9</td>
<td>59.8</td>
<td>63.3</td>
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<tr>
<td>South Asia</td>
<td>39.2</td>
<td>42.1</td>
<td>44.9</td>
<td>47.4</td>
<td>49.3</td>
</tr>
<tr>
<td>Developed</td>
<td>64.3</td>
<td>67.2</td>
<td>68.6</td>
<td>69.3</td>
<td>70.3</td>
</tr>
<tr>
<td>Regions</td>
<td>World Total</td>
<td>47.2</td>
<td>50.1</td>
<td>52.5</td>
<td>54.4</td>
</tr>
</tbody>
</table>


More still in the developing countries the state is even worse in the rural areas as compared to the urban areas. In Kenya the national physician population ratio is 1:8,000. They are mainly concentrated in urban areas (1:1,000) while in the rural areas the ratio is 1:70,000. It is estimated that only about 30 percent
of the rural population in Kenya has reasonable access to any form of modern health services.

People of the developing countries have suffered and continue to suffer most severely inspite of the conventional system of medical care. They are always fighting a constant battle against malnutrition, disease and ill health. Problems such as communicable diseases, parasitic infestations and others continue to take a heavy toll of people's lives, especially those of infants, children and other vulnerable groups in the developing countries. According to Todaro infant mortality rates (that is, the number of children who die before their first birthday out of every 1000 live births) average about 155 in the least developed countries compared with approximately 27 in the developed countries.

The main problem has stemmed from the adoption of a system of medical care originally developed in the developed countries. This system places emphasis on curative medicine, (i.e. the treatment of illness when it occurs rather than also on prevention of disease). Increasingly such a system relies on complex high technology methods which require highly trained personnel to carry out. It is also highly
expensive and has reached such a level that no country, including developed nations, can afford to offer all its citizens a standard of health care to match the potential which exists. The low health status of these people in the developing countries has not only manifested itself in terms of morbidity and mortality but has also affected human development and the capacity of individuals to develop their potentialities and lead a productive life.

Kenya like most developing countries has not been able to distribute her health services equitably. The 1979 census data reveal that nearly 87 percent of Kenya's population resides in rural areas, yet nearly 80 percent of health resources are concentrated in the major towns of Nairobi and Mombasa. The report further reports that in 1978, the ratio of the total of Government general hospital beds (excluding Leprosy, psychiatric, armed forces, spinal injury unit and prison hospital beds) plus church hospital beds to thousands of population was 1.18. Although this might appear a reasonable ratio for a developing country as the usual target aimed for is 1.0 beds per thousand, however looking at the distribution of beds per thousand population among various parts of the country, one finds that the ratio
ranges from 0.73 beds per thousand in Nyanza Province to 1.45 in Coast Province. In addition to Nyanza, other provinces falling below the average overall provinces include Western (.86), Eastern (.98) and Rift Valley (1.14). Looking at the major towns one finds that the ratio is 4.37 beds per thousand in Nairobi, 2.77 in Mombasa, and 1.33 in Kisumu.

According to the Ministry of Health statistics recorded in Health Strategy for Kenya for 1982, there are approximately 2036 physicians serving in Kenya, of whom 1212 are Kenyans. However only about 550 or 30 percent of the total are in the Private Sector, the bulk of whom practice in the urban areas. The Annual Report of the Medical Practitioners and Dentists Board, 1978 indicates that the number of doctors licenced for private practice in that year was 892 in Nairobi and 159 in Mombasa. The picture was no different in 1981. Ministry of Health estimate that only less than 15 percent of Kenyan Physicians practice in rural areas outside the major towns. They have further estimated that over 80 percent of Kenya's most highly trained nurses serve in the largest urban centres, leaving less than 20 percent to serve the rural areas. Some of the reasons why the nursing personnel, particularly Registered Nurses and those having received advanced training tend to be posted almost exclusively to hospitals.
in big towns is because the majority of these senior nurses are married to senior people working in these towns and also because of the style of training together with their attitudes developed in the course of their training.

The share of the rural areas in the health budgets of Kenya is very small compared with those of urban areas. Maina quote the Development Plan 1974-1978 where the rural services were estimated to take 21.4 percent of the estimated total of £28,000,000 allocated to the Ministry of Health. In the 1984-88 Annual Development Estimates, the rural health services were to be allocated (a larger amount than in the past) 41.8 percent of the estimated expenditure allocated to the Ministry of Health. Although there has been a conscious move to improve rural health by making it a priority area and also increasing the national expenditure on it, the actual expenditure is still low, especially considering the poor state of health prevailing in the rural areas and that the bulk of the population live and work in the rural areas.

The approach hitherto adopted in providing health care to the people has not been realistic. The health services which should aim at improving the health status of the people are not doing so
to the degree desired as there are high rate of underutilization even of the few health services existing. As already stated, the access of large segments of Kenya's population to health services is limited or non-existant in that only 30 percent of the rural population in Kenya has reasonable access to any form of modern health services, yet nearly 87 percent of the population reside in rural areas, while 80 percent of Kenya's health resources are concentrated in major cities of Nairobi and Mombasa. In other instances health services have often operated in an isolated manner, neglecting other factors contributing to human wellbeing such as education, communication, agriculture, social organization, community motivation and involvement. One of the reasons for this, is that the approach adopted has been largely promotive of highly sophisticated; and centrally located medical care and, even when not so, has frequently been unrelated to the local realities. Available resources (human, financial, and institutional), including training programmes, facility designs and equipment purchases for use, have been used mainly to provide this type of medical care in urban areas, thus benefiting only a minority. 

According to the Ministry of Health financial Report and trial balance of June, 1981 about 70 percent
of the recurrent vote was on curative health. This approach to health care equates disease-curative service with care. Medical education in recent decades was focused on diagnosis and management of diseases which often were not only the major health hazards. This preoccupation is reflected in the services provided, consisting at best of costly curative services for the very few in urban areas, making even those who can afford medical services dependent on such a service, dependent on drugs, and on hospital care. The poor and especially those in the rural areas always find themselves at a disadvantage because of this approach. This is in sharp contradiction to the World Health Organization definition of health which stressed health for all and the interdependence of the promotion of health and the prevention and cure of disease. Health must be viewed in terms of overall social wellbeing, and there is a need of recognition of health not being equitable with only the cure of disease.

After independence, Kenya like many developing countries invested heavily in medical schools and hospitals to provide the technical basis for health care system. As a result sophisticated hospitals symbolizing modernity emerged. The table below shows the budgetary allocations for Kenyatta National Hospital and Provincial Hospitals for the financial year 1981.
Table 1.2: Budgetary allocations for Kenyatta National Hospital and Provincial Hospitals, 1981.

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<th>Recurrent</th>
<th>Development</th>
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<tr>
<td>Kenyatta N. Hospital</td>
<td>128,777,259.80</td>
<td>53,246,507.10</td>
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<td>P.G.H. Nyeri</td>
<td>25,906,691.25</td>
<td>8,376,115.30</td>
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<tr>
<td>Mombasa</td>
<td>27,108,305.25</td>
<td>26,547,740.90</td>
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<td>Garissa</td>
<td>11,294,938.25</td>
<td>1,205,983.80</td>
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<td>Kisumu</td>
<td>38,340,353.70</td>
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<tr>
<td>Kakamega</td>
<td>22,667,067.65</td>
<td>4,488,440.55</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>304,330,433.25</td>
<td>114,724,711.30</td>
</tr>
</tbody>
</table>


This is in some degree the result of Kenya's efforts to develop curative and training infrastructure. Training for physicians and nurses has (although it is changing) been following International curricula. This neglects the Kenya situation and presumes the existence of sophisticated facilities and equipments. As a consequence, health personnel are frequently inadequately prepared, particularly for work in rural areas. As already stated most of the qualified medical staff mostly settle in urban areas rather than respond to the critical needs of the more than 80 percent of the rural population.
The professional bias of medical staff and the popular appeal of hospital-based health care has made curative care to be more emphasized, while prevention and early treatment are neglected. This could also be attributed to the fact that public policy is normally formed by urban elites who often have already achieved adequate nutrition and sanitation and whose needs now are for sophisticated curative care.

The problem of under-utilization of some of the existing modern health facilities which is the major problem the Government is encountering at present has not received great attention. For a health facility to be utilized at the planned rate, it should not only be accessible to patients, but its services should also be of acceptable quality as perceived by the patient and not necessarily as judged by the health professionals.

In South Imenti Division of Meru District health facilities are not geographically accessible to the majority of the people (Map No.6). The topography of the area and the poor road network which is very unreliable especially during the rainy seasons, together with the high transportation expenses makes even the few existing facilities under-utilized. The communication problem quite
often interrupts the distribution of drugs and other supplies, consequently resulting to poor provision of health care. The mobile clinics which would otherwise be of use, frequently do not reach remote posts because vehicles break down or at times there is no fuel available.

South Imenti Division being a good example of a rural area suffers most of the problems experienced in other rural areas. There is lack of enough trained staff inadequate supervision, lack of both equipments, staff morale and even poor distribution of available drugs and materials by the health workers. Some of the paraprofessional health workers when posed to these rural areas, see it as a punishment and hence lack moral which lowers the quality of health services.

The consumer has often come to view the health services with dissatisfaction due to all these problems. When these problems repeatedly occur, the consumer become frustrated and lose confidence with the available facilities which to them have proved unreliable in the provision of medical services. This therefore means that the services provided may not meet minimum acceptable standards of quality as perceived by the clients. This is reflected by a low level of utilization, or under-utilization, of the local health services, as manifested by refusal to
extend or by preference for other forms of health care such as that provided by traditional healers or private practitioners in urban areas.

There is also alienation and a feeling of helplessness on the part of the consumer, who cannot identify with the health services and personnel.

Most of the population in South Imenti is in the subsistence sector and their income is very low. People in the area therefore find themselves in big problems in trying to share the little resources they have to the unlimited needs facing them. The cost charged for some of the services provided are too high and often become difficult for people in their economic status to afford. It is unfortunate that even where free health care is available, the costs of transportation and work loss may exceed the economic resources of many people of the area.

Even more important, health authorities have established health services within given geographical areas (Map No.6) without considering their relevance to the existing situations and their acceptability to the population. Community development programmes, such as agricultural development, transportation and other health-related programmes which may offer a
natural base for health services, have not been given due consideration.

1.2 PURPOSE OF THE STUDY

In the developing countries, health hazards loom large in the lives of the inhabitants and often take a heavy toll of life. In Kenya according to 1984-1988 Development Plan the death rate is estimated to have dropped from 20 percent per thousand of the population in 1963 to 14 in 1982, the infant mortality rate dropped from 120 to 86 while life expectancy at birth has a result, improved from 40 years in 1963 to 54 years in 1982. The crude birth rate has however increased since 1948, as depicted by the table 3 below:

Table 1.3: Kenya: Selected Census Data

<table>
<thead>
<tr>
<th>Census</th>
<th>Census Population (Millions)</th>
<th>Estimated Crude Birth Rate per 1,000 Population</th>
<th>Estimated Crude Death Rate per 1,000 Population</th>
<th>Rate of Natural Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>5,800,000</td>
<td>50</td>
<td>25</td>
<td>2.5%</td>
</tr>
<tr>
<td>1962</td>
<td>8,636,000</td>
<td>50</td>
<td>20</td>
<td>3.0%</td>
</tr>
<tr>
<td>1969</td>
<td>10,943,000</td>
<td>50</td>
<td>17</td>
<td>3.3%</td>
</tr>
<tr>
<td>1979</td>
<td>15,291,000</td>
<td>53</td>
<td>14</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

Despite every effort and a heavy expenditure of material and human resources, the health situation is grave and the trends are developing into a major crisis which must be faced at once if costly reactions are to be averted and present opportunities grasped. Although Kenya has made development in health standards, it is still low especially when we consider the developed countries where life expectancy at birth is more than 70 years compared to 54 years in Kenya. A major concern is therefore how we can apply the existing knowledge and resources to eliminate some of the prevailing health hazards and promote the state of health in general.

The main purpose of this study is to show ways of promoting effective accessible and economical health care services. Since the bulk of the Kenya's population lives and works in the rural areas, it is the aim of the study to show how health services can be planned and organized so as to provide the highest return in human welfare from the existing limited resources of capital and skills and making sure that no vulnerable section of the population is neglected and that primary health care at least is within reach of all sections of the population.

One can argue that probably there is no nation in the world which has all the resources necessary
to respond to the needs and demands of its population for health care services. It is however equally true that most of the people reporting sick to the hospitals, health centres and dispensaries of a country like Kenya, as well as to traditional practitioners, should never have become sick, had they the good fortune to live in a country with comprehensive health care, free popular education and a reasonable standard of living. Such people would have been protected, or would know how to protect themselves, from the diseases that now bother them.

It is also true that, if despite this, they become ill, they would know the importance of quickly seeking treatment to minimize the consequences of their sickness. This study therefore also attempts to identify measures which can be taken to reduce the huge unnecessary burden of sickness which handicaps so many individuals in Kenya in general and South Imenti in particular, limiting their enjoyment of life, their productive employment and too often their duration of their lives.

It is true that health services which should aim at improving the health status of the people are not doing so to the degree desired, and therefore this calls for a proper planning. Since planning is a process of deciding in what respect the future should be better than the present, what changes are necessary to bring about improvement and how these
changes can be implemented, there is a justification of planning for rural health services. When services of the same level in education, housing, clothing, nutrition and basic livelihood can be provided and environmental protection maintained, then we know the sickness experience of a developing country like Kenya will approach that of the wealthier countries. The question in the meantime is, how with so many competing demands upon the small resources of money, manpower and materials that Kenya can command, which strategy and approach should Kenya adopt to make it possible even for a small breakthrough to health in a rural area like South Imenti? This study will show that not only a small but a major breakthrough is possible. There are signs of the mobilisation of just those ideas and forces, that can break the barriers currently standing between people and the healthier existence that which should be theirs. To move at a reasonable pace into this new era, however, the lessons implicit in the history of health development in the west have to be studied. The new thinking derived like community based health care has to be applied vigorously to accelerate the progress.

We must not assume that health is being cared for simply because a system of health care exists. We must learn to recognize the right issues, find out what are the right tools, and put them in the right
hands. It may require developing approaches to health care that are entirely new.

The strategy for health services should be designed to be acceptable to the community. The success of any programme of health require that health workers understand the community. There is a need to understand a people's socio-cultural background, especially when programmes intended to solve some of their health problems are introduced. Technical knowledge is essential in solving many problems, but in general, people's behaviour is not so much guided by technical knowledge but rather by commonly held ideas and practices. By taking the preferences of socio-cultural aspects into account, in their designs of health programmes, planners can reduce the problem of bypass of clinics and hence reduce the problem of inefficiency in the utilization of the available health facilities.

Mwabu in his paper, Economics of Primary Health Care in Kenya state that many people now agree that health problem in the developing countries like Kenya is not that of simply shifting health resources from the urban-to-rural areas. This is so because the current method of providing health care in such countries are highly intensive in the use of both physical and human capital. It is clear that a
a rural area like South Imenti division, there is scarcity of capital and therefore with the existing technique of providing health care in such an area, an-urban-to-rural transfer of resources perse will provide health services only to a very small section of the rural population. There is therefore a need to adopt a better approach in the provision of health services.

Over the years planning in health services has been concerned with buildings and facilities, but now, it is important to move concern from these to people's needs and functions of these facilities. To do this it is important to adopt or design an approach which should address itself to the needs of the majority of the people in South Imenti. It is true that everyone fears sickness and would like to be assured that there is skilled help available close by, and this could be done more by prevention than by treatment alone.

Drainage and safe water for example have everywhere made major and sometimes dramatic improvements in people's lives, far greater than any drug or treatment, even antibiotics. People's health depends far more upon what they do than upon the efforts of health service workers, however numerous. In many
countries of the developing world bilharzia is an increasing severe and handicapping problem. If people continue to go into water that has become polluted by urine or defecated into the streams by people suffering from this disease, then the number infected must continue to increase. If on the other hand, people can learn not to infect their water, or learn to protect themselves from the water of streams and lakes already contaminated, elaborate and expensive drug treatment of bilharzia will be at an end. Health education is therefore essential in rural areas like South Imenti if health standards could be improved.

Since illness disrupts normal activities (impact of disease on economic and social activities) especially at critical times, such as the planting and harvesting seasons (South Imenti people earn their living from the farm) in the case of disease as malaria, an effective approach should be adopted, so that it addresses itself to this acute problem. Chronic and debilitating diseases impair people's ability to concentrate, students' ability to learn, and generally the overall productivity. The infectious diseases could be significantly reduced through good hygiene, early diagnosis and treatment and immunization. Improvements in water supply and water disposal would greatly facilitate control of fecally related diseases, but
good personal hygiene, careful preparation of food, and use of safe water, cost very little yet mean a lot in people's health.

A major concern is therefore how we can apply the existing knowledge and resources to eliminate some of the prevailing health hazards and promote the state of health of the people of South Imenti.

If present trends continue, the existing gaps will be further widened. For example, the differences between urban and rural health services will be accentuated. The health services will continue to commit themselves to costly and specialized medical care, requiring most of the health budget, and thus the services will become even less accessible and unable to meet the demands of the majority of the population. Furthermore, if services continue to be provided as a fragmented and isolated manner, some problems of human development may be solved but others may be worsened or new ones created. For example, some activities of the health services may have succeeded in lowering morbidity and mortality rates in subsistence level community as South Imenti. However, without food production being increased, one problem has been solved (that of reducing infant and child mortality rates) and another problem created (worsened nutrition due to food shortage). Unless
the problems of subsistence levels and poverty are tackled together, imbalance will occur 10.

1.3 OBJECTIVES

The objectives of this study are:

(1) To investigate the existing situation of rural health services in terms of location and distribution within the study area.

(2) To evaluate the utilization of the existing health facilities and reasons for so doing.

(3) To find out the extent to which the health facilities provide their services to the people, given the existing constraints.

(4) Propose an approach for rural health services.

1.4 ASSUMPTIONS

(1) Health care services in rural areas are qualititively and quantititively inadequate.

(2) The urban-to-rural transfer of health facilities is not the answer to health care improvement in rural areas but a more realistic approach should be adopted.
(3) People in rural areas are not fully consuming the full extent of modern health care being provided to them at present.

(4) The general level of health in rural areas is largely determined by the socio-economic status and education of the people.

1.5 SCOPE OF THE STUDY

The study examines the major factors which influences and determines the distribution and utilization of health services in South Imenti Division of Meru District. The study looks at South Imenti Division in relation to Meru District in identifying the factors determining health status of the area. Emphasis is given to both spatial and non-spatial aspects that have influenced the state of health prevailing to date.

The study specifically looks at the distribution of health establishments throughout the study area in relation to the number of health services and the activities of other related institutions in promoting or hampering better health of the people.

A compilation of the existing health and health-related facilities and also their levels of service
is treated in this study. The level and quality of health services provided have been assessed with an aim of establishing their effectiveness. The study also examines the seasonal changes in patterns of socio-economic activities in the study area and its implications on the utilization and management of health services.

Health care do not mean medical care perse but encompasses services in such sectors like agriculture, education, commerce, etc. and therefore this study looks at all these health-related services in the District in general and South Imenti Division in particular.

This study has however attempted to look in detail into the architectural or engineering aspects of the facilities.

1.6 LIMITATIONS

During the course of the study a lot of time was wasted seeking for clearance and access to required information. It was particularly difficult to generate information from the private and the Catholic provided health facilities. On the whole, however there was a lot of cooperation from the health officers in the Government and P C E A sponsored health facilities and from the community in general.
South Imenti Division is quite a large area and given its topographical characteristics it was difficult to visit all the parts to assess the overall impact and performance of the health services.

1.7 RESEARCH METHODOLOGY

The methodology used in this study is that of close examination of the problem from a broad world survey, then in the developing countries like Kenya and finally in South Imenti Division of Meru District.

The study has drawn information from various books, International Organizations and Government documents, Government officers that influence or are likely to influence development in the study area.

Three methods of data collection was adopted for this study. The main method used was the field survey which involved the administering of questionnaires with a structured interview schedule (Appendix No.1 and 2).

There were two types of questionnaires, one administered to the households in the study area and the other administered to a medical officer in the health facility within the study area. Most of the questions were open-ended to tap information not anticipated. According to the 1979 population census...
The population of South Imenti was recorded as 103,543 people with a total household number of 18,562. For the household field survey, a simple systematic random sample of 10 percent (186) households was taken. Every tenth of a household in every sub-location was interviewed until the sample required for that sub-location was got. It was however only possible to interview 150 households instead of the 186, taken as the sample size.

The second questionnaire was for the individual health facilities. The initial aim was to have an interview with a medical officer in all the facilities in the study area. This idea was however abandoned after getting difficulties to get any information from the private clinics, which were run by clinic officers who were not licenced practitioners. It was only possible to interview twenty officers of different health facilities.

The other method used to attain information was informal and formal interviews which were conducted with leading personalities such as the District Medical officer, District Officer (S. Imenti) chiefs and other opinion leaders.

The questionnaires were written in English but the actual interviewing was conducted in Kimeru and English depending on the respondent in question.
The last method of data collection was from materials and reports, books and articles from international organizations, Government, University Library and many other sources.

The examination of health services in South Imenti help in the understanding of the causes of the problem which are then analysed to find out what could be done to solve the problems. An important aspect of this study is the identification of those factors which form the basis for the study and also attempts are made to find out planning implications and solutions to health care problem. It is for this that relevant data to the study has been provided analysed manually and used in the study to support observed or expected occurrences.

1.8 DEFINITION OF THE STUDY AREA

South Imenti Division is one of the seven divisions of Meru District. The district covers an area of 9,922 square kilometres and stretches from latitude 0° 26' South to 0° 42' North and longitude 37° 2' East to 38° 26' East. The district shares borders with Embu District to the South, Kitui and Tana River to the South-east, Isiolo to the North and North-East, Laikipia to the West and Nyeri and Kirinyaga to the South-west. Its District headquarters, Meru Town,
is some 200 kilometres north of Nairobi. The District as earlier pointed is divided into seven divisions each with a Divisional District Officer. These are, South Imenti (study area), North Imenti, Nithi, Tharaka, Tigania, Igembe and Timau Divisions. The divisions are further sub-divided into 38 locations and 137 sub-locations (Map 1, 2).

Politically the District is divided into seven constituencies represented by seven elected Members of Parliament, i.e. Meru Central corresponding to South Imenti (study area), Nyambene North corresponding to Igembe Division; Nyambene South corresponding to Tigania Division; Meru south corresponding to Nithi Division; Meru South-west covering most of the North Imenti; Meru North-West covering part of North Imenti and the whole of Timau; and Meru South-East corresponding to Tharaka division.

There are also two major local authorities, namely Meru County Council and the Municipal Council of Meru. Under the Meru County Council area we have Chuka and Maua Urban Councils.

South Imenti Division (study area) lies only about ten miles to the south of Meru town which is the District headquarters. The Division is bordered by river Mariara and Thingithu to the north, mount
Source: Kiambi (1980).
Kenya forest to the west and the little Mara and Mutonga rivers to the south. Administratively it is bordered by Nithi Division to the south, North Imenti Division to the North mount Kenya forest to the west and Tharaka Division to the East.

South Imenti Divisional headquarter is at Nkubu in Nkuene location. There are six locations namely Miitine, Egoji, Kanyakine, Mitunguu, Abogeta and Nkuene locations. These are further divided into fifteen sub-locations (Map. 4).
CHAPTER TWO

LITERATURE REVIEW / NATIONAL POLICY

2.1 THEORETICAL BASE

As pointed out in the previous chapter, the major concern in the present study is to find out how effective health planning could be done in a rural area like South Imenti. An equally important aspect of the study is to find out the nature of changes which have occurred in the planning of health services not only in the study area but also in other parts of the world, with a view of selecting from international experience aspect of planning and design that are useful for proper and effective health planning.

Bennet (1979) define planning as the process of deciding in what respect the future should be better than the present, what changes are necessary to bring about improvement, and how these changes can be implemented.

Kenya with her scarce economic resources can only achieve efficient health care services only by making an effort to interpret the existing situation and clearly defining feasible goals in relation to the technical and economical resources of the country in accordance with her cultural and social values. Provision of health services in
rural communities like South Imenti is subject to a
cyclical development dependent more on the country's
economic, social and political factors than on
medical technology. In order to have a fair allocation
of resources it is essential to combine the planning
and provision of rural health services with local
community needs and political aspirations, social medical
needs, economic factors, educational programmes and
other related aspects.

Over the years planning in health services has
moved from concern with buildings and facilities to
concern with people and their needs and functions.
This is the reason why the essence of health planning
i.e. to improve the health status of the population
involved and not just providing health care that is
not helping anyone. It is for this reason that in
this study a review has been done on various
studies carried out regarding the planning for
health services in other areas.

Mwabu (1980) in his paper Economics of Primary
Health Care in Kenya argues that the real issue in
health care in less developed countries is about:

(a) the technology that is to be used to provide
health care to rapidly expanding rural populations
and
the types of institutions through which this care is to be provided.

Mwabu continues to argue that the conventional method of providing health care in large hospitals equipped with highly trained medical personnel is not improving the health conditions of their people. He further points out two factors which he considers to be the limiting factors to the conventional method. These are:

(a) Its capital intensity that pushes Governments of less developed countries to a "wall" of a very severe resources constraint in providing people with modern health services and

(b) Its "unfairness" because its price tag dictates that the majority of people be left out without the modern health services.

When planning for health services in South Imenti Division, there is need to look at the effective, cheap and available technology which could be used in the provision of health services in the area. It is important to note that in a rural area like South Imenti there exists a labour intensive technology that can be used to cover virtually all of the area population with the desired type of modern
health care. This technology of health care is characterized by a very high proportion of paramedical staff to doctors.

Lambo (1977) points that health must be viewed in terms of overall social well being. It is evident however that inspite of tremendous strides in medicine and technology, the health status of the majority of people in most areas especially in rural areas remains low.

The major problem most health planners addresses themselves to in most cases is that of scarcity of health facilities (physical and human). The health planners take the scarcity of resources as the limiting factor to health care. The objective of the Kenya Government is to provide for more health facilities especially to the underserved areas. It is clear that additional of rural health facilities will improve the statistical health care coverage in the rural areas in the sense that the population/health facility ratio will decline, but the same cannot be said of health status of the people concerned (as measured, for example, by a decline in mortality and morbidity rates) over the same period.

Mwabu puts the answer to the health problem not to the number of the health facilities provided
but the extent of utilization of the available health facilities by the population.

Mwabu (1980) state that in Kenya, one of the problems that the Government has encountered in providing health care to the rural areas, is that of persistent under-utilization of some of the existing modern health facilities despite the fact that the money prices of health care at these facilities have been set equal to zero.¹¹

Mwabu contend that whenever an under-utilization of health facilities exists, it means that goods and services that people want, have been foregone in order to provide health care that is not helping anyone.

Yepez et al., (1970) points that the utilization rate of modern maternity facilities in the rural areas in Kenya ranges from 0-30%. This means that, the extent of under-utilization of pre- and post-natal rural facilities is at least 70 percent.

King (1966) has reported that 40 percent of the attendaces to a rural health centres in Kenya were from people who lived within five miles of the centre. The majority of the people (60%) lived more than ten miles away.
The argument here is that planning for health services in South Imenti will only have the intended health effects by getting a solution to the problem of facility under-utilization especially of the available health facilities by the populations concerned. In order to understand and have a proper planning for health services, it is important to look at various studies done on the utilisation of health services. These studies have categorized the factors influencing utilization of health care into:

- Economic factors
- Demographic factors
- Socio-cultural factors
- Nature of Health services.
- Combination of several factors.

Below is a review of some of the studies touching the above subheadings.

Authors such as Bartkus and Anderson, Mechanic and Kimani have discussed these economic factors in relation to people's use of health services. Anderson and Bartkus quoted by Kimani argues that most of models about utilization of medical care contain a measure of the individual ability to pay for medical care. There is also a relationship between income and physician visits. Kimani (1971) quote Mechanic as saying that:
"One of the most important health services based almost exclusively on consumer decisions is the utilization of physicians and here we find a clear relationship of the linear type by income, with higher income persons utilizing the physician to a greater extent than the lower income persons." 12

It is important to note that many factors are inter-dependent and therefore in this case it is difficult to identify what factor independent of others influence what behaviour. Maina quotes McKinlay, as showing how the method of payment may influence behaviour and the quality of care received. Maina shows the limitations of the economic explanation, because even when cost barriers are removed, wide variations still remain in the utilization of medical care. It is clear that economic factors influence utilization of medical care and perhaps a more acceptable view to use Leibau words is:

"numerous individuals in developing societies particularly those of a relatively high social economic level and educational background, may utilize modern medicine more or less exclusively." 13.

The other factor influencing utilization of health care is demographic factors. The demographic factors here refers to the age, sex and size of the users of health services as well as the morbidity patterns of a certain area. Demographic factors are also responsible for poor health conditions hence
there is a need to understand these factors if effective policies are to be formulated. According to health sector policy paper published by World Bank 1980 it is stated that a number of health risks derive from high fertility rates in developing countries. When large numbers of people live in poor households located in crowded, insanitary surroundings, communicable diseases spread easily, and high mortality and morbidity rates, in turn, induce families to have many children so they can assure themselves of surviving progeny. Demographic factors may influence health at the community level as well as at the family level. Population pressure on the land may lead to overcropping, soil degradation, poor nutrition for an entire community.

Burke (1974) observed that the best predictor of utilisation of health services was perceived morbidity. This is consistent with Mwabu's and Anderson's studies which found the need for medical care to be the most important factor in utilisation of health services. Kimani (1971) quote Burke as stating that, when need for medical care is held constant there is an association between utilization and attitudes at the low level of need. He observed a relationship between people's positive attitude towards a health service and their decisions to utilize that health service. A greater proportion of
females than males utilized the services.

Mwabu show that women are the greatest consumers of health care which could be explained by values of social order in that women seek health care for conditions related to activities of child birth besides other illnesses. There is under-utilization of health services by the youth during adolescence. Kimani quote Drucker as explaining the adolescents underutilize these services not because they are healed but due to the fact that most of their illnesses are related to behaviour which is disapproved by all adults including those who provide the services.

Kurt Schwarz (1975) looks at age, sex, occupation and education and other components which define the individuality of the community as the demographic factors which determine the characteristic of a community hence the art in sound medical planning lies in determining the significant and significance of the population characteristics. Schwarz contents that the age composition of the community is a valuable indicator not only for certain aspect of the need and demand for medical care but also for the provision of the care and its utilization. He further argues that sex ratio influences the number of gynaecological and obstetrical disorders but less obvious implications exist.
In planning for health services therefore there is need to know the community sex ratios. Schwarz argue that:

"Women live longer, develop certain diseases more frequently than males, for example rheumatoid arthritis, iron deficiency anaemia. There are many other instances which stress the importance of knowing how many women and how many men there are in a community.

Schwarz continue to point out that:

"At various age milestones, the sex factor may reveal interesting disease patterns as can be seen in accidents when young boys have more accidents than girls. With the onset of puberty and childbearing there are hormonal disorders. Increasing age is accompanied by menopausal disorders and psychiatric disorders."

Occupation is also an important indicator which not only influence need and demand for medical care but also for the provision of that care and its utilization. Whether one is a student or a farmer there are specific occupational risks and diseases. It can be mentioned for example that being a housewife is a particularly hazardous occupation when considering such disorders as domestic accidents.

It is therefore the duty of a health planner to ask what bearing can these hazards be expected to have on the health services? Schwarz considers three
major factors as determining the present and future requirements for health services which could be estimated by a knowledge of:

(a) The present occupations in a region;
(b) Any new or future developments;
(c) The arrangements planned for any alteration to the existing situation.

Details of existing occupations are required if a baseline is to be estimated for the future needs and demands for health care.

Collver (1967) has done a study of a group of obstetric patients from a low-income group in Detroit area. Collver found out that education tended to increase the likelihood of making use of health services. Married women visited the clinics more often than the single women and Catholics showed low rates of attendance at all the clinics, but the Catholics who attended church services irregularly attended family planning clinics more than the protestants.

Schwarz (1975) takes literacy to be of real importance, rather than education, since literacy is the basis of communication, which ensures the optimal use and smooth running of a health care system. He contends that within the narrow confines of the existing facilities, a particularly detailed plan for improving the literacy of the patients is important.
adequate communication, and it has been found that there is a vast difference between the ability to read and write and the facility for capable communication. According to Schwarz the spoken word whether direct, by telephone or by recording may make the difference between the success or failure of some health services. Other influences are also at play, some societies, for example, do not encourage the education of their women, which immediately requires that the services planned for males must be on a different basis from those intended for the females.

Kimani quotes Rosenstock as having concluded that decision to seek health care is influenced by demographic factors as well as by perceived severity of the disease, perceived susceptibility and socially and individually determined beliefs about efficacy of alternative action.

Diesfeld (1973) discusses the factors which determine the functional interrelations between the hospital and its surrounding population. He points out that attractivity of the hospital in terms of size, staffing, equipment and reputation are very important factors.

It is important for health planners to consider both distance in distribution of health services as well as topographical factors which should include the
mode of transportation when planning for health services. If the cost of putting up health facilities in some parts of the area is a major limiting factor, health planners could plan for relieving facilities as ambulances, mobile clinics and satellite health centers.

Kimani has quoted a study done by O'Keeffe with the finding that 53 percent of all patients ever admitted in Macha hospital were females aged between 20 and 49 years. O'Keeffe concludes that distance from the hospital and availability and utilization of other medical sources such as traditional medicine are factors that influence utilization of a given health service.

Adeoku and Odebiyi (1977) pointed that the main deterrent factors of utilization of rural health services are that these rural health services are not sufficiently available, the few that are available are far from the communities. Even when the distance is not too great to be a barrier, resources such as drugs are inadequate or totally unavailable.

Mwabu (1984) state that for a health facility to be utilized at the planned rate, it should not only be accessible to patients, but its services should also be of acceptable quality. This is the
acceptable standard of quality of service, as perceived by the patient, and not necessarily, as judged by the health professionals. Mwabu further argues that in order for the health professionals to be successful in their attempts to maximize the health status of a given community, they need to know, among other things, the factors that patients believe wrongly or rightly, to be the determinants of quality health services. Otherwise, increase in the supply of improved health services will not be matched by the expected increase in their consumption. Mwabu gives an example of a case where patients have come to associate quality health care with injections in clinics, the health professionals need to educate patients about other available forms of treatments that they know to be cheaper, less risky or more effective than treatment by injections.

Mwabu's argument here is that Public health facilities in the rural areas are under-utilized because rural residents might be facing other forms of health care that they rate better than Government facilities. Lack of appropriate health information in a community can also cause under-utilization of public health facilities even when competition from alternative health facilities is not present.

New strategy for health services should be
designed to be acceptable to the community and the success of any programme of health require that health planners understand the community, and community involvement in programmes of health, is essential and has resulted from changing nature of public health.

Suchman (1967) points that:

With the growing emphasis in public health on prevention and early detection of disease, there is an increasing need to enlist voluntary participation of the public in health programmes. Without such cooperation, many programmes are destined to failure or reduced effectiveness".

If we take the World Health Organization definition of health that:

"Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity"

then we find that planning for health services in South Imenti entails more than only one sector. Both agricultural productivity and health status in South Imenti should be improved and indeed it could just alter the existing pattern of utilization of health facilities.

2.2 OVERVIEW OF RURAL HEALTH SERVICES IN KENYA

2.2.1 Population, Health and Development:

According to the Integrated Rural Health and Family Planning Project Report (1983) published by the Ministry of Health, the population of Kenya was close to 16 million in mid-1980. Its current
natural rate of increase is 39 percent per annum. Fertility appears to have increased since the 1950s. Health has improved remarkably in the last three decades, as reflected by sharp declines in the crude death rate and infant mortality and a correspondent sharp increase in life expectancy. The combination of rising fertility and falling mortality has resulted in a high population growth. Because GDP increased at an average annual rate of 6.6 percent in real terms over the period 1964 - 73, the standard of living rose. The growth of GDP has slowed down since 1973, however, and in the last two years it has grown more slowly than population.

2.2.2. Population Size and Growth Rate

Table 2.1 presents estimates of the crude birth rate, crude death rate of natural increase in Kenya since the late 1940s. The rates of natural increase in table 2.1 are roughly equal to population growth rates, since immigration and emigration have been negligible. The main reason for the rising rate of population increase is the steep decline in the death rate. The crude birth rate has increased only slightly since 1948.
Table 2.1: Kenya: Selected Census Data

<table>
<thead>
<tr>
<th>Census</th>
<th>Census Population Millions</th>
<th>Estimated Crude Death Rate per 1,000 population</th>
<th>Estimated Crude Death Rate'per 1,000 Population</th>
<th>Rate of Natural Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>5,800,000*</td>
<td>50</td>
<td>25</td>
<td>2.5%</td>
</tr>
<tr>
<td>1962</td>
<td>8,636,000</td>
<td>50</td>
<td>20</td>
<td>3.0%</td>
</tr>
<tr>
<td>1969</td>
<td>10,943,000</td>
<td>50</td>
<td>17</td>
<td>3.3%</td>
</tr>
<tr>
<td>1979</td>
<td>15,291,000</td>
<td>53</td>
<td>14</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

* Corrected for undercount.


2.2.3 Fertility

Fertility in Kenya is high, was high in the past and appears to be increasing. Ministry of Health has estimated that at the time of the 1948 census, the total fertility rate was between 6.0 and 7.0. The censuses of 1962 and 1969 indicate total fertility rates of 6.8 and 7.6 respectively. The Kenya World Fertility Survey indicated a total fertility rate of 8.1 for 1977 - 78, higher than in any other country.

The Kenya World Fertility Survey also revealed wide differences in fertility between urban and rural areas. Women in the two main metropolitan areas, Nairobi and Mombasa, have a total fertility rate 2.5 lower than that of rural women, while the total fertility of the non-metropolitan urban sector
According to Integrated Rural Health Report (1983) the relationship between education and total fertility is non-linear. Women with one to four years of schooling are the most fertile, those with no formal education slightly less fertile, while women with five or more years of education are appreciably less fertile. Postponement of marriage is the chief cause of the lower fertility of better educated women.

2.2.4 Mortality

Table 2.2 shows the trends in the Crude Death Rate, the Infant Mortality Rate, and life Expectancy. Life expectancy has risen from about 44 years in 1962 to about 53 years in 1979. Current life expectancy estimates are 61 years for the world as a whole; 72 years for developed countries; 57 years for less developed countries; and 49 years for Africa.
Table 2.2: Kenya: Mortality Trends 1948 - 79

<table>
<thead>
<tr>
<th>Year</th>
<th>Crude Death Rate</th>
<th>Infant Mortality Rate</th>
<th>Life Expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>25</td>
<td>184</td>
<td>34</td>
</tr>
<tr>
<td>1962</td>
<td>20</td>
<td>n.a.</td>
<td>44</td>
</tr>
<tr>
<td>1969</td>
<td>17</td>
<td>119</td>
<td>49</td>
</tr>
<tr>
<td>1979</td>
<td>14</td>
<td>87</td>
<td>53</td>
</tr>
</tbody>
</table>

Source: Ministry of Health: Integrated Rural Health Family Planning Project - October, 1983.

The dramatic fall in infant mortality shown in table 2.2 leaves the rate still more four times higher than the average (20) for developed countries, but well below the average for developing countries (110). According to the Ministry of Health report (1983) in Africa, Kenya is one of only eight countries (out of a total of 52) with an infant mortality rate below 100. The decline in infant mortality reflects the rise in the standard of living and the improvement in maternal and child health (MCH) services.

2.2.5. Morbidity:

Information on health status in Kenya is limited. Table 2.3 present countrywide data on the number and distribution of outpatient cases at District Hospital level and below in 1978.
Table 2.3: Kenya: Outpatient Cases in District Hospitals, Health Centres, Health Sub-centres and Dispensaries - 1978.

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>No. of Cases ('000)</th>
<th>% of total cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Respiratory Infections</td>
<td>5,881</td>
<td>31.2</td>
</tr>
<tr>
<td>Malaria</td>
<td>4,417</td>
<td>23.4</td>
</tr>
<tr>
<td>Diseases of the Skin</td>
<td>3,262</td>
<td>17.3</td>
</tr>
<tr>
<td>Diarrheal worms</td>
<td>1,664</td>
<td>8.8</td>
</tr>
<tr>
<td>Intestinal worms</td>
<td>1,126</td>
<td>6.0</td>
</tr>
<tr>
<td>Accidents</td>
<td>1,120</td>
<td>5.9</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>507</td>
<td>2.7</td>
</tr>
<tr>
<td>Measles</td>
<td>292</td>
<td>1.5</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>288</td>
<td>1.5</td>
</tr>
<tr>
<td>Other</td>
<td>358</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>18,915</td>
<td>100.0</td>
</tr>
</tbody>
</table>


The prevalence of infection and infestation reflects the widespread poverty in Kenya. Malaria, though absent at higher elevations, continues to be an important cause of morbidity and death. While the table does not show age breakdown for the different types of diseases, most of the cases of respiratory infection, diarrhea and infestation are among infants and young children.
2.2.6. Nutrition:

A nutrition survey conducted by the Central Bureau of Statistics in 1977 indicates that, while the incidence of severe protein energy malnutrition is rather low in Kenya, mild and moderate protein energy malnutrition affects about a third of rural children.

There is also some evidence of malnutrition in adults. A survey conducted in 1977 concluded that 38% of road workers in Nyeri District (Central Province) and 41% in Kwale District (Coast Province) had a weight-for-height below 85% of internationally accepted standards.

2.2.7 Population Growth and Socio-Economic Development

The present rapid population growth retards Kenya's socio-economic development in three main ways:

(i) By increasing pressure on land and other natural resources, and thus tending to reduce output per capital.

(ii) By increasing unemployment; and

(iii) By requiring a greater proportion of public expenditure to be devoted to meeting basic human needs.
Although Kenya is a large country, more than 80% of cultivatable land has a very limited potential on the basis of present technology. In some areas, landlessness has emerged as a significant phenomenon; one study estimated that 11% of rural household are landless. Attempts have also been made to cultivate marginal lands without adequate safeguards, with the consequences of degradation of soils and deforestation.

According to the Ministry of Health Plan for implementation report (1983), if fertility remained constant, the number of workers would rise from 4.6 million in 1970 to 8.5 million in 1990 and to 12 million in 2000. Modern sector employment absorbed only 17% of the total labour force in 1976; the rest worked in traditional agriculture and in the informal sector. The report further reports that roughly 30% of the total number of households in 1974 had incomes which made them absolutely poor. If Kenyan economy could not provide gainful employment for all its workers during the past decade, when GDP was growing at about 6.5% per annum, acceleration in the expansion of the labour force (which would occur if fertility does not decline) is likely to complicate the problem still further, especially since GDP is expected to grow at only 4 - 5% per annum throughout the 1980s.

A third important consequence of rapid
population growth is the increased public expenditure required to meet basic needs for education, health, water and housing. According to Ministry of Health, Integrated Rural Health and Family Planning Project Report (1983) Government outlays on all services amounted to K£54 million (1970 prices) per year on average during 1970 - 75, or about 30% of total budget expenditures. It is estimated that to provide these services for all by the year 2000, annual government expenditure for these purposes would have to increase to about K£ 225 million (1970 prices) during 1995 - 2000, if fertility remains at its present level.

2.2.8 Kenya's Rural Health Delivery Network

The Integrated Rural Health and Family Planning Project Report (1983) state that health services for Kenya's 13 million rural population (80% of total population) are provided through a network of 1205 RHF's, 950 dispensaries, 44 Health Centres and 210 Health Centres. Most of them have transport means available to refer patients to the district hospitals. On an average one Rural Health facility is available for about 11,000 people in rural areas, 42% of them have access to health facilities within 4 km. distance and some 75% within 8 km. or 2 hours walking distance from their home. However distribution, accessibility, quality and utilization vary widely.
The distribution of Rural Health facilities follows by a large a pattern by which a smaller number of Rural Health facilities can serve larger population groups in densely populated areas (Western Province 1 RHF for 25,000 people) whereas in sparsely populated areas more facilities are needed to serve relative smaller population groups (like in the Coast Province). However, in Eastern Province often large population groups share one RHF to which in fact only a minority of about 30% of the target population has reasonable access whereas in Central Province even from small population group a RHF is easily accessible. Aware of this uneven distribution and to optimize the health services for planning future projects, Ministry of Health has listed for each district the facility/population ratios as well as the facility/area ratio and has applied to both factors a weighting system to identify for each district, the marked, need and priority for new RHFs.

The Ministry of Health has found that the size, physical conditions and the supportive infrastructure of the RHF vary widely within Kenya according to health centre survey carried out 1973/74 by MOH. The data of the survey, regarding physical conditions of existing facilities, the needs and related costs for
improvements, number of individual buildings of a health facility etc. have been useful for overall planning but largely proven outdated or not reliable in cases where Ministry of Health/Ministry of Works decided to improve or extend individual facilities under the ongoing RHF improvement programme.

2.2.9 The Organization of Rural Health Services

The Ministry of Health, where policy and administrative decisions are made, is at the centre. The civil service head of the Ministry is the Permanent Secretary, and the professional branch is headed by the Director of Medical Services. At the provincial level the Provincial medical officer is responsible for all the health services. In each district, health services are administered by a District Medical Officer of Health.

In 1970 the Central Government took over rural health services, which until then had been administered by local authorities, with a view to reorganize and standardizing them. The first steps in the development of a systematic model for the provision of rural health services were taken in 1972, when the Ministry of Health introduced the concept of Rural Health Unit (RHU), a geographically defined health administration unit within the district. The country's 40 districts (i.e. excluding Nairobi district) were subdivided into
240 RHUs. The plan of implementation Report (1983) puts the average population per RHU at present to about 54,000, but there are wide variations. Each RHU was to have one of its health facilities, preferably a Rural Health Centre (RHC) or hospital, designated as the RHU headquarters. Staff at RHU headquarters were to provide technical supervision and support to the staff of the other rural health facilities (RHFs) in their RHU and hold regular clinics in those RHFs. The RHU headquarters was to serve as the immediate referral point for other RHFs in the RHU.

Six rural health training centres were established in the mid 1970s to provide team training for RHU staff.

The MOH is upgrading selection dispensaries into RHCs in order to enable all RHUs or a hospital for headquarters. The Integrated Rural Health and Family Planning Project Report (1983) state that at present, 57% of all RHUs have a RHC for headquarters, 23% a hospital, and the rest have dispensaries. In the typical RHU, a RHC is the centre of a cluster of several dispensaries which provide first contact outpatient curative services and, in a few cases, maternal and child health (MCH) care and family planning (FP). In general dispensaries are heavily utilized in most areas. A 1973/74 MOH survey found that the number of outpatients served per
month in dispensaries varied from 150 to 9,000, with an average of 2,200. A dispensary is usually staffed with an Enrolled Community Nurse (ECN) and a patient attendant, but in some areas dispensaries are often staffed by patient attendants only.

RHCs provide dispensary-type services to the surrounding population and also serve as referral points for dispensary patients. They provide a wider range of outpatient curative services than dispensaries and usually a full range of MCH/FP services. RHCs also provide limited in-patient services; they have small maternity units (usually 12 beds) for normal obstetrics, and a few observation beds where patients can be held for a day or two to determine whether transfer to a hospital is necessary. Health centres perform very limited minor surgery, all other surgical cases being transferred to hospitals. Each RHC is headed by a Clinical Officer (CO) - a paramedical trained for three and a half years to perform most of the functions normally performed by physicians in developed countries. The CO is assisted by several E.C.Ns (the exact number depends on the population served) and by one or two family health field educators (FHFEs). Each RHC is also supposed to have one public health technician and one laboratory technician but there are as yet not enough of these technicians to permit more than a few RHCs to obtain a full complement of staff.
Outpatient RHC services, like those in dispensaries, are heavily utilized on average. The 1973/74 MOH survey found that the number of outpatients served per month in RHCs varied between 300 and 18,000 with an average of about 5,000 - RHC inpatient facilities, on the other hand, appear to be very little utilized. This is not surprising, because RHCs lack the physicians and inpatient back-up services (e.g. laboratories and blood banks, drug supplies) found in hospitals, so that it makes sense for patients seeking in-patient care to bypass RHCs for the district or mission hospitals.

In the Ministry of Health; plan of implementation report (1983) the Ministry agree that the quality of outpatient services at RHCs and dispensaries could be substantially improved. Nurses lack diagnostic and prescribing skills and overprescribing is widespread.

RHCs that are also RHU headquarters have not yet, for the most part, been able to give adequate support to their satellite dispensaries. COs are usually too busy with curative work at the RHCs to be able to spend much time visiting dispensaries. Lack of a vehicle in good operating condition is often an added constraint.

The main referral points for RHF's (i.e. dispensaries and RHCs) are district hospitals, which provide a wider range of outpatient services, as
well as paediatric, medical, general surgical and obstetrical and gynaecological in-patient services. District hospital have a heavy patient load.

The District Medical Officer of Health and his supporting staff are mostly preoccupied with the administration of the district hospital, and pay inadequate attention to the administration of rural health centres and dispensaries. A similar situation prevails at the provincial level, which needs strengthening in the long-run to allow for greater decentralization.

In Kenya an extensive network on non-governmental facilities provides health services. The Ministry of Health plan of implementation of October, 1983 points that out of a total of 1204 RHF s in Kenya as of mid-1980, 374 (31%) were operated by non-Governmental organizations (NGOs). Most of these NGOs, are affiliated with the Catholic and other Christian churches. Mission hospitals provide about 30% of hospital beds in rural areas. The report further state that a subsidy to NGOs (amounting to about 4% of the total in 1980/81) is included every year in the MOH's budget. Revenues from service fees and drug charges currently finance about 75% of the recurrent costs of NGO RHF s and Mission hospitals.
The present goal of the Ministry of Health is to have one RHC for each RHU; in RHUs at present without a RHC or a hospital. This goal will be met by upgrading a suitable dispensary. To minimize the wasteful duplication of services, the MOH will take account of existing NGO RHFs when planning the geographical distribution of its own facilities.

2.2.10 Community-Based Health Care

The MOH, sharing the now generally accepted view that the effectiveness of formal public health services can be enhanced by encouraging rural communities to take responsibility for meeting some of their most basic health needs, has decided to promote small experimental schemes of community-based health care.

2.3 National Health Policy

Since 1978 the national health policy has not changed much. During the present five year Health Development plan (1984 - 1988) the Government remains committed to the promotion and protection of the health of the people, with particular emphasis given to the rural population.

The rural health services, specific objectives
can be summarized to include the following:

(i) Improve the existing but inadequate facilities along with continued and increased training of paramedical personnel so as to be able to staff rural health facilities and increase service levels.

(ii) An increased emphasis on the promotion of community participation and of non-Governmental agencies in the participation of health services.

(iii) To better utilize existing resources an increased emphasis will be placed on management and organization, particularly with regard to transport and equipment maintenance and on a decentralized drug supply system.

(iv) Action research studies will be carried out to provide base-line data for evaluating and improving the performance of the health system in Kenya.

The objectives of the rural health services programme are two-fold:

(i) To formulate strategies for satisfying basic health needs in the rural areas through co-ordinating and integrating the health services offered by the Governmental and non-Governmental organizations.
(ii) To produce an overall plan which the donors can use as a guide for identifying and financing projects which most effectively will improve the delivery of rural health services.

The major constraints the Government has been facing include insufficient medical manpower, shortage of funds; as well as inefficient management and organization. These constraints have created a number of deficiencies which the 1979-1983 Development Plan has summarized as:

(i) Inadequate and uneven coverage of the population due to insufficient health service delivery points, made worse by the rapid population growth and under-utilization of some existing facilities,

(ii) Inadequate level of service because of shortage of medical manpower due to severe shortages of trainers and teachers in the health field;

(iii) Unsatisfactory patterns of utilization of manpower, since the majority of staff have been deployed in urban areas and in major hospitals;

(iv) Shortages of drugs and other essential supplies due to the financial constraint and an efficient distribution system;
(v) Unsatisfactory utilization of equipment and transport because of financial and managerial problems relating to operation and maintenance;

(vi) Inadequate flow of health information and utilization of that information.

In order to attain the health objectives the Government of Kenya in her 1984/88 Development Plan, has formulated some major health policies. The Government expect to put more emphasis on increasing coverage and accessibility of health services in rural areas. The Government realizes that due to budgetary constraints development of rural health infrastructure has lagged behind. During the 1984-1988 plan period public spending to maintain and extend costly urban-based hospitals will be contained, and the bulk of savings from the slowdown of capital projects in urban areas will be redirected towards small scale projects at the District and sub-district levels.

The Kenya Government recognises that the preventive and promotive health programmes, if adequately supported, can be cost effective. The savings derived from this would be re-applied to the support of preventive and promotive programmes and further investment in rural health infrastructure.
The Government further feels the need for more consolidation of urban and rural curative, and preventive/promotive services. This is to be done through a complementary rather than competitive approach in allocation of resources and management of these services. During the 1984-1988 Plan period there will be increased emphasis on maternal/child health and Family Planning services in order to reduce morbidity, mortality and fertility.

It is also the policy of the Government during the Plan period to strengthen Ministry of Health management capabilities with emphasis at the district level. The Government realizes that health as a basic need, cannot be treated in isolation from the overall development strategies of the Government, hence there is need for increased interministerial co-ordination.

Due to the fact that the demand for medical services over the last two decades has substantially increased and at the same time the cost of providing these services has more than doubled, the Government in an attempt to provide good quality medical has formulated a number of approaches which have the potential for directly or indirectly extending the Government's financial capacity to provide services. They are:
(i) Maintenance of health facilities through harambee efforts.

(ii) Community based health care.

(iii) Establishment and improvement of amenity wards.

(iv) Selective charges for hospital out-patient and in-patient medical services.

It is the policy of the Government during the 1984-1988 Plan period to continue to emphasis control of communicable diseases with concentration on such diseases as: cholera, diphtheria, dysentries, influenza, leprosy, measles, meningococcal meningitis, whooping cough, rabies, tetanus, trachoma, malaria and anthrax.

"Activities in environmental health will be directed towards improving small-scale water supply, water quality control refuse and sewage disposal, food premises, housing, proper disposal of domestic and industrial waste and maintaining surveillance at the parts of entry".17

It is the Government policy during the plan period that the National Family Welfare Centre (NFWC) will expand its roles in training of MCH/FP staff.

"the flow of information and education, strengthening its monitoring and evaluation capacity, improving the contraceptive distribution system and increasing the number of family planning acceptors."18
The Government expects the service delivery points (SDPs), to be organized to offer services on daily basis, and Family Planning issues and practices to be brought to public attention.

The Government expects the Ministry's health education programmes to increase the public awareness and involvement in preventive health practices during the 1984-88 plan period. The community health workers and health committees at local level are expected to be trained in selected rural health activities. The Government expects to introduce Health Education Curricular into schools in collaboration with the Kenya Institute of Education.

In terms of nutrition,

"Specific activities include identification production and dissemination of appropriate nutrition education materials, improving infant feeding practices, monitoring and evaluation and research" 19.

This will be carried out during the 1984-1988 plan period. Emphasis will be placed on use of local food sources and new food technologies appropriate to local communities.

The Government policy regarding Rural Health Services is that it:

"will continue to form the backbone of the health care delivery system. Co-ordination of rural health services will be accomplished through the Integrated Rural Health and Family Planning Programme. Emphasis will be given to improvement, upgrading and consolidation of the existing health infrastructure in order to optimize
The approach of Community Based Health Care (CBHC) is expected to be strengthened and expanded in order to reduce pressure on existing static health facilities in the rural areas. The Government expects the Provincial and District hospitals to continue their function as referral points for health centres and dispensaries, co-ordinating community based health care services, serving and teaching hospitals and administrative centres for rural health services.

2.3.1 Health Services Structure in Kenya

The activities of the Ministry of Health are carried out at the levels of Kenya's administrative units. These levels are the central, intermediate (Provincial and District) and peripheral.

At the central level we have the Headquarters where political, professional and administrative matters are coordinated and policy decisions made. The Director of Medical Services supervises all matters of preventive, promotive and curative health services. He is assisted by Deputy Directors who are responsible for various units, sections or divisions of health care activities.

The Provincial medical officer is the Ministry's health representative at the Provincial level. In the province there is a provincial hospital. The
The District Medical Officer at every district coordinates all health services, both governmental and non-governmental. The District Hospital provides logistic and technical support to the health centres and dispensaries in the periphery. At the community level in divisions, locations and sub-locations, health centres and dispensaries provide basic curative, promotive and preventive services which are however clinic based.

2.3.2. The Rural Health Project

The County Councils were responsible for the rural health services in health centres, sub-centres, and dispensaries before 1970. The central Government made arrangements to second in part the District medical officer to the local authorities in order to give the technical advice to these local authorities. There were various variations in the management of these health facilities just as there were local authorities themselves. There was no procedure governing the running of the health facilities and it was common to find serious mismanagement of health care directed toward the rural community. In 1970 the Government took over the development of these important services and the Ministry of Health was given the responsibility of managing these services. In 1971 the Ministry of Health decided to look seriously
into the problems that were encountered in the provision of health care at the grass-root level in the rural areas. In connection with this, the Ministry sought the assistance of the World Health Organization.

As pointed out by the Ministry of Health document presented in the Alma-Ata Conference in 1978, the Ministry in an attempt to facilitate the efforts directed towards identifying the problems related to the rural health care, and eventually to suggest possible solutions or approaches to the problems, a team of personnel derived from the various agencies concerned with health or health related activities was formulated.

Two teams of committees were formed to look into the situation and come out with a concrete proposal or plan of action for the improvement of rural health services. These were steering committee and formulation committee. The steering committee was responsible for resolving matters of major importance while the formulation committee was concerned with the formulation of the project or plan alone.

The health situation in the rural areas and formulation of proposal for the improvement of
rural health services was considered in 1972. The problems identified that the Ministry of Health was to deal with in provision of health care in the rural areas were:

(a) Poor and inadequate physical facilities
(b) Understaffing.
(c) Unsatisfactory standard of services.

The proposal made by the team to tackle these problems cover health services in general, but the main item of focus was training of para-medical personnel for the rural areas. The primary health problems expected to be tackled in an attempt to improve the health situation in the rural areas were:

(a) Maternal and Child health problems
(b) Communicable diseases
(c) diseases and conditions resulting from or provoked by inadequate environmental sanitation.

2.3.3 The Rural Health Unit Concept

Under the rural health unit concept, health facilities existing and developing had to be assigned to serve the population in well defined areas. The area of a health unit is defined (in the Kenya's Ministry of Health document presented to the Alma-Ata Conference in 1978) as that occupied by 50,000 people in 1972 which corresponds roughly
with 60,000 in 1979 and 70,000 in 1984. Each health unit was expected to be served by one health centre and a number of dispensaries. A health unit was expected to comprise some 30 or more schools under the Ministry of Education and day care centres operated by the Ministry of Social services.

The health centre was expected to provide technical leadership to health sub-centres and dispensaries. They were also expected to provide mobile clinics to the areas requiring them. The proposed health care coverage was expected to be reviewed from time to time. Other alternatives in provision of health care was necessary if essential health care has to reach individual and family in the underserved and under-privileged rural areas. It was felt that if the W.H.O. target of "health for all by the year 2000" has to be realized there was need to generate additional care for the community through seeking other non-conventional approaches that go beyond the traditional conventional systems. Two approaches were proposed for the future of the rural health services. These were conventional clinic-based health care and community-based health care system in which local health workers are recruited and trained to establish a sound community based care system that would answer to the definition of primary health care, namely "essential health
care made universally accessible to individuals and families in the community by means acceptable to them, through their full participation and at a cost that the community and the country can afford".

2.3.4. Primary Health Care Concept

Primary Health care is a series of simple actions aimed at improving the well-being and health of the community. It is based on the philosophy of self-help that the people themselves, given knowledge and understanding, can best recognize their own needs and work for the solution of their problems.

Primary Health Care uses a minimum of resources already available in the community in attempting an integrated approach to health problems. PHC recognises that the health of a community is closely dependent on the total environment, education, transport and communications, and many other factors.

In January 1975, the Executive Board of WHO, concerned with the maldistribution and lack of coverage of health services, resolved to give top priority to the promotion of national health services. The Board pointed out that the majority of people in the disadvantaged areas of the world do not benefit from existing health services. Where health services are available they are often fragmented,
remain isolated from other services related to health, and are not relevant to the life patterns and living conditions of the population.

To overcome such deficiencies, W.H.O. recommended a series of major national efforts to develop primary health care services. The design of these services must depart from conventional health service approaches which tend to be western-style, urban-biased, and expensive. These services must be built up from a series of peripheral structures designed for the context they are to serve. W.H.O. further suggested seven basic principles which must be adhered to for any successful primary health care effort.

The seven principles of primary health care are:

1. Primary health care should be shaped around the life patterns of the population it should serve.

2. The local population should be actively involved in the formulation of health care activities so that health care can be brought into line with local needs and priorities.

3. Health care offered should place maximum reliance on available community resources, especially those which have hitherto remained untapped, and should remain within the stringent cost limitations that are often present.
4. Primary health care should be an integrated approach of preventive, curative, and promotive services for both the community and the individual.

5. All health interventions should be undertaken at the most peripheral practicable level of the health services by the worker most simply trained for this activity.

6. Other echelons of services should be designed in support of the needs of the peripheral level, especially as this pertains to technical, supply, supervisory, and referal support.

7. Primary health care services should be fully integrated with the services of the other sectors involved in community development (agriculture, education, public works, housing and communications).

2.4.0: The Growth Centre Strategy

Walter Christaller introduced the central place theory by the year 1930s. This theory is one of the most widely recognized of all spatial theories and requires that the settlements are examined not in isolation, but as part of a total system of such places. The importance of central place theory in regional planning ties in its provision of a spatial framework that explains links and relationships within urban and rural economics through a system of
collection and distribution points. Under certain limiting assumptions the theory provides a rationale for the size, number and spatial distribution of places offering services to a dispersed population. The basic principle to this theory states that a definite pattern and hierarchy exists in the spatial arrangement of service centres. The Kenya Government has adopted this theory in her planning surveys which identified the level, nature and distribution of existing infrastructural developments throughout the country. This study has however been considerably modified to suit local conditions, such as topography variations in population density, and also to take account of deficiencies in available data.

The first reflection of the application of this theory is the reference of growth centres in the regional physical development plan for Central Province, 1967. Similar studies have been published for other provinces. In all these studies an inventory of the existing social and physical infrastructure of all centres in the province was first prepared. Data was collected for five categories of service namely:

(i) Administration and Protection
(ii) Social services, including Health and Education;
(iii) Communication and Transportation;
(iv) Trade and commerce
(v) Industry and Power.

These five major categories of services were broken down into 21 specific sub-categories each of which was assigned points according to its relative importance within the major category, whereby a high level of service (e.g. a hospital) scored 3 points, a medium level service (e.g. a hospital) scored 3 points, a medium level service (e.g. a health centre) scored 2 points, and a low level service (e.g. a dispensary) scored 1 point.

The number of points accumulated in each centre were totalled and it was assumed that the more points a centre had, the greater was its centrality and the wider its sphere of influence. These centres were termed in increasing order of importance: local centre, market centre; Rural centre and Urban Centre. If a centre collected 8 - 12 points it was considered to be a local centre, with 13 - 18 points a market centre, with 19 - 36 points a rural centre and with 37 points or more it was considered an urban centre.

According to the physical planning Department, services should be located in central levels of centres such as to correspond to certain threshold
populations. It is therefore important when planning for rural health services in South Imenti to look at the relationship between the growth centre strategy and the development of rural health services.

Opukah (1979) quote Kimani and Taylor as having stated that for purposes of rural development, the concept of growth centres must include both economic and social elements. There should be a vital interface in order to allow the development of a spartial strategy of rural development. This gives an advantage of accessibility and can help us get away from the false dichotomy of rural and urban problems and therefore concentrate on the interlinkages. The concentration of services in rationally selected centres will provide solutions to some of the problems of rural development, especially that of inaccessibility to basic services such as health and education.

Kiambi (1980) points that the aim of the growth centre approach in rural development is to improve the quality of rural life: If the quality of rural life is to be improved then services such as health, sanitation, clean water, power, education and communication should be taken closer to the people. Due to the limited public funds a package approach has been adopted whereby these services are supposed to be located in designated service centres.
This way public goods and services are consumed more conveniently and efficiently. It is less time consuming to get all the services required in one centre. It is the belief of many authors that policy intervention can create a positive complimentary relationship between the centre and the hinterland.
CHAPTER THREE

THE STUDY AREA

3.1.1 TOPOGRAPHY:

The topography of South Imenti Division like that of the entire district varies greatly. The most striking physical features of Meru District are Mount Kenya in the West (which borders South Imenti Division) and Nyambene Hills in the north-eastern part of the District. From its greatest Western Zenith, at 5,380 metres above the sea level, the vast Mount Kenya dome slopes gently northward and eastward covering South Imenti Division, and blending into the East Plateau of Kenya. Although the gradient of the mountain is gradual, the larger streams in the study area have carved deep incisions in its igneous bed-rock, particularly to the south. (Map No. 3)

3.1.2 DRAINAGE:

The drainage pattern in South Imenti Division is essentially determined by the northern slopes of Mount Kenya, and the structure in the basement system. South of the watershed, where most of the permanent streams of not only South Imenti but the entire Meru District are located, drainage is to the Tana, Kenya's longest and largest river. The major rivers from Mount Kenya following towards the Tana River include: The Thingithu and Mutonga within the study area and
the Thuchi, Kathita, Nithi and Ruguti Rivers within the rest of the district. Drainage on the slopes of Mount Kenya is in a typical radial pattern.

The streams in South Imenti Division have steep-sided, deep valleys and numerous rapids and falls which have developed on all their courses. As streams flow out onto the basement complex, their profiles gradually flatten and lateral erosion become predominant. The Mutonga River illustrates the striking contrast in stream profile between the volcanic bedrock in upper courses and metamorphic basement rock in lower courses. This is however common pattern of many of the larger Mount Kenya streams. Cultivation in most parts is therefore difficult, and some places impossible in upper courses; downslope it is possible and is frequently practiced as is the case with Mutonga Valley which is on the southern part of the division.

3.1.3 CLIMATE:

The physical topography of South Imenti has a critical influence on the climate and consequently on the agricultural potential. The high land masses lessen the effect of high temperatures and rates of evaporation, and also force rain-bearing winds upwards and cause them to loose a much greater amount of
moisture than over low lying areas. Looking at the entire district it is clear that whereas stations or the southern and south-eastern slopes of Mount Kenya can expect 1250-2250 mm. of rainfall annually, the eastern and northern lowlands receive less, within the range of 380 - 1000 mm. In examining rainfall distribution in the District, two important features become notable. One is the strikingly sharp rainshadow north of Mount Kenya and north-west of the Nyambene Range. In a few miles this rainshadow dramatically alters agricultural potential in these areas. Conditions ideal for coffee, tea, potatoes and two crops of maize rapidly change to a situation where it is too dry for coffee and in many seasons even maize. The second feature is the pronounced decline in the amount of rainfall as one moves towards the eastern side of the district. The moist parts of the eastern lowlands receive 750-1000 mm. of rainfall on average; the drier parts, further to the eastern and south-eastern parts of the District, receive 500 mm. or less. Scarcity of rainfall combined with low altitude and high temperature renders this part of the district marginal and semi-arid and in many ways difficult for agriculture. South Imenti and a big part of the district enjoy the short rain between March and May and long rain between October and December.
3.1.4 ECOLOGICAL ZONES:

South Imenti Division can be classified into three major agro-ecological zones. These are Tea, Coffee and Cotton/Millet zones. (Map No. 3) The tea zone include parts of Nkuene, Abogeta, Igoji and Mitiine locations. This zone occupies the area between 5500 ft. to 7500 ft. The area is also productive for other crops like maize potatoes and vegetables. Coffee can also thrive at its lower margins. The coffee zone include parts of Nkuene, Mitunguu, Abogeta, Kanyakine, Miitine and Igoji locations. The area lies between 4000 ft. to 5000 ft. above sea level. The soil fertility, adequate rainfall and moderate temperatures permit a wide range of crops to be grown. The cotton zone include the lower parts of Mitunguu, Kanyakine and Miitine locations. This zone which is also referred to as grass woodland zone or cotton/millet zone is confined to altitude 3000 ft. to 4000 ft. Cotton is the only non-food cash crop grown in the area otherwise Katumani, beans, sorghum, millet and some vegetables are the major crops grown. This zone provide the tea and coffee zones with most of their food crops since most of these two zones' land is under extensive cashcrops production. In South Imenti high potential land, coffee, tea, bean, potatoes and maize is grown, while cotton, maize, beans, millet, sorghum, peas and tobacco is grown in the medium potential and only
Source: Kiambi (1980)
millet, sorghum and peas being grown for the low potential areas.

Meru District has significant mineral resources. There is a large quantity of building sand in Tharaka. Although there are some quarries for building stones existing in South Imenti, they are not enough to meet the local demand.

3.1.5 DEMOGRAPHIC PROFILE:

According to the 1979 Census, Meru District had a population of 830,179. Compared to 1969 Census, which put the population at 596,506, this represents a total increase of 39.2 percent, and an annual intercensal increase of 3.36 percent. In terms of sex, the 1979 population was broken down to 408,596 males and 421,583 females. An examination of the 1979 population census indicates that there were 370,154 people within the 15-54 age bracket. These accounted for 44.6 percent of the total population and constituted the labour force on which the remaining 460,022 (55.4 percent consisting of 403,043 children below 15 years old and 56,980 old people above age 54) are assumed to have depended. Further analysis indicates that 50.8 percent (422,068) of the population were children, under 15 years and that 19.3 percent (160,373) were children under 5 years age. It is important to note that ideally, age 5 has been the beginning of pre-primary
Source: Kiambi (1980)
education in preparation for standard one, while age 16 has typically been the end of secondary education at Form Four. The pressure this kind of population structure has on educational opportunities and employment cannot be overstressed.

Table 3.1

<table>
<thead>
<tr>
<th>Division</th>
<th>1979</th>
<th>1983</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Imenti</td>
<td>198,434</td>
<td>238,764</td>
<td>290,404</td>
</tr>
<tr>
<td>Timau</td>
<td>23,389</td>
<td>28,143</td>
<td>34,229</td>
</tr>
<tr>
<td>South Imenti</td>
<td>103,543</td>
<td>124,587</td>
<td>151,533</td>
</tr>
<tr>
<td>Nithi</td>
<td>142,288</td>
<td>171,207</td>
<td>208,236</td>
</tr>
<tr>
<td>Tigania</td>
<td>140,651</td>
<td>169,237</td>
<td>205,840</td>
</tr>
<tr>
<td>Tharaka</td>
<td>50,277</td>
<td>60,495</td>
<td>73,579</td>
</tr>
<tr>
<td>Igembe</td>
<td>171,597</td>
<td>206,472</td>
<td>251,129</td>
</tr>
<tr>
<td>TOTAL</td>
<td>830,179</td>
<td>998,905</td>
<td>1,214,950</td>
</tr>
</tbody>
</table>


Given an area of 9922 sq. km. the average population density for 1979 was 84 persons per sq.km. However, excluding non-residential areas like forests and parks, total residential area represents about 7460 sq.km. This implies a persons/km. density of 111 in 1979 and 134 in 1983.
North Imenti has, and continues to have, the highest number of people, while Timau has the lowest number of people. It is natural for North Imenti to have the largest number of people in the District because it is large and rich in agricultural potential. Tharaka, although physically the largest division in the District, has a relatively small population because of aridity and low agricultural potential. Timau has the lowest population in the District because it used to be a scheduled area and settlement is still taking place (Timau Division was created in 1982). South Imenti has the highest population density because most of the area is fertile and well-settled. North Imenti does not take the lead because some parts of it are not fertile and are therefore sparsely populated. On the whole the District's population density compare favourably with Machakos and Embu which had densities in 1979 of 72 and 96 respectively. It, however, has a much higher density than Kitui, Isiolo and Marsabit.

### TABLE 3.2: Population Density for Divisions (1979-1988)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>South Imenti</td>
<td>918</td>
<td>216</td>
<td>260</td>
<td>316</td>
</tr>
<tr>
<td>North Imenti</td>
<td>392</td>
<td>264</td>
<td>318</td>
<td>387</td>
</tr>
<tr>
<td>Nithi</td>
<td>640</td>
<td>222</td>
<td>268</td>
<td>325</td>
</tr>
<tr>
<td>Tigania</td>
<td>652</td>
<td>216</td>
<td>260</td>
<td>316</td>
</tr>
<tr>
<td>Tharaka</td>
<td>1,496</td>
<td>34</td>
<td>40</td>
<td>49</td>
</tr>
<tr>
<td>Igembe</td>
<td>2,572</td>
<td>67</td>
<td>80</td>
<td>98</td>
</tr>
<tr>
<td>Timau</td>
<td>790</td>
<td>30</td>
<td>36</td>
<td>43</td>
</tr>
<tr>
<td>Meru District</td>
<td>7,460</td>
<td>111</td>
<td>134</td>
<td>163</td>
</tr>
</tbody>
</table>

Source: Meru District Development Plan, 1984/88
3.1.6 POPULATION DISTRIBUTION IN SOUTH IMENTI

Until 1984 South Imenti Division was made up of three locations namely: Nkuene, Abogeta and Igoji. At present these locations have been subdivided into more locations, to have Miitine, Igoji, Kanyakine, Mitunguu, Abogeta and Nkuene locations. In the 1962 population census Nkuene and Abogeta were enumerated as one location (Nkuene). This therefore meant the division had two locations namely Igoji and Nkuene (for this purpose). The division in 1962 had a population of 57260, with Nkuene location having a population of 40,779 and Igoji 16481 persons.

By the 1969 population census Nkuene location had been split into Nkuene and Abogeta locations. Nkuene had 31720 persons, Abogeta 22702 persons and Igoji had 21129 persons. The division therefore had a total population of 75551 persons during the 1969 population census.

In the 1979 population census South Imenti Division registered a population of 103,543 persons. The distribution by location was Nkuene 40,796 persons, Abogeta 31,899 persons and Igoji 30,848 persons.

(Map No. 5)
Table 3.3: Population Distribution (1969)

<table>
<thead>
<tr>
<th>Administrative Unit Location</th>
<th>Population</th>
<th>Area</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nkuene</td>
<td>31,720</td>
<td>89</td>
<td>357</td>
</tr>
<tr>
<td>Abogeta</td>
<td>22,702</td>
<td>132</td>
<td>162</td>
</tr>
<tr>
<td>Igoji</td>
<td>21,129</td>
<td>131</td>
<td>162</td>
</tr>
<tr>
<td>TOTAL</td>
<td>75,551</td>
<td>352</td>
<td>214</td>
</tr>
</tbody>
</table>

Table 3.4: Population Distribution (1979)

<table>
<thead>
<tr>
<th>Administrative Unit Location</th>
<th>Population</th>
<th>Area</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nkuene</td>
<td>40,796</td>
<td>134</td>
<td>303</td>
</tr>
<tr>
<td>Abogeta</td>
<td>31,899</td>
<td>138</td>
<td>229</td>
</tr>
<tr>
<td>Igoji</td>
<td>30,848</td>
<td>119</td>
<td>257</td>
</tr>
<tr>
<td>TOTAL</td>
<td>103,543</td>
<td>392</td>
<td>263</td>
</tr>
</tbody>
</table>

According to the 1969 population census it is clear that Nkuene location is most densely populated with a density of 357 persons per square kilometre as
compared to 162 persons per square kilometre for Abogeta and Igoji. In the 1979 population Census Mitunguu Sublocation which was enumerated in North Imenti administrative division during the 1969 population census was included in Nkuene location and due to the fact that Mitunguu is sparsely populated, the 1979 population density for Nkuene location dropped from 357 persons per square kilometre in 1969 to 303 persons in 1979.

3.1.7 Population Projection (South Imenti)

The population growth rate for Meru District between 1969 and 1979 was 3.9 per cent per annum. The population growth rate for South Imenti (study area) over the same period was 3.7 percent per annum. Given the population growth rate it is possible to calculate the population projection for a given time. Population projection however is based on the assumption that the factors affecting the growth rate over the last census period shall remain constant. This is not always the case since the population is dynamic in nature and can be affected by many other unforeseen factors. Population projection is nevertheless a useful way of approximating the future situation.

* Formula for population projection $PT = P0 \times (1+r)^n$

$PT$ = Projected population  $P0$ = Base year population $r$ = Growth rate.  $n$ = number of years.
3.1.8 DEPENDANCY RATIO:

In South Imenti (study area) the dependent population in 1969 was 54.4 percent while in 1979 it was 51.5 percent. In the 1969 population census the population considered dependent is that below 15 years and above 60 years. In the 1979 population census the dependent population was considered that below 15 years and above 70 years. This does not show a realistic feature since population under 15 years contribute a lot to the household especially in rural areas. There are also dependents of over 15 years for example students while we find also a big proportion of over 70 years in active labour.

3.1.9 PATTERN OF URBANIZATION:

During the 1979 census, Meru Municipality, which is the principal town in the District, had a population of 72,049 and a density of 563 persons per sq. km., covering an area of 128 sq. km. The Municipal area has, however, been reduced to 61 sq.km. which consists mainly of the town centre and the forest reserve (covering 44 sq. km.). There are four urban centres which also serve as the main service delivery points. These are Maua, Chuka Nkubu and Chogoria. In 1979 the population of these centres was as follows:
Source: Kiambi (1980)
Table 3.5: Urban Centres Population

<table>
<thead>
<tr>
<th>Centre</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nkubu</td>
<td>10,324</td>
</tr>
<tr>
<td>Chogoria</td>
<td>856</td>
</tr>
<tr>
<td>Maua</td>
<td>1,805</td>
</tr>
<tr>
<td>Chuka</td>
<td>1,361</td>
</tr>
</tbody>
</table>


Estimates, based on local knowledge and past trends, indicate that these centres are growing at the rate of about 4% per annum. The main reasons for the past comparatively low urban population growth rates were lack of significant industrial development in these centres and the practice of many town workers of living in homes outside the towns.

South Imenti is occupied by the Meru people who are the northern most of the Kenya Bantu speaking group. The Meru people recognize nine major territorial subdivisions based upon dialectical differences. These subdivisions are: Imenti, Miitine, Igoji, Mwimbi, Muthambi, Chuka, Tigania, Igembe and Tharaka. The Imenti group occupies two administrative units, namely South and North Imenti Division. This study focuses on South Imenti Division, which comprise
of Miitine Igoji, Kanyakine, Mitunguu, Abogeta and Nkuene locations. (Map No. 4)

3.1.10 SETTLEMENT:

The Settlement Pattern in South Imenti Division is a typical example of rural Kenya. The spatial distribution of the population corresponds with the occurrence of the good agricultural land. Like in other parts of the country the population is concentrated in the high potential agricultural area. The factors of climate, topography and socio-economic, have much influenced the settlement pattern of the area. In recent years population pressure in the middle zone of the division has led to migration of the people to the lower parts of the division which in the past were only used for the cultivation of seasonal food crops and not habitation. The middle zone is also well favoured with the cash crops. (Map No. 3)

3.1.11 PATTERN OF MIGRATION:

There has not been any major migration in or out of South Imenti Division in recent years. There has, however, been some movement of people from rural to urban areas and from the high potential coffee and tea areas with high population pressures to the less productive areas with less population density.
The first category of migrants consists of school-leavers who are attracted to urban centres with a hope of getting wage employment. The second category consists of people who are looking for land, and movement has generally been towards lower parts of the division. Although the population of the division is basically composed of an ethnically and culturally homogeneous group, other Wameru from other parts of the district like the Tharaka, Tigania and the Imenti tribal groups who are identified by their slight differing dialects comprises the population of South Imenti Division.

3.1.12 SOCIO-ECONOMIC PROFILE:

South Imenti is essentially an agricultural area and most of the inhabitants are farmers, growing crops such as coffee, tea, tobacco, cotton and pyrethrum for cash crops and maize, millet, bananas and potatoes for subsistence. Surpluses of potatoes and other food crops are also sold for cash. Livestock-keeping is common and most people keep cattle, goats and sheep in addition to crop farming.

3.1.13 ECONOMIC BASE (SOUTH IMENTI):

South Imenti Division is basically an agricultural area. The major cash crops grown include coffee, tea, tobacco and cotton. These crops determine the incomes of the people in the area.
3.1.14 COFFEE:

Coffee is the major cash crop grown in 8,482 hectares and is grown in all the six locations of South Imenti Division. Majority of the farmers in the study area depend on the earnings from coffee, and this overdependence on coffee earned income has led to a lot of financial difficulties especially now that the world market for coffee is unfavourable (coffee price depend on the world market).

The marketing of coffee in the area is done by the coffee societies namely:

- Nkuene society with 10 factories
- Kithino society with 6 factories
- Abogeta society with 10 factories
- Igoji society with 11 factories
- Kiangua society with 2 factories

The coffee field conditions is very viable and only few people would venture to plant other crops in coffee fields.

The small scale coffee improvement project (SCIP) is a programme within the study area which deals with factory improvement and construction, society loans to coffee farmers and demonstration plots. There are 12 (SCIP) in South Imenti division.

3.1.15 TEA:

Tea is grown in upper Nkuene, Abogeta, Miitine and Igoji locations. Tea is a fairly recent crop in South Imenti division and production and income earned from tea fluctuates either due to unfavourable climatic conditions or market prices.
3.1.16 COTTON:

Cotton is grown in the lower Mitunguu, Kanyakine and Miitine locations. Acreage under cotton keep on changing since it is an annual crop at present however it is estimated at 600 hectares. Production of cotton has been falling due to high cost of chemicals, low marginal profits and delay in payments. Planting of cotton was managed by agriculture staff and marketing is done by the Cotton Board for the Mitunguu Irrigation Farmers Cooperative Society and Kamuramba Cotton Farmers Cooperative Society. The supply of pesticide is being handed by the Cotton Board with help of the extension staff and the Mitunguu Irrigation Scheme Staff.

3.1.17 TOBACCO:

Tobacco was introduced by the B.A.T. Kenya limited in the early 1970s, and is taking up the place of cotton as the main cash crop in the drier parts of the division. Although the growers of the crop fetch high income, the labour requirement discourage many people to raise the crop.

3.1.18 FOOD CROPS:

These are mostly grown for domestic consumption. The main food crops grown in the area are maize, beans, pigeon peas, cowpeas, millet and sorghum.
The farmers only sell the surplus to meet the household necessities. According to the Division Agricultural Officer Statistics, Acreage under these crops and production are variable target for October to December 1984 which were:

- Maize 2,800 ha.
- Beans 2,300 ha
- Millet 50 ha.
- Sorghum 50 ha.
- Pigeon peas 80 ha.
- Cow peas 10 ha.
- Potatoes 120 ha.

3.1.19 HORTICULTURE CROPS:

The main horticulatural crops grown in the area include bananas, tomatoes, cabbage, carrots, mangoes, citrus and avocado. Acreages under these crops are normally variable but their acreages are on the increase especially for citrus and avocado. The major problems experienced is frequent market gluts at peak season however there is supply of fruits and vegetables throughout the year.

3.2.0 SOCIAL SERVICES:

3.2.1 EDUCATION:

Meru District is divided into 21 educational Units (divisions) for purposes of administration and management. With seven administrative divisions
there is an average of three educational divisions per administrative division. South Imenti Division (study area) has three educational units namely: Igoji, Abogeta and Nkuene. The situation regarding primary school enrolment is satisfactory in most educational units in South Imenti. Lack of permanent classrooms and other physical facilities has been a widespread problem especially in Kanyakine and Nkubu. Construction of classrooms, teachers houses and such related facilities is the responsibility of the parent's associations and school committees. Their ability depends, on the economic situation of the communities affected.

The secondary schools do not only serve the area they are physically located. In South Imenti Division there are six Government maintained secondary schools. There are several Harambee secondary schools in the division built on self help basis. There is need for improvement in the management of schools. Boards of Governors need to be revitalised and given due opportunity to operate properly without too much political interference, as has been the case in many harambee and Government - assisted schools.

There are two Village Polytechnics in the division. They both exhibit signs of overutilisation as they do not fully satisfy demand. This is
because the facilities available like hostels, dining hails, kitchens, instructor's houses and other requisite tools, cannot cater for all those who wish to benefit from the courses offered. One of the conditions for proper instruction is that a class be of a limited number so that the instructor can give adequate attention to students. This is not always achieved as the ideal number is always exceeded because of high demand. (Map No. 7)

3.2.2 HEALTH:

Meru District is served by five hospitals, eight health centres and 76 dispensaries (33 maintained by the Government and 43 maintained by private and religions organisation). One of the hospitals (Meru District Hospital) and the sub-hospital at Chuka are run by the Government while the remaining four hospitals (Nkubu, Chogoria, Maua and Tigania) are managed by the three main religious organisations - Catholic, Methodist and P.C.E.A. - in the District.

The bed space for the five hospitals and the sub-hospital at Chuka is as follows:

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meru District Hospital</td>
<td>241</td>
</tr>
<tr>
<td>Nkubu Hospital</td>
<td>260</td>
</tr>
<tr>
<td>Chogoria Hospital</td>
<td>204</td>
</tr>
<tr>
<td>Maua Hospital</td>
<td>130</td>
</tr>
<tr>
<td>Tigania Hospital</td>
<td>42</td>
</tr>
<tr>
<td>Chuka Sub-hospital</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>977</strong></td>
</tr>
</tbody>
</table>
With a Meru population of approximately 998,900 people there are about 1,022 people per bed in the District.

South Imenti Division (study area) has one hospital (Nkubu Hospital) and Igoji Maternity Cottage which has not been upgraded to a sub-hospital status. The hospital is however complemented by several dispensaries. These health facilities provide an integrated programme of basic curative, preventive and promotive health services.

3.2.3 DESIGNATED SERVICE CENTRES:

South Imenti Division has one urban centre (Nkubu Urban Centre) which is also the Divisional Headquarter. There are two rural centres namely Igoji and Kanyakine, and three market centres namely Mitunguu, Mikumbune and Miruriiri and six designated local centres which are Kiangua, Kionyo, Keringa, Itugururu, Keria and Kinoro. The level of services provided by each designated centre varies from one centre to another. (Map. No. 8)

3.2.4 TRANSPORTATION:

The Ministry of Transport and Communication road classification shows that by 1982 Meru district had a total of 1,802.1 km. of classified roads broken down as follows:
A - Bitumen Roads  - 195.1 km.
B - Gravel Roads  - 896.2 km.
C - Earth Roads  - 710.8 km.

With an area of 9.922 sq. km. and an estimated population of 998,905 people, we find that the District can hardly be satisfactory served by just a total of 1,802.1 of classified roads. The situation is, however, expected to improve substantially when the Thuchi/Nkubu road, which is currently being constructed to bitumen standard is completed mid this year.

In South Imenti Division, a national trunk road from Meru town to Embu passes through the study area. The road is expected to be completed to bitumen standards to connect Nkubu and Thuci which forms the boundary between Meru and Embu Districts.

Generally the access roads in South Imenti are bad because they are largely earth roads, and wear and tear tends to be fast. Maintenance is also not regular because of limited funds hence having the roads in very poor conditions especially in the rainy seasons. The Kenya Tea Development Authority has constructed all weather feeder roads to their tea leaf collecting centres in the Division. (Map No. 8)
Plate 1:

(a) The road network in most parts of the study area is very poor.

(b) Telephone lines passing on the Meru-Embu road cannot be tapped by most of the people.
CHAPTER FOUR

4.0 HEALTH SERVICES IN THE STUDY AREA:

The highest level of health facility in the study area is a hospital which is located at Nkubu urban centre. The hospital which is managed by the Catholic Church provide for 260 hospital beds, the highest in the entire Meru District. Nkubu hospital is complemented by several dispensaries and clinics. Chogoria P.C.E.A. hospital which is located outside the study area, but on the bordering division, has its influence well felt in the study area providing health care through various dispensaries and mobile clinics.

In this chapter an inventory of the existing health facilities, illustrating the location of each, as it relates to other community facilities, and their levels of service has been treated for all health facilities within the study area. The number of the health facilities in the study area are shown in the table below.

<table>
<thead>
<tr>
<th>Facility provider</th>
<th>Hospital</th>
<th>Health Centre</th>
<th>Health S. Centre</th>
<th>Dispensary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>Missionary</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td>Harambee</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Private</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
</tr>
</tbody>
</table>
There are eight government dispensaries within the study area which are distributed among the three locations, with Igoji having one, Abogeta has three and Nkuene location with four.

South Imenti Division is well served with missionary health facilities. There is one Catholic hospital located in Nkuene location and ten dispensaries which are distributed among the three locations. Igoji location is served with four, Abogeta location with three and Nkuene location with three. The division is further served with two missionary managed mobile clinics in Abogeta location. Supplementing the Government and Missionary health facilities are some several private clinics which are divided among the three locations with Igoji having three, Abogeta with three and Nkuene with four. There are however no Harambee provided health facilities within the study area.

4.1 GOVERNMENT HEALTH FACILITIES:

The highest level of the Government health facility in the study area is of a dispensary level. It is however important to note that there are plans to upgrade Kanyakine Dispensary which is located in Abogeta location to a sub-hospital status. At the time of writing this dissertation the Nyayo wards were
being constructed, although the decision is being challenged by some local leaders who feel Kanyakune Dispensary should not be upgraded given its close proximity to Nkubu hospital, but rather the Nyayo wards should be constructed at Marimanti in Tharaka Division which is relatively poorly served with health services. There are eight dispensaries in the study area which are managed by the Government. Igoji location is served with only one Government Dispensary which is located at Kinoro local centre. The facility serves a population of 5,429 people in an area of 60 sq.km. According to the hierarchy of Growth Centres and the corresponding health facilities, a facility of this magnitude is supposed to be located in market centre to serve a population of about 15,000 people. It is therefore not surprising that since this is the only Government health facility in Igoji location patients travel as far as Mworoga a distance of about ten kilometres to seek medical care because the services at this facility are free. Time and again, however the patients have to walk such long distances but to their disappointment there is either no drugs or the queue is so long that they can not be all served. The Dispensary which was constructed on harambee basis was latter taken over by the Government. On average the Dispensary serves about 80-100 patients per day and about 2,500 to 3,000 patients per month when drugs are available. The Dispensary
is faced with various constraints ranging from lack of most essential equipments, to lack of staff and staff houses. Drug delivery is very poor for transportation is the major handicap in the area.

Abogeta location is served with three Government Managed Dispensaries. Specifically these are Kanyakine Dispensary, Kionyo Dispensary and Ithinibari Dispensary. Kanyakine Dispensary which is located in Kanyakine Rural Centre serves a population of about 9009 people in an area of 25 sq. km. As earlier pointed out the dispensary is expected to be upgraded into a sub-hospital and the Nyayo wards are being constructed. The Dispensary is located on the Meru-Embú road, making accessibility to it quite good. The dispensary is just about five kilometres from Nkubu hospital. It is therefore clear that if the dispensary is to be upgraded to a sub-hospital level a problem of duplication of health services will be evident while in other parts of the Division there is lack of hospital services.

Ithinibari Dispensary which is newest and most modern dispensary in the study area was started in 1974. The dispensary has three permanent staff houses and a modern administrative and curative block.
There is a proposal to construct a maternity unit by the end of this year. The Dispensary serves about 150 patients per day but this number declines during the planting and tea harvesting period. The Dispensary is located about 100 yards from Ithimbari P.C.E.A. Family Health Clinic. Ithimbari Government Dispensary given the fact that it is quite modern and the patients are not charged any fees for the services provided, has drawn more patients than the older and smaller P.C.E.A. clinic. This is the best case of duplication of health services while complete lack of services occur side by side within the study area.

Kionyo Government Dispensary is located in Kionyo local centre serving a population of about 6,710 people with a area coverage of 105 sq. kilometres. The Dispensary which was started in 1952 is on one room structure. The Dispensary has no access to a piped water and the community normally fetch water for the everyday running of the facility. The Dispensary is further located near the Mount Kenya forest and communication to the Dispensary is very poor. It is not surprising for the Dispensary to stay for a whole week without the neccessary drugs especially during the rainy seasons when accessibility to the area is terrible. Drugs and other necessary equipments, which are got from Meru hospital during the rainy seasons
are to be delivered by foot. On average the Dispensary serves about 50 patients per day when the drugs are available. After the starting of Ithimbari Dispensary many patients from Kionyo Sub-location travel to Ithimbari Dispensary whose services are reliable.

Nkuene location is served by Mikumbune Government Dispensary, Uruku Dispensary, Uruku Prison Dispensary, and Mitunguu Dispensary. Mikumbune Dispensary which is the biggest among them is located about four kilometres from Nkubu Catholic Hospital. Patients with major complaints prefer to seek medical attention at Nkubu hospital which is just four kilometres away. The fact that the dispensary do not charge for the services provided as it is a Government health facility makes it have a large number of patients notwithstanding the hospital in close proximity.

Uruku and Mitunguu dispensarires have similar problems like those pointed out for Mikumbune and Kinoro. The problem of transportation as it relates to delivery of drugs and lack of staff houses are the major constraints facing these dispensarires. Uruku Prison dispensary caters for the prison staff and members of the public within the dispensary. Like with other Dispensaries, communication network is
very poor and during the rainy seasons the drugs are not well delivered.

Most of the Government health facilities experience same problems, especially lack of manpower, equipments and poor drug delivery. Although the element of free care attracts patients especially those with low incomes, the risk of walking long distances and finally miss the drugs, makes most of patients seek medical care elsewhere. The Rural Health Unit Headquarter which is Meru District hospital is expected to provide the supporting dispensaries with technical leadership and administrative and logistic support. This is hampared by the transportation and financial constraints. The Meru District hospital is also supposed to plan campaigns and mobile clinics and also to act as the referral hospital for all the dispensaries.

4.2 MISSION HEALTH FACILITIES:

The missions were the first bodies in Kenya to attempt the medical care of the population, and that as a means of evangelisation. It is therefore no wonder that most of the health care in South Imenti Division is done through the mission health facilities. We noted earlier that the study area is served with
only one Catholic hospital at Nkubu which also provide a network of mobile health clinics. Chogoria P.C.E.A. hospital which is located outside the study area provide a network of dispensaries and mobile health clinics in the study area. Although Chogoria P.C.E.A. hospital is situated in Nithi Division its influence and provision of health care stretch beyond the administrative unit in which the hospital is located.

Nkubu Catholic hospital has the biggest number of hospital beds (260) in the district, and is located in Nkubu Urban Centre. The hospital serves a population of South Imenti of 103,543 people as per 1979 population census, in an area of 392 sq. kilometres. Chogoria P.C.E.A. hospital which is located about three kilometres from the boundary of the study area has a significant part to play in provision of medical care for the people in South Imenti Division. All the Mission health facilities are either ran and managed by Catholic Church or P.C.E.A. Chogoria. The two major religious organization within the study area are Catholic and P.C.E.A.

In Igoji location there is St. Ann Maternity Cottage managed by the Catholic Church and located at Igoji rural centre. The dispensary provide services
to outpatients and has facilities for about twenty maternity cases per given period. The church has also a dispensary within Igoji location at Mworoga which caters for outpatients only. The entire running of the dispensaries is the responsibility of the church and their charges are relatively cheaper than other private clinics. It is not common to find the problems of drug shortage in these two dispensaries as is the case with the government health facilities in the area. The church also run and manage Igandene Dispensary located at Abogeta location. Also ran and managed by Catholic Church is Gaturi clinic within Abogeta location. The major problems experienced by these facilities are lack of proper communication services in terms of road network and better and bigger buildings.

Apart from Nkubu Catholic hospital and St. Ann Maternity Cottage, the other health facilities are located in very remote areas where most community services are lacking. The criteria adopted in locating the Catholic Health facilities to the present location has more to do with religious consideration than on any other policy of distance or population density. A good example is Gaturi clinic which is located at the middle of peoples farms with very poor communication network.
Chogoria P.C.E.A. hospital has a number of dispensaries located in the three locations. In Igoji location there is Kathigu and Gatuntune dispensaries. In Abogeta, there is Nkacii and Makandune dispensaries and Ithrimbari Family Health Clinic. In Nkuene location there is Gaatia, Kathera and Kirogine dispensaries. The criteria for location is the same to that of the Catholic Church facilities. The church considers the religious influence more than other considerations like travel distance or population density. Like the Catholic Managed health facilities, the P.C.E.A. health facilities are better equipped, and drug delivery is more reliable than in Government health facilities.

It is however important to note that most of the people of a given religions sect prefer to seek for medical care at the health facility provided by their church or in the Government health facilities. The aspect of religion is quite strong that some of the people have a belief that if they seek medical care in a different religions health facility they might be poisoned. For this reason then, we find many cases of bypass and underutilization and overutilization existing side by side.
4.3 PRIVATE AND 'HARAMBEE' FACILITIES:

It is important to point that there are no Harambee managed health facilities in South Imenti Division at the moment. There are however a number of private clinics which are specifically located in the market centres. There are cases where the community started the building of a health facility and then after completing the structure asked for assistance from either the Government or the Mission. Most of the P.C.E.A. managed Dispensaries started as a self-help project and the P.C.E.A. church only took over the management in order to supply them with manpower, equipments and drugs. Kinoro Dispensary also started as a self-help project but latter was taken over by the Government.

There are several private clinics in South Imenti. Most of these clinics are located in the market centres where the clinic officers have plots in which they operate. This is purely governed by the profitability of the business and it has nothing to do with any other criteria of location. In Igoji location there are three private clinics located in Igoji market and run by three clinic officers. In Abogeta location there are two private clinics, one located at Kionyo local centre and the other at Kithurine. Nkuene location has three private clinics located at Nkubu urban centre and one at Kagwampungu local centre in Kathera Sub-location.
Mitunguu market centre has a private clinic supplementing Mitunguu Dispensary.

Although the Private Clinics charge high fees patients continue to visit them because they are offered credit facilities (when the patients are not able to pay immediately) to pay when they receive their payments from tea or coffee. (Map No. 6)

4.4 RELATED COMMUNITY SERVICES:

Health services by themselves have a limited impact on overall development of the health of any area. The combined effect of other community services is fundamental in provision of health care. Particular support is therefore required from such sectors as agriculture, water development, nutrition, education, community development, information and broadcasting, sewage, service centres among others.

Education, like health is an essential component of socio-economic development. Each school is part of the community and, indeed, can be regarded as a community itself. Healthy children learn well so it is important to ensure that school children achieve the highest possible level of health. Education on the other hand help people to understand ways and means of controlling and curing sickness.
Public utilities such as water supply, sewage, electricity, transportation network, telecommunications and other related community services are very important in the provision of better health to the people. It is important to note that each location in the study area has different major constraints which render better health of the people difficult. It is nevertheless easy to point out that among the major problems, transportation network is at the apex. Apart from the newly constructed Embu-Nkubu road, the rest of the roads in the area are unaccessible during the rainy seasons. Improvement of health services in South Imenti therefore should go hand in hand with improvement of transportation network.

The problem of water supply also renders provision of health services difficult. Most of the health facilities have no access to reliable water supply. Kionyo dispensary is a good example where the community volunteer to fetch water for the running of the dispensary. Mworoga dispensary also has the same problems. Although some of the health facilities have facilities for water supply, it is common with most of them to stay for a week or more without water.

Community services like electricity and telephone services although some people would dismiss
them as 'luxury' are also essential for better health care. The only areas provided with telephone services are those on the Meru-Embu road whereas those on the remote interior parts of the division have no access to these services. Lack of accommodation for health staff constitutes a major constraint in the study area. Experience shows that even when staff are available it may be impossible to deploy them in the needy areas due to shortage of housing. We therefore find that the situation is not so good in relation to community services in the area.
4.5 STAFFING LEVELS

In South Imenti division, like anywhere else, in Kenya, staffing levels and qualifications of the health staff vary relative to the size and nature of the health facility. We shall look at the staffing situation in the study area for both the public and private provided health facilities. As we noted earlier, the highest level of health facility in the study area is of a hospital status and the area is not provided with any Health Centre apart from several dispensaries. A field survey carried out in the study area for 13 dispensaries revealed that there is a big shortfall between what is existing and what the Government staffing norms provide for a dispensary. This problem is common in both the Government and Missionary provided health facilities. The following tables show the nature of staffing and the variations thereof.
## STAFFING IN THE DISPENSARIES

Government provided Dispensaries

<table>
<thead>
<tr>
<th>Category of Staff</th>
<th>Kinoro</th>
<th>Kanyakine</th>
<th>Kionyo</th>
<th>Ithimbari</th>
<th>Mikumbune</th>
<th>Uruku</th>
<th>Uruku Prison</th>
<th>Mitunguu</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic Officer</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>1</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>1</td>
</tr>
<tr>
<td>EN/EM/ECN</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Patient Attendant</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>1</td>
<td>1</td>
<td>.</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>General Attendant</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>.</td>
<td>2</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>FHFE</td>
<td>2</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>Category of Staff</td>
<td>St. Ann-Igoji</td>
<td>Ithimbari</td>
<td>Igandene</td>
<td>Gaturi</td>
<td>Gatuutune</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------</td>
<td>-----------</td>
<td>----------</td>
<td>--------</td>
<td>-----------</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinic Officer</td>
<td>1</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN/EM/ECN*</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Attendant</td>
<td>2</td>
<td>-</td>
<td>.</td>
<td>.</td>
<td>.</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Attendant</td>
<td>23</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EHFE*</td>
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<td>1</td>
<td>.</td>
<td>.</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*EN - Enrolled Nurse
EM - Enrolled Midwife
ECN- Enrolled Community Nurse
FHFE - Family Health Field Educator.
The Table below sets out the Ministry of Health current (for Rural Health Centres and Dispensaries type I) and planned (for dispensaries type II) staffing norms for Rural Health Facilities.

Table 4.4  Staffing Norms

<table>
<thead>
<tr>
<th>Staff Category</th>
<th>Rural Health Centre ¹</th>
<th>Dispensary ¹</th>
<th>Dispensary²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinial Officer</td>
<td>1</td>
<td>.</td>
<td>3</td>
</tr>
<tr>
<td>Enrolled Community Nurse</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Public Health Officer</td>
<td>1</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Public Health Technician</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Family Health Field Educator</td>
<td>2</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Laboratory Technician</td>
<td>1</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Statistical clerk</td>
<td>1</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Patient Attendant</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>General Attendant</td>
<td>5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Driver</td>
<td>1</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Cook</td>
<td>1</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Watchman</td>
<td>2</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: MOH, Published in Integrated Rural Health and Family Planning Project - Plan of Implementation. October 1983.

¹ Current norms, as revised in 1980. Previously dispensaries type I had a norm of one ECN and RHCs four ECNs. No Public Health Officers were previously included in the RHC staffing norms.

² Planned. For dispensaries type II serving populations in the upper range of the 8,000 to 16,000 bracket the norms of three ECNs is likely to prove too low.
In Table 5.1 we find that there is a big disparity in the distribution of health staff amongst the dispensaries. The Government staffing norms for type 1 dispensary provide for 2 Enrolled Community Nurses, 1 Public Health Technician, 1 Patient Attendant, and 1 General Attendant. For a type 11 dispensary, the Ministry provide for 3 Enrolled Community Nurses, 1 Public Health Technician, 2 Patient Attendants, and 3 General Attendants.

We find that although all the dispensaries are expected to be of the two types, it is not reflected by staffing as it can be noticed relating to the situation in the study area. There are cases where there are more categories of staff than provided by the Ministry of Health staffing norms, while on the other hand, there are cases of less staff for particular categories than otherwise proposed by the Ministry of Health. Kinoro Dispensaries is provided with 4 Enrolled Community Nurses while the Ministry requires a dispensary of that magnitude to have three Enrolled Community Nurses. Apart from Kinoro and Ithimbari Dispensaries all others have less staff than otherwise expected. Ithimbari Dispensary is provided with a Clinical Officer placing it into a better position than all other dispensaries in terms of staff.
This disparity in staffing defies the Government policy that health facilities of equal levels should be equally staffed. The case is similar with the Missionary provided dispensaries as can be noticed in Table 5.2. St. Ann Maternity Cottage leads with 30 members of staff, but this can be explained by the fact that the health facility provide services for expectant mothers. St. Ann Maternity Cottage, although taken as a dispensary is of its own level given the services it provides. The rest of the Missionary health facilities fall below the Ministry's staffing norms as is evident in Table 5.2.

4.6 SPARTIAL DISTRIBUTION:

The other level of disparity is the spatial distribution of the dispensaries. For the purposes of comparison, we will look at the dispensaries on a locational basis. As earlier stated, the area is served with only one hospital, no health centre but several dispensaries. We shall therefore look at the dispensaries as they are located in particular locational administrative unit. Igoji location is served with one Government dispensary, four missionary dispensaries and three Private clinics. Abogeta location has three Government dispensaries, five missionary provided and three private clinics. Nkuene location is served with four Government provided dispensaries, three missionary provided and 4 private clinics.
Looking at Table 5.4 we at once recognise that Abogeta and Nkuene locations are better served with dispensaries. This disparity can be seen more clearly when we look at the population, geographical size and the density of the three locations.

*Nkubu Catholic Hospital is excluded in Nkuene's statistics.*

Looking at Table 5.4 we at once recognise that Abogeta and Nkuene locations are better served with dispensaries. This disparity can be seen more clearly when we look at the population, geographical size and the density of the three locations.

**Table 4.5** DISPENSARIES IN THE AREA

<table>
<thead>
<tr>
<th>Location</th>
<th>Government</th>
<th>Missionary</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Igoji</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Abogeta</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Nkuene</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>12</strong></td>
<td><strong>10</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

Using Health Dispensary/Area Ratio we find that Igoji which has 8 dispensaries to its 119 square kilometres comes out with a ratio of 1:15 km$^2$, Abogeta has a ratio of 1:13 km$^2$ and Nkuene has a ratio of 1:12 km$^2$. This analysis should however not be mistaken for the MOH Health Facility/Area ratio for the Ministry takes health facility to be of the level of a health centre. This can not be done for the study area since there are no health centres. The analysis is however important for comparing health Dispensary/Area Ratio for the three locations.

The other basis on which comparison can be done is by Health Facility/Population Ratio. For our comparison purposes we shall use Dispensary/Population Ratio. With respect to Dispensary/Population Ratio Igoji location comes out with a ratio of 1:3856, while Abogeta location has a ratio of 1:2900, and Nkuene location has a ratio of 1:3709. Again on the basis of this criteria it is clear that Nkuene and Abogeta locations are better placed than Igoji location. Abogeta location is the best among the thee locations.

Looking at Table 5.4 we find that Government Dispensaries are less intense. The rural health unit concept provide that the dispensaries and Health Centres are supposed to form the rural health unit.
Four dispensaries are supposed to serve a particular health centre and when this number exceed four, one of the dispensary should be upgraded to health - sub-centre level. This does not seem to be the case in South Imenti. The division is served with eight Government dispensaries and yet the entire division has no health facility of a health centre status at present. According rural health unit concept the area ought to have two health centres which should be supported by the eight dispensaries.

Another important aspect in the distribution of health facilities is that government health centres should be at least 8 kilometres apart or 2 hours walking distance. There is no doubt that this is not the case in our study area since the area is not served with any Government health centre at present.

4.7 UTILIZATION OF INDIVIDUAL FACILITIES:

Accessibility is an important factor in provision of health care. Accessibility should not be seen only through geographical location but also factors like acceptability and affordability must be considered. Availability of health services within a given community offers easy accessibility, in terms of both effort and cost, to the users. We have seen
that the health services are not readily available in
the study area. We have also seen that the level of
health services fall below the expected. The fact
that the study area is served with only one hospital
and no Health Centre makes it difficult for patients
who require the services of these two levels of
health services.

A field survey revealed that 4% of the sample,
sort medical care within less than 1 km, 19% within
1 to 2 km; 31% within 2 to 4 km, 20% within 4 to 8
km. and 26% within more than 8 kms.

<table>
<thead>
<tr>
<th>Distance (Km)</th>
<th>Percent of Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 km.</td>
<td>4</td>
</tr>
<tr>
<td>1 - 2 km.</td>
<td>19%</td>
</tr>
<tr>
<td>2 - 4 km.</td>
<td>31%</td>
</tr>
<tr>
<td>4 - 8 km.</td>
<td>20%</td>
</tr>
<tr>
<td>+8 km.</td>
<td>26%</td>
</tr>
</tbody>
</table>

Sample size 150

People will sometimes use a health facility
not so much because they need its services but just
because the facility is accessible to the people.
65 percent of the sample size sort health care at the nearest health facility, while 35% prefered another facility. Distance alone does not determine the use of a given health facility by the community but rather other related factors such as the geographical setting, acceptability and affordability do have their effect. Distance also could be short but due to other geographical obstacles and means of communication may make it impossible to cover a relatively short distance. The study area is characterized by deep valleys with deep rivers flowing down them (some have no bridges across them), poor road network and hills and forests. Communication is therefore both very difficult and irregular in this area.

People's acceptance of a health facility and the attractivity of the facility to the people may have a bigger role in influencing the people's use of the given health facility. This is true for most Government sponsored facilities. The field survey revealed that in most of the time especially during the rainy seasons the Government dispensaries receive no drugs partly because of communication problems and partly because of financial and managerial constraints. Kinoro, Kionyo, Uruku
and Mitunguu dispensaries are good examples. People may prefer to travel longer distances to seek health care rather than visit the local health facility where the services given are unsatisfactory as perceived by the patients and not necessarily as judged by the medical professional. 62 percent of the respondents felt that they waited for long for treatment in their last visit to the health facility. Only 38 percent was satisfied by the duration of waiting before receiving the medical attention. The health personnel might not meet the expectations of the patients and this would determine where a person would seek health care next time.

Table 4.8: Opinion of treatment received as perceived by patients

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>15</td>
</tr>
<tr>
<td>Fair/good</td>
<td>62</td>
</tr>
<tr>
<td>V. Good</td>
<td>8</td>
</tr>
<tr>
<td>None</td>
<td>15</td>
</tr>
</tbody>
</table>

Sample size 150

Only 8% of the respondents felt that the treatment they received from the health facility last visited was very good. 15% felt that the
treatment was poor and 62% felt that it was fair. The opinion the people have towards a given health facility would to a greater extent determine the level of utilization. The network of other health facilities available in that community may also influence the people's use of a particular health facility notwithstanding its distance.

**ECONOMIC CONSTRAINTS:**

Economic barriers exclude many people in the study area from receiving the type of health care they would wish to have. Even where users are not charged for services, as with the Government health facilities, the costs of transportation and time away from work can be prohibitive for the poor. In any community however, the general level of health is largely determined by the socio-economic status of the people. Money can buy health services and environmental improvement. It is very difficult however, to get an accurate assessment of people's income because people are reluctant to disclose their income because at time, they are suspicious of the motives of the investigator. The important indicators of economic status of the people in the study area are: livestock and land holdings, farm incomes, farm assets and occupations of the household members. The problem with using materials possessions as indicators is that they might not be placed where the interviewer
could see them, and people might be reluctant to discuss whether or not they actually have them. Most people in this area are poor as can be seen in the table below.

Table 4.9  

| INCOME |  
| --- | --- |  
| Income per year (in Ksh.) | Percent |  
| Less than 5,000 | 31 |  
| 5001 - 10,000 | 22 |  
| 10,001 - 30,000 | 35 |  
| 30,001 + | 12 |  

Sample size 120

65 percent of the head of the households were farmers, and 19 percent were institutional employees while 12 percent were businessmen. This is shown in Table 5.9 below.

Table 4.10  Occupation of the head of the household

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer</td>
<td>65</td>
</tr>
<tr>
<td>Institutional employee</td>
<td>19</td>
</tr>
<tr>
<td>Business</td>
<td>12</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>
Occupation is an important index to measure the economic status of an individual. The more progressive farmers for example, would normally have a different life style to a peasant, and his family would probably have better health due to such factors as improved nutrition, better housing and different health behaviour. It should be noted that those in institutional employment, also have their land which is managed in most of the time by their wivies. The fact that the husband has a wage earning job places the family on a higher plane of living. The farmers depend on the payments of their produce (i.e. coffee, tea, tobacco etc.) which in most of the time does not arrive in time. They are quite often confronted with unlimited wants and they have to share their scarce resources to the wants they judge urgent. The coffee and cotton payments are not regular and so you might find a situation where a family has not received any payments for more than half a year. This problem is even made worse by the fact that most of the families in the study area are too large.

Table 4.11: Number of children in the household

<table>
<thead>
<tr>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>27</td>
</tr>
<tr>
<td>4 - 5</td>
<td>23</td>
</tr>
<tr>
<td>6 - 7</td>
<td>19</td>
</tr>
<tr>
<td>8 - 10</td>
<td>19</td>
</tr>
<tr>
<td>11 +</td>
<td>12</td>
</tr>
</tbody>
</table>

Sample size 150
50 percent of the households had a family of six or more children. It is only 27 percent of the families with less than three children.

The family size influences the health of a community. In Kenya today, one of the desirable goals in establishing and maintaining a healthy family is to space the births of children. This would ensure the health of the mother and the children. The parents would also be able to provide the required economic, social and emotional support for their children, all of which contribute to healthy living. A reduction of the population growth rate also may facilitate agricultural and technological modernisation. The population growth rate for the study area between 1969 and 1979 was 3.7 percent per annum. This is a high growth rate given the fact that it is a rural area with poor economic resources.

It must be emphasized that economic status and child health are greatly influenced by the frequency and number of births. It is true that for instance a mother who gives birth annually find it more difficult to give each baby the attention it requires. This might even bring about tensions and misunderstandings within their marriage. It is also true that depending on the family's economic status, the more people there are to be fed, the smaller the amount there is available for each individual and the
poorer the quality. In the final analysis this will mean poor health for all the members of the family.

SOCIO-CULTURAL FACTORS:

4.9 The socio-cultural factors have some influence in health care utilization. The community's beliefs, practices and their concept of health and disease as well as illness, will determine whether to seek health care or not. Decision-makers quite often influence the patients in terms of what services may or may not be sought.

Table 4.12 Who advised on the type of Health Care last sort

<table>
<thead>
<tr>
<th>Advisor</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends</td>
<td>15</td>
</tr>
<tr>
<td>Self</td>
<td>58</td>
</tr>
<tr>
<td>Relative/Parents</td>
<td>15</td>
</tr>
<tr>
<td>Medical Personnel</td>
<td>12</td>
</tr>
</tbody>
</table>

Sample size 145

We find out that in the study area 58 percent made the decision themselves to seek a particular health care. The important factors which will influence the individual when seeking health care will be the accessibility, availability and reliability of such a health facility to the individual. The social and
the physical environment also contribute to people's use of a health service. Although held attitudes may not necessarily affect the decision to utilize professional medical service, they are strong determinants of the type of the health service utilized. The study area being dominated by two religious organization who also provide for health care in the area, it is not surprising to find a patient bypassing a health facility to seek health care in health facility of their religion.

Table 4.13 The religion of the head of the household

<table>
<thead>
<tr>
<th>Religion</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protestant</td>
<td>42</td>
</tr>
<tr>
<td>Catholic</td>
<td>50</td>
</tr>
<tr>
<td>Muslim</td>
<td>0</td>
</tr>
<tr>
<td>None</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>

Sample size 138

50 percent of the people of the study area are Catholics and therefore it is not a wonder to find that the Catholic Church is the sponsor of the highest level of the health facility in the area.
The general level of health is to some extent determined by the education of the people. Education can improve health behaviour and help to prevent illness. Public cooperation is also influenced by education standards, the better the education, the more the cooperation is likely to be although there are few exceptions. Table 5.13 shows the education status of the people in the study area.

Table 4.14 Levels of Education of the head of the household.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>7</td>
</tr>
<tr>
<td>Primary</td>
<td>58</td>
</tr>
<tr>
<td>Secondary</td>
<td>30</td>
</tr>
<tr>
<td>Higher</td>
<td>5</td>
</tr>
</tbody>
</table>

Sample size 150

It can be argued that most of the people in the study area are of the primary education level. Only 35 percent of the people are of secondary level of education and above. The absence of education however should not be presumed to mean the absence of intelligence. Frequently an excellent general education may be completely deficient in any health education
content with the result that simply because individuals have had a good general education, it cannot be presumed that they possess health consciousness. Health education has two meanings, a broad one which means an increase in the understanding of the causes of disease and the methods of promoting good health. This form of education is a part of general education and leads to a better knowledge of the sort of problems described in Chapter one.

4.10. ENVIRONMENTAL FACTORS:

In the study area, there are three main environmental aspects which are related to much of existing ill-health. These major factors are the domestic water supply, disposal of human excreta and insect and snail vectors of disease. Other important aspects are housing, food hygiene and accidents. Many diseases are carried by dirty water and if pure water supply can be provided, these diseases cannot occur. A plentiful water supply for washing also helps to prevent many skin diseases which are very common in our area of study. The table below shows the source of water supply in the study area.
Table 15  Sources of Water

<table>
<thead>
<tr>
<th>Source</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private pipe</td>
<td>20</td>
</tr>
<tr>
<td>Community pipe</td>
<td>38</td>
</tr>
<tr>
<td>Stream/River</td>
<td>38</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>

Sample size 150

Bad water causes typhoid fever, diarrhoeas and dysenteries especially in young children - schistosomiasis and Guinea worm. These diseases are very common in South Imenti. Probably the provision of a pure water supply would do more than any other measure to improve health in the study area. We notice that about 40 percent of the people get their water in the rivers or streams. This should not be interpreted to mean that these people have access to water all the time because during the dry season, the rivers dry and they are forced to travel longer distances to fetch water.

The sanitary facilities are also important indicators of a healthy environment. 92 percent of the households visited had a type of a latrine.
Plate 2:

(a) Water is not accessible in some parts of the study area.

(b) Waiting for a turn to fetch water in some parts of the study area.
81 percent also had facilities for bathing and 15 percent used their rooms as bathrooms. 4 percent bathed outside at night. Although 92 percent of the households visited had a latrine, practically most households had sanitary facilities which if used, might not protect the environment from contamination.

Although the people in the study area have evolved their own particular styles of housing to suit their social patterns, as well as to provide suitable shelter, by using available local materials, there are housing conditions known to be related to illness or accidents. Some of the more common ones in the study area is sharing dwellings with animals. Some of the dwellings lack ventilation at night when all the occupants are present, and also other animals like goats, sheep, and chicken. Overcrowding of sleeping areas, and dangerous fire places is very common in most of the homes in the study area. All these factors mean a lot to the health of the people in South Imenti.

4.11 THE INTER-RELATIONSHIP BETWEEN THE RURAL HEALTH UNIT CONCEPT AND SERVICE CENTRE CONCEPT AS A PLANNING CRITERIA FOR RURAL HEALTH SERVICES.

The Government of Kenya has worked out a policy which consists of a network of Designated service centre into which various facilities should be concentrated
(a) A modern sanitary facility.

(b) A common sanitary facility which might not protect the environment from contamination.
and which, at the same time, ensures a more equitable and rational geographical distribution of infrastructural facilities and social services in terms of population distribution over the country. The argument for this approach is that when facilities are grouped together in one centre they are more convenient for the local population since time, energy and money are saved by combining journeys that would otherwise have to be made to individual services scattered around. Grouping these services is also more economical in that water supplies, sewers and power lines can be installed to serve all these activities more cheaply than if they were scattered over a wide area. Another advantage is that the road pattern between centres can be more rationally constructed to serve centres which make them more readily accessible.

In the provision of such services there should be a balance between what is economically feasible and the convenience of the rural population in terms of accessibility. The minimum number of people required to support a particular service function varies according to the type of service. Specialized facilities like hospitals can only be economically provided in a few larger scale towns because the minimum number of people required to support such a facility economically is considerable. On the other hand,
a service like a dispensary requires smaller catchment area to be economically viable, and therefore can be provided in a greater number of smaller centres which in this way, also improves accessibility to everyday services. These requirements of scale and accessibility lead to the development of a distribution of interrelated centres at different levels characterized by a few large-scale towns and an increasing number of smaller settlements, the smallest centres being the most numerous.

Under the Health Unit Concept, rural health facilities are expected to be designed to serve population catchment areas of approximately 50,000. However the actual size of each individual Health Unit may vary in accordance with its geographical and settlement characteristics. Each Health Unit, when fully developed consist of one health centre, one sub-centre and a number of dispensaries which can be increased according to population growth. The area should have at least four dispensaries before it can be eligible for the development of a health sub-centre.

When we look at these two planning concepts we can see that the criteria used is more or less similar. The major factors considered are, the catchment area, population density, communication, topography and the
current distribution of services. In the selection of growth centres, the idea is to locate services within reasonable reach of the people they are meant for. The services should also be located in such a way as to correspond to the levels of the centres. Under the Rural Health Unit Concept, planning of Rural Health Units should as far as possible conform with achievement of optimal accessibility in short and long terms. It should also reflect preferred patterns of movement in terms of communication network and in regard to the topography of the area.

The Physical Planning Department has given the guidelines for the locations of health facilities and also the Ministry of Health has designated a catchment area for each health facility. Table 5.15 shows this designation.

Table 4.16 Hierarchy of Centres and the Corresponding Health Facilities

<table>
<thead>
<tr>
<th>Centre</th>
<th>Health Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRINCIPAL TOWN</td>
<td></td>
</tr>
<tr>
<td>National Capital</td>
<td>National Hospital</td>
</tr>
<tr>
<td>Municipalities</td>
<td>Provincial Hospital</td>
</tr>
<tr>
<td>URBAN CENTRES</td>
<td></td>
</tr>
<tr>
<td>Rural Population 120,000</td>
<td>District Hospital</td>
</tr>
<tr>
<td>RURAL CENTRES</td>
<td></td>
</tr>
<tr>
<td>Rural Population 40,000</td>
<td>Health Centre</td>
</tr>
<tr>
<td>MARKET CENTRES</td>
<td></td>
</tr>
<tr>
<td>Rural Population 15,000</td>
<td>DispensaryFamily Planning Service.</td>
</tr>
<tr>
<td>LOCAL CENTRES</td>
<td></td>
</tr>
<tr>
<td>Rural Population 5,000</td>
<td>None</td>
</tr>
</tbody>
</table>

Source: 1979/83 Development Plan.
From Table 5.15 it is clear that the Provincial hospital is expected to serve a threshold more or less equal to that of a Province. The district level hospital is expected to serve a population threshold of 120,000, a health centre is designed to serve the population of 40,000, a dispensary is expected to serve a population of 15,000 and no health facility in a local centre. The Rural Health Unit which is expected to have its headquarter in an hospital or a health centre should serve a population of 50,000-70,000 people.

We find that the two planning concepts are not conflicting and in fact should be used together for planning for rural health services. For convenient and rational planning all health centres should be located in centres of at least Designated Rural Centre Status since these have a similar population catchment area, and for the same reason health sub-centres should be located in designated market centres and dispensaries in designated local centres. By the same argument, priority for improvement should be given to those existing facilities located in designated service centres as against those outside them.

The major shortcoming of the Rural Health Unit is its failure to consider the location of non-governmental
Plate 4:

(a) An example of an old health facility structure.

(b) A modern health facility structure.
health services which form the back of health services in rural areas. Taking the case of South Imenti Division where the highest level of Government health facility is of a dispensary status, it would be difficult to know the most rational location for such facilities as there are many rural and market centres without the health facilities. Although many market centres have no health facilities in the study area, we find dispensaries located in non-designated areas as is the case with Gaatia, Makandune, Kathingu, Mworoga Ithimbari, Gaturi, Nkacii, Uruku, Kathera and Kirogine. A market centre like Miruriri has no dispensary while non-designated area like Ithimbari is provided with Government dispensary.

It is important to note here that inspite the Government spatial planning policy, anomalies exist in the location of health facilities in the study area. Ithimbari Dispensary which is the newest constructed Government facility is located in a non-designated area notwithstanding the Government policy. The situation is made worse by the fact that there is a P.C.E.A. Dispensary located 100 metres away. This is a true case of duplication of services while other areas lack such services.
(a) A one-roomed Dispensary in the study area.

(b) The inside of the Dispensary which does not reflect high standard of hygiene.
CHAPTER FIVE

5.0 FINDINGS AND RECOMMENDATIONS

It has been shown from the analysis of the study area that there are a number of factors responsible for the state of health prevailing in the area. It has been noted that there is inadequate health services within effective reach to people's homes. This is both because of lack of services in general and also because the existing spatial pattern of health facilities is not sufficiently related to population density. Most of the health services in the study area are often located outside the designated service centres or in centres of a very low level while some centres of a higher level have no health facilities at all. There are also cases where duplication of services and almost complete lack of services occur side by side. A good example of duplication is Ithimbari Government dispensary which has been constructed only 100 metres from a P.C.E.A. dispensary while the lower parts of Abogeta location lack these services.

It has further been shown that the staffing levels and qualifications of the health staff vary relative to the size and nature of the health facility. A big shortfall in relation to what is existing and what the Government staffing norms provide for a particular health facility has been identified. This problem is common in both public and
Plate 6:

(a) A P.C.E.A. Dispensary located 100 metres from a Government Dispensary.

(b) A modern Government Dispensary located next to the above P.C.E.A. Dispensary.
private health facilities. Although the health facilities of same level are expected to have equal level of staff, this is not the case in the study area. There are instances where there are more categories of staff than provided by the Ministry of Health staffing norms, while on other hand, there are cases of less staff for particular categories than otherwise proposed by the Ministry of Health. Kinoro dispensary is a good example of a case where there are more staff of a particular category than spelt out in the staffing norms. There are four enrolled Community Nurses while the Ministry requires a dispensary of that magnitude to have three. Most of the health facilities however fall below the Ministry's staffing norms.

It has also been shown that there is disparity in the spatial distribution of the health services. On the basis of Dispensary/population ratio, Igoji location comes out with a ratio of 1:3856, while Abogota location has a ratio of 1:2900, and Nkaene location has a ratio of 1:3709. On the basis of this criteria Abogota is best placed than Nkuene and Igoji being the worst in terms of dispensary/population criteria. Although the health unit concept provide that four dispensaries are supposed to serve a particular health centre and when this number exceed four, one of the dispensary should be upgraded to a health-sub-centre level, it
is not the case in the study area. The division has eight Government dispensaries with no Government health centre or hospital.

Although the health centres are supposed to be at least 8 kilometres apart or 2 hours walking distance, it is not reflected in South Imenti since the division is not served by any health centre.

It was noted that a major problem in provision of health care was that of under-utilization of some of the existing modern health facilities. Economic, Demographic, Socio-cultural factors together with the nature of health services were identified as factors determining utilization. Economic barriers were noted as excluding many people from receiving the type of health care they would wish to have. Even where the patients are not charged for services, as with the Government health facilities, the costs of transportation and time away from work was taken as prohibitive for the poor. The people in South Imenti who are essentially small-farmers are often confronted with unlimited needs and they have to share their scarce resources to the needs they judge urgent. This problem is made worse by the large family size which is common in the area.

There were also noted to be major socio-cultural factors influencing the health care utilization. The community's beliefs, practices and their concept of health and disease as well as illness determines whether
to seek health care or not. It has been noted that health facility to be utilized at the planned rate, it should not only be accessible to patients, but its services should be of acceptable quality, as perceived by the patients, and not necessarily, as judged by the health professionals. For effective rural health planning the problem of underutilization should first be tackled.

Environmental factors were also identified as closely related to much of existing ill-health. Domestic water supply, disposal of human excreta, housing, hygiene and accidents were singled out as major aspects responsible for the poor health of the people in the area. Most of the people in the area get their water from rivers and streams which are not in most cases sources of pure water supply. Practically most households in the area have sanitary facilities which if used, might not protect the environment from contamination. Most of the housing conditions are not conducive to good health. It was noted that some of the dwellings lack ventilation and also animals like goats, sheep and chicken share same dwellings with people. All these factors have been identified as contributing to the state of health in the area.
5.1 PLANNING IMPLICATIONS

Given the limitations existing in the rural areas, when planning for rural health services, there is need to look at the effective, cheap and available technology which could be used in the provision of health services. The scarcity of health facilities (Physical and human) should not be the only concern of health planners, but more so the extent of utilization of the available health services by the population concerned. Provision of additional rural health facilities will improve the statistical health care coverage in the rural areas since the population/health facility ratio will decline, but this does not mean the health status of the people concerned has gone up (as measured by a decline in mortality and morbidity rates) over the same period. There is therefore a need for a careful re-examination of the planning policy for the future development of not only the rural but all health services in the country.

It was earlier noted that the health care delivery approach adopted by the Government of Kenya has been largely promotive of highly sophisticated and centrally located medical care and, even when not so, has frequently been unrelated to local realities. Those services have often operated in an isolated manner, neglecting other factors contributing to human wellbeing such as education, communications, agriculture, social organization,
community motivation, water supply, nutrition, and other related factors. There is therefore a need for a more intersectoral approach involving all the health related sectors. For support to be effective it must be well co-ordinated not just at the local or community levels as well. The combined effort of other sectors is much greater, and therefore it is absolutely necessary to build a co-operation between different sectors otherwise health services by themselves have a limited impact on overall development of health of a community. Improvement in socio-economic conditions, can improve the general health status of the people hence it requires continued action for socio-economic development, including health programmes and the active participation of the people. It is true that people's health depends far more upon what they do than upon the efforts of health service workers, however numerous. This implies that existing resources should be fully utilized and promoted through concerted action.

It has been noted in this study that the share of the rural areas in the health budgets of Kenya is very small compared with those of urban areas like Nairobi. This implies that the access of large segments of Kenya's population to health services is limited or non-existent in that only about 30 percent of the rural population in Kenya has reasonable access to any form of modern health services, yet nearly about 87 percent of the population reside in rural areas, while about 80 percent of Kenya's
health resources are concentrated in major cities of Nairobi and Mombasa.

Medical education in recent decades as earlier noted was focused on diagnosis and management of diseases which often were not the only major health hazards. This is reflected in the services provided, consisting at best of costly curative services dependent on drugs and on hospital care. The poor in the rural areas find themselves at a disadvantage because of this approach.

If the present trends of health care continue, the existing gaps will be further widened. For example, the differences between urban and rural health services will be accentuated. The health services will continue to commit themselves to costly and specialized medical care, requiring most of the health budget, and thus the services will become even less accessible and unable to meet the demands of the majority of the population.

The problem of underutilization has been identified as a major concern limiting health care delivery. This has been caused by lack of acceptable, accessible and affordable health services which has made the consumer view the health services with dissatisfaction due to all these problems. This again calls for other health-related programmes in agriculture, transport, education, community development which may offer natural base for health services.
5.2 POLICY APPROACH

It has been seen that health problem solution in the rural areas is not one of just simply shifting health resources from the urban-to-rural areas. This is so because the current method of providing health care is highly intensive in the use of both physical and human capital and incidently there is scarcity of both. An urban-to-rural transfer of health resources perse would provide health services only to a very small section of the rural population hence a need to adopt a better approach. Health planning should more concern to people's needs and not just provision of more health facilities.

The solution to rural health problem must take into account the most effective, cheap and available approach in provision of health care. Concern should more from more conventional health care to a rather more comprehensive approach which should encompass sectors of agriculture, education, housing, environment transport, water supply and other health-related sectors. The solution to the rural health problem therefore will require an approach integrating all the elements necessary to make an impact on the health status of the people. One such approach which could respond to the health needs of the people is that of "Community based health care". This consists of simple
and effective measures, in terms of cost, technique, and organization, which are easily accessible to the people requiring relief from pain and suffering and which improve the living conditions of individuals. The effectiveness of formal public health services can be enhanced by encouraging rural communities to take responsibility for meeting some of their most basic health needs.

All the agencies concerned with provision of health care should adopt an integrated approach. The Government, the Missionary and Private health facilities should be located and distributed as per the government laid down guidelines. Referral system should be improved such that the Missionary, private and Government health facilities work in coordination with other health facilities irrespective of their provider.

A well functioning transportation system is an absolute prerequisite for the delivery of health services. The road network should be improved as a matter of urgency in order to enable accessibility and travel by health staff to perform duties in the communities especially outside the hospital and dispensaries. This will also ease delivery of medicine and other supplies also for referral of patients and ambulance services. It is important to note that
efforts to develop an effective system for health care require the problem of the whole transport system to be tackled. Travelling distance could be reduced by introducing faster and efficient methods of transportation.

It was found that health services in the area were inadequate. There is urgent need to provide for more health services. Provision of new health services should be coupled with improvement of the existing health services such that they are adequately equipped with health personnel and equipments. In order to provide a rational pattern of health services in the study area, the areas like lower parts of Abogeta and Igoji locations which are totally lacking in any type of health services should receive priority. Further, all health facilities should be located in designated service centres and priority for improvement should be given to those existing facilities located in designated service centres as against those outside them. This will achieve the Government aim of more geographical balanced and equitable distribution of health facilities. Kanyakine dispensary should be upgraded to a health centre level since afterall the Nyayo wards are being constructed. Igoji dispensary should be upgraded to a health centre level since it is in a rural centre and the population catchment allows for a facility of this
Plate 7:

(a) A modern staff house of a modern Government health facility in the study area.

(b) Women patients waiting to be treated in a modern Government Dispensary.
magnitude. Ithimbari Government dispensary should also be upgraded to a health centre level as the facility is well equipped with buildings as it is the only modern constructed health facility with beautiful staff houses. Mitunguu dispensary should also be upgraded to a health centre level to serve the lower parts of Nkuene and Abogeta locations. Ithimbari P.C.E.A. health clinic located about 100 metres from Ithimbari Government dispensary should cease to provide health care on her own since it is not only uneconomical but also irrational. The building structure should be donated or bought by the Government or the public to be a store for Ithimbari Government dispensary. The other health equipments and personnel could be transferred to Miruriri rural centre or Kiangua local centre.

The Kiangua-Kionyo road need to be upgraded to Gravel state imorder to serve the population and the three dispensaries along it. The fact that during the rainy season the road is impassable calls for urgent attention. Also to be gravelled should be Nkubu-Mitunguu road in the short-run (Map 9).

The Ministry of Health should help to improve the quality of outpatient services in the dispensaries by providing them with nurses who have diagnostic and prescribing skills. In the short-run Meru hospital which
Plate 8:

(a) A timber built dispensary.

(b) A modern dispensary common in the study area.
is the only training Government hospital in the district, should make sure the distribution of nurses to these dispensaries is optimal. Nkubu and Chogoria hospitals are able to provide at least one community nurse for their dispensaries.

The Community-based-health-care programmes should be started in all of South Imenti division. The programme which is concerned with the community's wellbeing in relation to education, agriculture, sanitation and all health-related aspects is the best approach in providing health care.

Health education is important if effective health care is to be achieved. The health personnel should spend some of their time organizing, educating and motivating the people to take the necessary action to improve and maintain their own health. With proper health education attitudes and behaviour of individuals are changed and their health status improved by their own actions.
6.1 SUMMARY AND CONCLUSIONS

In this dissertation, an attempt has been made to show factors which determine the state of health prevailing in the rural areas in general, and the study area in particular. Proposals have been made with an aim of modifying the existing situation. It has also been observed that most of the people in the rural areas have no health services within effective reach of their homes. This state of affairs is characterized by lack of health services in general and also poor spatial pattern of location and distribution of health services which has resulted in health facilities being located outside the designated service centres and as a consequence has further resulted into duplication of services and complete lack of services occurring side by side.

It has also been noted that the provision of conventional health care perse will hardly improve the health status of the people, but rather a more comprehensive approach which should encompass sectors of agriculture, education, housing, environment, transport, water supply and other health related sectors should be adopted for effective health care. Demographic and socio-economic factors, together with
the nature and levels of existing health services have also been pointed out has determing the health status of the people. For this reason then, if the health status of the people is to be improved all these factors must be given due consideration.

It has further been noted that the health care system should be more accessible and more decentralized. It should look more to the total situation of the people and be more community-centred. The 'Community based health care' programmes which is essentially health care made accessible to individuals by means acceptable to them, through their full participation on and at the cost that the Community and the Country can afford forms an integral part, both of the country's health system of which it is the nucleus and of the overall social and economic development of the community.

It is important to note here that first unless sick people can be cured in poor communities like South Imenti, it is practically impossible to make these people prevent the infections let alone being productive. In a poor family where there is a child sick with pneumonia, it is unrealistic to think that anybody in that household is in the mood to learn how to prevent these diseases. They want that child to be
saved. The scarcity of staff and medicines has been the biggest single obstacle in providing health care, and that this one factor alone discourages thousands from seeking medical advice. It is more satisfying to a parent, however poor, for his or her sick child to be treated by someone who is qualified, and is not a "non-physician". No man for example wants his wife to be examined and given "family planning" by a non-physician. In other words a para-medical does not inspire the required confidence in the patients or in their relatives as they do not have enough faith in non-physicians. It is important to note here that whereas raising of economic, social and cultural levels of a people is a major factor in the decline of disease it is equally important to appreciate that conventional method of health care is certainly playing a significant role in improving the health status of the people. The two methods should therefore co-exist depending on the nature of the health problem prevailing at each particular time.

On location and distribution of health facilities it is noted that all the facilities should be located in the designated service centres and priority for improvement should be given to those existing facilities located in the said centres against those outside them. This will achieve the aim of more geographical, balanced and equitable distribution of health facilities. It
is also true that when various services are grouped together in one centre they are more convenient for the local population since time, energy and money are saved by combining journeys that would otherwise have to be made to individual services scattered around. Grouping these services is also more economical in that water supplies, power lines and other services can be installed to serve all these activities more cheaply than if they were scattered over a wide area as is often the case at present. Also road pattern between centres can be more rationally constructed to serve centres which make them more readily accessible.
Footnotes:

5. Ibid, p. 4
6. Ibid, p. 4
7. Lambo (1977)
10. Lambo, op. cit.
14. Schwarz (1975) pg. 14
15. Ibid pg. 16
16. Suchman (1967) pg. 88
17. Development Plan 1984/88 pg. 154
18. Ibid pg. 154
19. Ibid pg. 159
20. Ibid pg. 20.
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<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1.</td>
<td>Location</td>
</tr>
<tr>
<td>2.</td>
<td>Sub-Location</td>
</tr>
<tr>
<td>3.</td>
<td>Respondent’s Number</td>
</tr>
<tr>
<td>4.</td>
<td>Date</td>
</tr>
<tr>
<td>5.</td>
<td>Sex: Male ——— Female</td>
</tr>
<tr>
<td>7.</td>
<td>Marital status: Married ——— Single ——— Divorced/separated</td>
</tr>
<tr>
<td>8.</td>
<td>Level of education: None ——— Primary ——— Secondary ——— Higher</td>
</tr>
<tr>
<td>9.</td>
<td>What is your religion: Protestant ——— Catholic ——— Muslim ——— None ——— Other specify</td>
</tr>
<tr>
<td>10.</td>
<td>Number of children: None ——— 1 - 3 ——— 4 - 5 ——— 6 - 7 ——— 8 - 10 ——— 11+</td>
</tr>
<tr>
<td>11.</td>
<td>Is there any dependents ——— Yes ——— No If yes how many? 1 ——— 2 ——— 3 ——— 4 ——— 5</td>
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<tr>
<td>12.</td>
<td>Occupation: Farming ——— Institutional employee ——— Business ——— Other specify</td>
</tr>
<tr>
<td>13.</td>
<td>If any in school, amount of fees paid annually (KShs.) less than 100 ——— 100-500 ——— 501-1000 ——— 1001 - 2000 ——— 2001-300 ——— 3000+</td>
</tr>
</tbody>
</table>
14. Approximately what is your household income per year (KShs.)

- less than 5000
- 5001 - 10,000
- 10,001 - 30,000
- 30,001 - 50,000
- 50,000+

15. Approximately how much do you spend on:

- Education
- Food
- Clothes
- Transport
- Health
- Other specify

16. The structure of the dwelling unit:

(a) Roofing: Corrugated iron sheets
- Tiles
- Thatch

(b) Walls: Masonry
- Wooden
- Earthen

17. Availability of water on the compound:

- Private piped supply
- Piped community supply
- Stream/river
- Other specify

18. Do you have a latrine on the compound? -- Yes
- No

19. Do you have a bathroom? -- Yes
- No

If No where do you bathe?

- In one of the rooms
- Outside at night
- In the river
- Other specify

20. Name three diseases which you consider most common in this area:
21. What medical care did you seek the last time you fell sick?
Modern ------- Indigenous --------- Shop medicine
------------ Self-made herbs --------- None -------

22. Why did you use this type (give reasons)

23. When hospital care was used:

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Which hospital</th>
<th>In-patient</th>
<th>Out-patient</th>
<th>what Opinion</th>
<th>Hosp. paid</th>
<th>Hosp. paid</th>
<th>Attd.</th>
</tr>
</thead>
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<tr>
<td>1.</td>
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<tr>
<td>5.</td>
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<td></td>
</tr>
</tbody>
</table>

24. When indigenous medical care was utilized:

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Method of treatment</th>
<th>What paid</th>
<th>By whom Herbalist W. Doc.</th>
<th>Why</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
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<td>4.</td>
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<tr>
<td>5.</td>
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</tr>
</tbody>
</table>

25. Who advised you on the care you should seek?

26. If you suffer again what medical care would you seek?

Why?
27. Have you ever lost a member of your family in the last 5 years? ------- Yes ------- No.
If yes, what was the illness?  
What medical care was sought?
28. Do you think this death could have been avoided?
Yes --------- No ----------
If yes, how
If no, why
29. What preventive measures have you taken in regard to these diseases?
30. Which food do you give to children (5 years)
31. Apart from medical care in hospitals/clinics are you aware of other health care services?  
If yes, which
32. Do you always consult the medical staff in cases of illness?
If yes, where
If no why
33. Does any health worker visit you house?  
If yes, how frequent
34. Do you think he/she is of any help to your health care  Why?
35. Which hospital do you prefer when:
   Children are sick
   When you are sick
   Why?

36. What is the distance?

37. Is it the nearest hospital/clinic? Yes No

38. If no why don't you use the nearest to your home

39. When did you visit this hospital (mention the one nearest) last?
   Who was sick
   What disease
   What paid
   Complaint

40. What do you think of treatment in that hospital

41. Did you wait for long before getting treatment?

42. What changes do you propose for improvement in this hospital?
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When did this hospital/clinic start</td>
<td></td>
</tr>
<tr>
<td>2. Who funded the construction</td>
<td></td>
</tr>
<tr>
<td>3. Who runs the facility?</td>
<td></td>
</tr>
<tr>
<td>4. What is the number of medical staff and qualifications?</td>
<td></td>
</tr>
<tr>
<td>5. Which are the medical equipments in the facility?</td>
<td></td>
</tr>
<tr>
<td>6. On average what is the number of patients your attend?</td>
<td></td>
</tr>
<tr>
<td>7. Which are the common diseases in the area?</td>
<td></td>
</tr>
<tr>
<td>8. Do you ever involve the community in the running of the facility?</td>
<td>Yes</td>
</tr>
<tr>
<td>9. If yes how?</td>
<td></td>
</tr>
<tr>
<td>If no why?</td>
<td></td>
</tr>
<tr>
<td>10. What are the major constraints experienced in providing the health to the people?</td>
<td></td>
</tr>
<tr>
<td>11. What do you propose for improvement?</td>
<td></td>
</tr>
<tr>
<td><strong>Crude Birth Rate</strong></td>
<td>Number of live births per year per 1,000 population.</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td><strong>Crude Death Rate</strong></td>
<td>Number of deaths per year per 1,000 population.</td>
</tr>
<tr>
<td><strong>Rate of Natural Increase</strong></td>
<td>Difference between crude birth and crude death rates; usually expressed as a percentage.</td>
</tr>
<tr>
<td><strong>Rate of Population Growth</strong></td>
<td>Rate of natural increase adjusted for (net) migration, expressed as a percentage of the total population in a given year.</td>
</tr>
<tr>
<td><strong>Age Specific Fertility Rate</strong></td>
<td>Number of live births per 1,000 women in a given age group in a given year. It is usually calculated for five-year age groups.</td>
</tr>
<tr>
<td><strong>Total Fertility Rate</strong></td>
<td>The average number of children that would be born to a woman if she were to live the end of her childbearing years and bear children according to a given set of age specific fertility rates. The Total Fertility Rate serves as an estimate of the average number of children per family.</td>
</tr>
<tr>
<td>Metric</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Net Reproduction Rate</td>
<td>The number of daughters a woman would have under prevailing fertility and mortality patterns who would survive to the mean age of childbearing.</td>
</tr>
<tr>
<td>Infant Mortality Rate</td>
<td>Annual number of deaths of infants under one year per 1,000 live births during the same year.</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>Average number of years a child born in a given year can expect to live if mortality rates for each age/sex group remain the same.</td>
</tr>
<tr>
<td>Contraceptive Prevalence Rate</td>
<td>The percentage of married women in the reproductive ages who are using a modern method of contraception at any given point in time.</td>
</tr>
<tr>
<td>Health Centre</td>
<td>A static rural health facility serving an average population of 50,000 - 70,000 providing curative outpatient services, MCH/FP, and inpatient services of 12 beds (6 maternity and 6 general beds).</td>
</tr>
<tr>
<td>Dispensary</td>
<td>the smallest peripheral static rural health facility serving a population of 8,000-16,000 (D II) 4,000-8,000 (D I) providing curative outpatient and MCH/FP services.</td>
</tr>
<tr>
<td>Service Delivery Point</td>
<td>a health facility providing MCH/FP services.</td>
</tr>
</tbody>
</table>