USE, CONSERVATION AND MANAGEMENT OF PLANTS FOR INDIGENOUS HERBAL MEDICINE IN KENYA: The Case of Kitui District

by

L. Gathoni Muya

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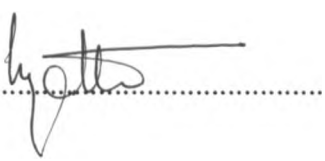
Signature 

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ABSTRACT

The Kenyan population has been experiencing tremendous changes as its ecological systems, economy, political and socio-cultural life responds to exigencies of development. In the the sphere of health, the country continues to be thrown off balance by recent economic crises. Introduction of Structural Adjustment Programmes (SAPS) since the 1980"s has meant modern health care services are reaching fewer and fewer people in the rural areas. Indigenous medicine (IM), which has continued to be utilised by the rural majority of the population, seem to have maintained.its role as a provider of heaalth care. For IM to effectively meet the health needs of its users, medicinal plants and indigenous knowledge which are essential components of IM need to be conserved, and preserved.

The purpose of this thesis is to review the role of indigenous medicine as a community utilised health care service in Kenya. It also aims to identify a representative sample of medicinal plants utilised in IM and the conservation efforts being put both by the users and the government. Field research undertaken in a small community in Eastern Kenya leads to the conclusion that indigenous herbal medicine is extensively utilised by and is preferred by 45% of the commuity. The observations from this study indicate that although the government acknowledges the importance of IM as a health care delivery service in Kenya, the existing health policies are inadequate for its development. This inadequacy has many negative effects on IM resource base. Many medicinal plants utilised in IM are being destroyed through degradation of natural habitats due to pressures of modern development. There are no appropriate natural resource management policies to conserve and manage these medicinal plants which are the major element in herbal medicine practice. Similarly, indigenous knowledge, which enables utilisation of plants in IM is disappearing with the passing of elders.

In order to develop IM and its resource base, this thesis has suggested areas that can be addressed to promote and enhance conservation of both medicinal plants and indigenous knowledge in IM. These include integration of participatory planning in Kenya's planning system, partnership between community and the government in conservation efforts, incorporation of health plans which are sensitive to development of IM. These propositions are expected to lead to national policies and plans that address the use, conservation and management of plants and indigenous knowledge in IM. This thesis also notes areas for further study within Kenya to better understand and promote indigenous medicine resource base within the larger context of indigenous knowledge system.

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To my daughter Lynn Njoki, who bore my 2 years absence with such courage and understanding

and to my Parents, Melkzedeck Muya *muru wa* Githinji, and *Mbitirithi* Wacheke *mwari wa* Mbatia, for believing in me

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CHAPTER ONE

INTRODUCTION

1.0 Background to the Study

At independence in 1963, the Government of Kenya identified poverty, illiteracy and disease as the three enemies of development (Kenya, 1965). The leaders of the newly independent nation found themselves in control of a colonial health care legacy that consisted of a few large, costly hospitals inaccessible to the majority of the population, inadequate manpower, and a fast growing population (Ulin and Segall, 1980).

In its efforts to improve the health and health care delivery system, the government of the day constitutionally guaranteed free out-patient medical services to every Kenyan citizen. In spite of these impressive efforts at independence, access to basic health services still remains a remote and elusive prospect for many Kenyans, especially in the rural areas where 80% of the population live (Good, 1987). By 1992, health statistics showed that over 21 million of Kenya's population was served by 536 hospitals, 3,071 physicians, 492 dentists, and 231 pharmacists (Broderbund, 1992). This is low compared to Canada's 1991 health statistics whose 27 million people had access to 1,241 hospitals, 54, 515 physicians, 12,825 dentists and 20,070 pharmacists (Statistics Canada, 1993). Today, Kenya's western health care services have deteriorated with the introduction of structural adjustment programmes (SAPs) (Okoth-Owiro, 1993).

SAPs have forced the country to drastically cut public health expenditures (Kenya, 1989b). Provision of drugs, maintenance and repair of biomedical equipment are some of the areas that have been particularly affected (Owuor, 1993; Mulaa, 1993; Ondiek, 1993; Okoth-Owiro, 1994). This puts into question the appropriateness and effectiveness of the modern western medical systems that continue to monopolise health care delivery systems. This

monopoly has been maintained in spite of the potential indigenous medicine[1] holds in many African countries such as Kenya, Zimbabwe, Nigeria etc.(Feierman, 1985; Mala, 1988; Rogers, 1988).

Indigenous medicine (IM) as an alternative health care service has been the main provider of health care to the local people after self treatment. Nyamwaya (1987) and Good (1987) estimate that over 75% of the Kenyan population depend on indigenous medicine. In other developing countries, IM has not only continued to be utilised by the majority of the rural population, but remains geographically and culturally central to local people's health care (Ademuwagun et al, 1979; Ramesh and Hyma, 1981; Warren et al, 1982; Akerele 1986). In 1983, WHO estimated that 80% of the people in developing countries rely on indigenous medicine (Bannermann, et al 1983).

1.2 Problem Statement

Plants have been used as medicine for thousands of years in many cultures as the major element of health care systems (Akerele, 1991). The WHO estimates that 85% of indigenous medicine (IM) rely on plants for drugs. However, indigenous based health remedies in many African countries remain unrecognised in spite of the potential medicinal plants have in providing pharmacopoeia for modern medicines (Chavunduka, 1980; 1983; WHO, 1987; Janzen, 1978; Gbadegesin, 1991).

Although Kenya subscribes to The World Health Organisation (WHO) principles which recognise IM as an important form of primary health care (WHO/UNICEF, 1978), there are no existing official policies that encourage its use, conservation and development. Instead, IM is viewed with scepticism by the government and by the western trained professionals due to at least in part, the continued lack of their understanding of its

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[1] Indigenous medicine is a variety of practices which include, herbal medicine, faith healing, bone setting, divination, as well as services provided by spiritualists, and traditional birth attendants.

effectiveness, drug quality and safety (Kenya, 1989b). As IM in Kenya uses plant substances which require conservation, its survival depends on the government and community initiatives and commitment towards its protection and promotion. This is necessary since most of the diseases that plague the Kenyan population are simple, preventable ailments which could be easily treated using herbal remedies if healers and their knowledge were given more government support (Good, 1980: 1987; Sindiga, 1992).

The urgency to conserve medicinal plant species is even more prevalent because of the rate at which tropical forests and natural habitats are being destroyed (Obado and Odera, 1992; Kofi-Tsepo, 1993a). At the national level, there are no explicit national regulations or policies promoting conservation, protection or propagation of indigenous medicinal plants in the country (Kokwaro, 1991). The few existing and uncoordinated local research centres dealing with IM concentrate on identifying and conducting chemical and pharmacological analyses of commonly used medicinal plant species without a conservation agenda.

As the loss of natural vegetation continues due to mounting land pressure for commercial and subsistence farming, many Kenyan medicinal plant species are indiscriminately destroyed before they are identified and screened for their potential use in both indigenous and modern medicines (Kokwaro, 1991; Sindiga, 1994). This is because there has been little awareness at community and policy-making levels of the need to conserve medicinal plants in order to guarantee their sustainable utilisation in IM. In addition, IM is not a written science and the knowledge of healing plants is rapidly disappearing with the death of the older generation (Gachathi, 1989; Nyamwaya, 1992b). Collection and identification of medicinal plants is based on knowledge of their uses which is rooted in indigenous knowledge (FAO 1989; Akerele, 1991; Okoth-Owiro, 1991). For example, ethnobotanists interested in drug discovery, often rely on healers to identify plants that are likely to contain potent bioactive chemicals. It is estimated that 265,000 flowering species are found on earth and of these, less than half of one per cent have been studied exhaustively for their composition and medicinal value (Cox and Balick, 1994).

Lack of government support has continued to threaten the health of majority of the Kenyan communities where modern health care is inaccessible and unavailable. This has also been eroding a well developed store of empirical information on therapeutic values of local plants (Kokwaro, 1993; Good, 1987; Githae, 1992; Nyamwaya, 1992a; Sindiga, 1992). It is against this background that this research was undertaken in the Central division of Kitui district, Eastern province of Kenya, with two goals in mind: 1), to sensitise government policy makers and planners on the importance of recognising and conserving medicinal plants utilised in indigenous medicine, and 2), to encourage community involvement in conservation and management of plants in IM and other natural resources. Hence, this study intends to approach indigenous medicine from a conservation perspective.

1.3 Justification of the Study

My interest in studying the role of medicinal plants in relation to indigenous medicine was spurred by observations and experiences in rural Kenya. While working in one of the communities, an old woman herbalist started treating an epileptic boy after modern doctors failed to treat him successfully. The frequency of the seizures decreased gradually until they disappeared completely. For the four years that I worked there, the boy did not get a single seizure. Unfortunately, the woman passed away and nobody knew the herbs she had used. The community and the nation lost one more "library" at the death of this herbalist whose knowledge on the use and identification of the medicinal plants had not been recorded. This experience prompted an interest and desire to preserve and promote local wealth of knowledge in IM.

In spite of lack of support and many other such challenges, IM has continued to be patronised by all categories of people irrespective of locality (rural and urban), or income (rich and poor), (Oduwo, 1992). This, and the fact that IM has persisted despite a century of subjugation to colonialism, Christianity, formal education, the introduction of modern drugs,

and lack of government support, require more investigation (Okoth-Owiro, 1991). Studies that contribute towards recognition and recording of IM are becoming necessary to safeguard the generations of accumulated medical wealth before it dies with the elderly healers. The promotion and development of indigenous herbal medicine, therefore, needs to be approached from the point of view of conservation, of both the medicinal plants and the indigenous knowledge which enable their exploitation. This study is intended to investigate efforts that are being put forth by the government and the local population in conservation and management of medicinal plants utilised in indigenous medicine. The following objectives were used as guiding principles in this research.

1.4 Study Objectives

The objectives of this study are five fold.

(i) To identify the role played by indigenous herbal medicine in the health of the community .

(ii) To identify some representative examples of the medicinal plants being utilised in herbal medicine by the community.

(iii) To investigate the level of perceptions of the local community on conservation of medicinal plants.

(iv) To investigate how indigenous knowledge in indigenous medicine can be used in conservation of medicinal plants.

(v) To review existing policies on environment and natural resource management in Kenya, and based on objectives 1,2,3, and 4, recommend policy measures that can encourage conservation and management of plant resources in IM.

1.5 Scope and Limitations of The Study

African indigenous medicine is very complex and diversified. It comprises of many categories of "specialists" and general practitioners in areas of physiotherapy, herbal medicine, faith healing, divination, psychotherapy, magic, and indigenous birth attendants among others (Kokwaro, 1993; Wembah-Rashid, 1993; Githae, 1993; Heggenhougen and Sesia-Lewis, 1988). Given the diversity of IM, this study is limited to indigenous herbal medicine as one form of African indigenous medicine because of the pressing need to address the increasing and unacceptable loss of medicinal plants through degradation of natural environments (Alok, 1991; Akerele, 1993)

All aspects of indigenous African medicine are founded on personal, practical experiences and observations handed down from one generation to another mostly through oral traditions (Koumare, 1983; Good, 1980). The knowledge is passed on to first-born children or trustworthy family members. Taboos and other social control mechanisms in the society forbid practitioners of herbal medicine to disclose and share certain knowledgeable information which is kept secret and confidential. This is done to avoid losing control of the knowledge and to create **awe** and respect of indigenous medical practitioners (IMPs) (Okoth-Owiro, 1991; Good, 1987).

Conservation of medicinal plants in IM is directly linked to the practice of herbal medicine and the indigenous knowledge (IK) involved in identifying medicinal plants (Okoth-Owiro, 1991). The interaction of these three perspectives is not easy, but attempt has been made to show their relationship. The basic understanding is that since IM is still widely used in Kenya, with medicinal plants taking the lead, it is imperative to conserve such plants. However, in order to have an effective conservation strategy for medicinal plants, the government must accept, encourage and promote the practice of indigenous herbal medicine. Indigenous herbal medicine is a sub-field of IK system, hence promotion of IK is also necessary for development of herbal medicine and conservation of medicinal plants.

However, due to the secrecy and sensitivity entailed in indigenous herbal medicine practice, it was necessary to obtain as much background information as possible to complement cases where respondents were reluctant to provide direct answers related to the exact use of herbs. Thus the reader should be aware that although a detailed questionnaire guidelines was used in the methodology, it will not be a part of data analysis. The reason being that this thesis is a strategic study aimed at exploring behavioural rather than clinical aspects of indigenous herbal medicine. Hence, the information sought was not systematically obtained for qualitative data analysis.

1.6 Structure of the Thesis

This thesis contains **six chapters** and two appendices. **Chapter one** lays out the overall purpose of the research. **Chapter Two** focuses on literature review which defines and discusses the utilisation of indigenous medicine. Efforts in conservation of medicinal plants are also examined. The second section of the chapter is devoted to a review of natural resource management practices in environmental planning in Kenya, including indigenous resource management practices.

Chapter Three describes the study area and methodological procedures employed in gathering data. **Chapter Four** analyses the data derived from the field research which includes observations on the utilisation and conservation of medicinal plants in IM in the area of study. The chapter also explores the views of government institutions and parastatals in development of indigenous herbal medicine and natural resource management.

Chapter Five, discusses the research findings on indigenous herbal medicine practice and utilisation of medicinal plants in Kitui district. A summary of the findings in the case study are presented. Finally, **Chapter Six** concludes the thesis with recommendations and suggestions for further research needed to support development of IM and conservation of medicinal plants in natural resource management.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter defines indigenous medicine (IM) and discusses utilisation of IM mainly in relation to reasons for its continuous use. The chapter also examines efforts in conservation and management of medicinal plants. A review of environmental planning,[2] conservation and management of natural resources, and indigenous resource management in Kenya are also presented. They are examined in relation to conservation of medicinal plants. The whole discussion forms the basis for a conceptual framework from which the approaches for this study are formulated.

2.2 Defining Indigenous Medicine

Ethnomedical studies have been conducted by a number of writers in Kenya (Good, 1980; Ulin and Segall, 1980; Good, 1987; Kimani and Klauss, 1983; Nyamwaya, 1987; 1992b; Maneno and Mwanzia, 1991). Several terms have also been used to refer to indigenous medicine. Some frequently used synonyms are: traditional, unofficial, unorthodox, alternative, folk and ethno and fringe (Bannerman et al, 1983; Nyamwaya, 1992a).

The World Health Organisation defines IM as the:

> the sum total of all knowledge and practices, whether explicable or not, used in diagnosis, prevention and elimination of physical, mental or social imbalance and relying exclusively on practical experience and observation handed down from generation to generation, whether verbally or in writing (WHO, 1978).

[2] The Ministry of Environment and Natural Resources in Kenya is in charge of drafting policies of both environment and natural resources. The policy implementors treat both fields as one.

This definition emphasises how IM takes a holistic perspective to health unlike specialisation in conventional medicine[3] whose contribution to the understanding of medicine, disease, and public health, has been challenged by scholars such as Leslie (1980) and Carlson (1975) among others. They have argued that by yielding to the "logic" of the scientific method, modern western medicine with its associated technological development emphasises separate physical and mental health service systems. The patient can no longer be treated holistically because few physicians are equipped to do so. In contrast, IM's holistic attitude to health enables it to embrace emotional, social, and cultural aspects of users. However, even within IM, there are different systems and practices based on their geographical and cultural localities.[4] The concern of this thesis is African indigenous medicine, with a focus on herbal medicine.

2.3 African Indigenous Medicine

African indigenous medicine has been defined by The World Health Organisation (WHO) as:

> the sum total of practice, measures, ingredients and procedures of all kinds, whether material or not, which from time immemorial have enabled the African to alleviate his *(or her)* sufferings and cure himself *(or herself)* (italics mine) (WHO, 1978).

Unlike the traditions of Asian medicine such as Ayurvedic or Chinese medicine, most African indigenous medicine has no substantial history of formal systematisation of knowledge (Kokwaro, 1993; Nyamwaya, 1992b). This characteristic is considered by some scholars as a source of complications in documenting and preserving information on indigenous medicinal resources (Doyal, 1987).

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[3] "Conventional medicine" will be used interchangeably with "Modern Western" and "Biomedicine"

[4] These include Ayurveda, Unani, traditional Chinese medicine, Homeopathy, African indigenous medicine, as well as practices such as yoga, Acupuncture and traditional midwifery (Bannerman, et al, 1983; Foster, 1983; Heggenhougen and Sesia-Lewis, 1988).

Although the terms "traditional" and "indigenous" have been used interchangeably by African scholars, the use of the term "indigenous" medicine is significant. "Traditional" medicine has its origin from British colonialism in Africa. It was used to denote medical practice deemed inferior to the western. Much of the early work was done by European anthropologists who were primarily concerned with the ***description*** of "rites of healing". Several studies observe that there was a tendency to view the traditional healer as a "relic" whose practices provided western observers an opportunity to study "primitive healing" (Good *et al*, 1979; Wendroff, 1983; Last and Chavunduka, 1986; Good, 1987; Mukorwe, 1989; Githae, 1992; Wembah-Rashid, 1992).

The term "traditional" in the dictionary (The Collins English Dictionary, 1986) usually refers to a body of cultural beliefs and practices derived from historical experiences handed down from generation to generation. This definition seems to leave out the possibility of changes through time and adoption of new ideas. Hence, ***indigenous medicine*** has been adopted as an appropriate term in this study.

It is important to point out that indigenous medicine cannot be discussed comprehensively without considering the function and status of indigenous medical practitioners (IMPS). The successful promotion and preservation of its practice and its resources depends directly on an awareness of the practice of such healers and even on actual collaboration and cooperation with them (Heggenhougen and Sesia-Lewis, 1988). IMPS are categorised according to the kind of knowledge and skills they possess in indigenous medicine and what they practice. They are available, accessible, and affordable. They also have skills and share a common language and belief system with their clientele (Feierman, 1985; Gort, 1989). The fact that most developing countries have significant manpower and financial constraints should be a pointer to the potential role of IMPs (Oduwo, 1992). In line with WHO aims of exploiting those aspects of indigenous medicine that provide safe and effective remedies for use in primary health care, the concern of this thesis will focus on herbal medicine as a category of African indigenous medicine.

2.3.1 Study Bias Towards Herbal Medicine in Indigenous Medicine

It is difficult to delineate IM into distinct and exclusive categories (Heggenhougen and Sesia-Lewis, 1988). However, herbal medicine has been easily distinguished from other classifications of African IM because the pharmacological efficacy of the plant material used in the treatment can be established. It is known that about 74% of the 121 plant-derived compounds currently used in the global pharmacopoeia have been discovered through research based on ethnobotanical information on the use of plants among indigenous people (Krieg, 1964; Plotkin, 1991; Akerele, 1993; Shiva, 1993; Kokwaro,1993). The fact that plants are useful in modern medicine as sources of direct therapeutic agents, and serve as raw materials for manufacture of semi-synthetic compounds, justifies the bias to study herbal medicine.

The undoubted medicinal resource represented by plants is under threat. Kenya's vegetation provides adequate medical substances which are used as herbal medicine. For this reason, a special effort to promote herbal medicine is necessary to maintain the great diversity of plant species. Besides, herbal medicine can help reduce import of drugs. Where medicinal plants are used and are available, their abundance has enabled users to prevent and cure illnesses through self-medication (Akerele, 1993). In Kenya, many of these plant species are sources of food, spices, drugs and have aesthetic benefits for local people (Sindiga, 1994). Therefore, further research on herbal medicine is needed to guide and accelerate the application of existing technology in addressing national health problems.

Indigenous knowledge on medicinal plants can contribute to identification, extraction and utilisation of medicinal herbs (Okoth-Owiro, 1993). Indigenous remedies, although based on natural products, are products of human activities and knowledge. To transform a plant into medicine, one has to know the correct species, its location, the proper time of collection, the part used, the process of preparation, and dosage. For example, ***Novocain*** (from the leaves of ***Erthroxylum Coca***) which is one of the world's most important local anaesthetics,

and the antimalarial drug- quinine (from the bark of several ***Cinchona trees***) - have been developed through **unacknowledged** indigenous wisdom of tribal peoples. Hence if herbal medicine is developed, indigenous knowledge possessed by indigenous medical practitioners (IMPS) can make a significant impact on the society's search for effective medical care and health services (Sindiga, 1994). Furthermore, IM users are unaware of the potential of their knowledge Okoth-Owiro, 1991). Many of them are elders who are passing away with this knowledge. The urgency to collect and document this information is real, to avoid its irreparable loss. Study of herbal medicine will, therefore, significantly recognise the potential of rich indigenous knowledge systems, which have been ignored by modern development (Ulin and Segall, 1980; Sindiga, 1992).

2.4 An Historical Overview of Health Services in Kenya

It is necessary to give a short history of development of health services in Kenya, because it has affected IM recognition and promotion in the national official health care systems. IM was not accepted by the British colonisers and the first missionaries who arrived in Kenya in the early 1890's. However, Africans continued to utilise IM because it was only after World War I that the colonial government established segregated modern health facilities for Africans, Asians and Europeans (Ulin and Segall, 1980). The government medical facilities provided for the Europeans and Asians, while the mission hospitals and small out-patient clinics served the African population.

The introduction and advancement of modern medicine was followed by deliberate discrediting of indigenous health remedies which were the only available alternatives for the Africans (Ulin and Segall, 1980; Good, 1980; 1987). The early missionaries enhanced the fight against use of indigenous medical practices in schools, churches and among their followers (Ogungbemi, 1992). After independence in 1963, the Kenyan medical professionals who took over from the Europeans did not change their attitudes towards indigenous

medicine. Only after 1978 did the government acknowledge the existence of IM by announcing its willingness to review the positive aspects of IM for incorporation into primary health care programmes. The subsequent attention was as a result of recognition of IM by WHO, in the Alma Alta conference in 1978.

The WHO urged the member states to utilise their indigenous systems of medicine (Akerele 1986). The government in 1979 attempted to recognise the important role of IM in health care. It intended to collect more information with regard to both its substantive aspects and its potential link with the government institutions (Government of Kenya, 1979). In spite of these policy enunciations, not much progress has been made towards official recognition of IM and provision of its technical and development support (Good, 1987; Kibe, 1992; Nyamwaya, 1992; Okoth-Owiro, 1993). For example, the Witchcraft Ordinance of 1925 is the only government document that has vaguely referred to the legal status of IM. This colonial government act says that:

> any person who holds himself as a witch doctor able to cause fear, annoyance or injury to another in mind, person or property or who pretends to exercise any kind of supernatural power, witchcraft, sorcery or enchantment, calculated to cause such fear, annoyance or injury shall be guilty of an offence and shall be liable to imprisonment of either description for a term not exceeding five years. (Kenya, 1978).

Further, the Medical Practitioners and Dentists Act of 1979 does not include indigenous medical practitioners (IMPs). It defines a medical practitioner as one who:

> must be a holder of a degree or diploma or other qualification which is recognized by the medical practitioners and Dentists Board as making him eligible for registration (Wembah-Rashid, 1992).

As Ulin and Segall (1980) have observed, the indigenous healer seems to be lost, somewhere, between declarations of policy on the international level, and primary health care planning on the national and local levels.

The only case where positive cooperation between the two fields has been achieved is in childbirth. The first curriculum for Traditional Birth Attendants (TBAS) was prepared in

1981 by the government. This is perhaps because giving birth is neither in the sphere of medicine nor in that of disease (Bichmann, 1984). This long term lukewarm attitude towards IM by the government has continued to slow the progress of integrating both medical systems. While policy makers and the modern health sector have been grappling with the problem of integrating both biomedical and indigenous systems in Kenya and other African countries, consumers have been utilising both of them (Dennis, 1974; Spring, 1980; Rapparport, 1980; Green and Makhubu, 1984). However, IM cannot also be considered without discussing factors that have influenced its utilisation as a widely used health care resource in Kenya and elsewhere in Africa.

2.4.1 Reasons for Continuous Use of Indigenous Medicine

In spite of all odds, IM has continued to be used by Africans because of its ease in availability, accessibility and acceptability to the users (WHO, 1978; Spring, 1980; Miller, 1980; Kimani and Klauss, 1983; Anyinam, 1987; Heggenhougen and Sesia-lewis, 1988; Nyamwaya, 1992b). In terms of its availability, locational dynamics of IM in countries such Kenya confirm that indigenous-based therapies are thriving in towns and cities even in the presence of modern health facilities (Spring, 1980; Okoth-Owiro, 1994). Good (1987), observes that indigenous medical therapies fill a void for services that are in demand because they offer culturally recognized responses to illness. He also points out that indigenous medical practitioners (IMPS) are among the largest categories of self-employed persons in the vast informal sector of Kenyan urban economy.

IM is said to be more accessible than biomedical services because it has advantage of cultural, social, psychological, and physical proximity (Anyinam, 1987; Good,1987). The nature of the illness, physical distance, socio-economic status, beliefs and cultural values are all important factors that influence accessibility. Okafar (1982) observes in Nigeria that patient populations decline with distance from general hospitals. In Ivory Coast, Lasker

(1981) has noted that accessibility of IM services is determined by factors such as congestion, time and delay, the cost of services, and the socio-psychological satisfaction.

Another reason that accounts for continuous use of IM is lack of inadequate provision of modern health care services. Wendoff (1983) in a study in North Eastern Malawi, reports that modern western's practice in clinics and hospitals is impaired by often serious lack of drugs, manpower, and money. Where the modern health services exist, their inaccessibility is aggravated by the western trained personnel who are ill-equipped to deal with patients who firmly believe their physical or emotional disorders are super naturally caused (Wendoff, 1983; Thomas and Kramer, 1982). The biomedical paradigm that is the foundation of international medicine also tends to reduce health and sickness to essentially mechanical states (Darton and Corbert, 1990). Physical manifestation can be diagnosed and treated separately from a person's social and psychological milieu (Kleinman, 1978; Kleinman *et al*, 1978; 1980; Good, 1987).

In contrast, acceptability and popularity of IM is based on its holistic approach. Its orientation is towards individual "felt needs" rather than the clinically determined need for health care (Murray and Shepherd, 1993). IM also focuses on the whole person and not the disease. This holistic approach to medicine contrasts to that of proponents of modern western medicine who suggest that the mind, spirit and the body should be considered separate. This is in line with most African belief systems where the relationship of the dead and the living is a continuum.

The treatment process of IM gives the user an opportunity to determine the treatment choice. It also involves the family members who provide emotional, material and physical support in times of fortune, while the healer understands his clients' problems in totality and provides for the confidence and self assurance needed in recovery (Chavunduka, 1983). There is also an intensive and reciprocal relationship between the patient and healer (Dennis, 1974-75; Darton, and Corbert, 1980; Bichmann, 1984). The importance of IM is not only confined to developing countries. It is also becoming a major theme in global concerns.

2.4.2 Global Resurgence of Indigenous Medicine

At the global level, ethnobotanical inquiry as a means of locating new and useful plants as medicines is becoming more important. There is an increasingly great public interest in the use of medicinal plants because of the realisation of the effects of over-medication with synthetically manufactured drugs (Ayensu, 1983; Akerele, 1984; 1986; Farnsworth and Soejartto, 1991). The interest has not been confined to the health planners but has drawn researchers and scholars in the field of pharmaceutical studies, genetic resources, human ecology, biodiversity, and conservation (Akerele, 1991; 1993).

In response to the resurgence of interest in the study and use of plants as medicines, tropical countries are being recognised as the home of the bulk of the world's genetic diversity and indigenous knowledge of plant uses (Kofi-Tsepo, 1993b; Miller, 1993; IUCN, 1993). The importance of IM is not confined to health alone. It has a unique position in relation to sustainable development which stresses self-reliance, empowerment of the people in making choices, and sustainable use of local resources based on local ecosystems (Redclift, 1987).

Sustainable conservation and preservation of medicinal plants will, therefore, not be achieved without effective resource conservation and management policies and practices that involve the local communities. The following section reviews the situation in Kenya on conservation of medicinal plants. The last section of this chapter explores existing conservation and resource management policies and practices in Kenya, with a view to identifying strengths and weaknesses in conservation of medicinal plant resources.

2.5 Status of Conservation and Management of Medicinal Plants in Kenya

This section critically looks at efforts which have been put forward to conserve medicinal plants in Kenya in an attempt to identify gaps that this study will fill in conservation and management of plants in IM. Literature on conservation of medicinal plants

in Kenya is scanty, and the status of their conservation and management is obscure (Kokwaro, 1991; Okoth-Owiro, 1991; Sindiga, 1992; Githae, 1992; Sindiga, 1994). Pioneer botanists and naturalists have been preoccupied with describing major flora, and in a few cases have recognized ethnomedical potentials of various plants for managing different ailments (Kokwaro, 1976; Gachathi, 1978; Sindiga, 1994; Obado, 1992). In others, chemical studies have been carried out to provide information on pharmacological or therapeutical value (Teel, 1984; Kofi-Tsepo, 1993b).

Albeit that the subject of use of medicinal plants has been delineated by these writers, literature review indicates that they tend to concentrate on medicinal plants identification and uses rather than on their conservation and management. Kokwaro's (1993) comprehensive work has identified over three thousand medicinal plants used by communities in Kenya and other Eastern African countries. Gachathi (1978), Temwa (1986), and Riley and Bronkesha (1988b) have attempted to identify medicinal plants used by particular communities in Kenya. Only (Obado and Odera, 1992) have studied management of medicinal plants among the Luo people of Kenya. The scholars have cited reasons for urgency of medicinal plant species conservation and management. These include, population pressure, degradation of natural habitats where medicinal plants are found, and exacerbated consequences of land adjudication and consolidation under individual ownership, resulting in intensive use of farmlands. They argue that with increasing demand for agricultural land and settlements, loss of medicinal plants is happening when more people in Kenya are turning to IM as a result of escalating cost and inadequacy of modern Western medicine (Obado and Odera, 1992). This research indicates that seedlings of medicinal plants are not traceable in nearly all the nurseries in the province. The tree planting agencies focus on raising trees and shrubs for wood fuel, poles, fodder, and soil improvement. Conservation of medicinal plants is, therefore, not catered for in local tree planting efforts.

At the national level, a great focus of genetic conservation has been on other important crops such as foodstuffs and tree products, whose value can be demonstrated

within a short cycle (Kiambi, 1990; Okoth-Owiro, 1991). The medical benefits which are, for example, derived from conservation of medicinal plant species continue to be marginal in written literature and in germ plasm collection (Baquar, 1992; Kofi-Tsepo, 1993a). This is probably attributed to the fact that medicinal plants' pharmaceutical value would take longer to demonstrate, because of the few numbers already identified and due to the long process involved from plant identification to the final drug-product. It is also deemed difficult to deal with some of the problems related to the issue such as determining the size of the plant population and the magnitude of the risk of extinction. There is little possibility, therefore, for medicinal plants to be given a priority at the national level with the current economic crisis.

The problems of conservation and management of medicinal plants from a legal perspective have also been addressed by Okoth-Owiro (1991). In his policy outlook paper entitled, **Property Rights, Conservation of Genetic Resources and Traditional medicines**, Okoth-Owiro reports that conservation of medicinal plants in Kenya demonstrates weaknesses of the national law regarding genetic conservation. For example, the national property law does not adequately regulate ownership of medicinal plant resources because a number of gaps exist in its legislation, and implementation arrangements are not streamlined. In the absence of effective legislation, access to medicinal plants is regulated by consent of the owner and may be collected without the knowledge or authority of the government.

In certain cases, the President of Kenya can use constitutional powers to protect a plant. For example, in 1986, the President of Kenya decreed the **aloe** plant, which is medicinal, a protected plant to prevent extensive exploitation for commercial purposes (Juma, 1989). The danger of relying on presidential power for conservation and management of medicinal plant species is that it may not be a reliable and regular measure.

Further, budding efforts by a few institutions such as the Kenya Medical Research Institute (KEMRI), to establish botanical gardens for the purpose of medicinal plants research and chemical analysis have been uncoordinated (Kofi-Tsepo, 1993a). Attempts by Kenya Forestry Research Institute (KEFRI) and Kenya Indigenous Forest Conservation Programme

(KIFCON) in restoring and replanting species of indigenous and exotic trees (Kimondo and Konuche, 1989; Odhiambo and Kaaarakka, 1992; KIFCON, 1993), do not give attention to medicinal plants .

Thus, except for isolated attempts by individuals or institutions, there are no laid down specific strategies to conserve and manage medicinal plants in Kenya. However, it can be assumed that conservation of medicinal plants is included in environmental planning and resource management policies and plans. The following section, therefore, reviews national environmental planning and resource management practices, with a view to exploring and identifying existing avenues for conservation of medicinal plants.

2.6 Environmental Planning in Kenya

The little environmental planning and natural resource conservation existing in Kenya is overshadowed by economic planning. Kenya's national planning since independence has been biased towards economic and technical development under the guidance of Sessional Papers No. 10 of 1965, and No. 1 of 1986[5], (Kenya, 1986). These sessional Papers were based on the rational comprehensive planning approach, which dominated the field of planning in the 60's (Stolper, 1968, Faludi, 1973). Planning structures were established and the first plans were designed with the ultimate goal to mobilise and reorganise economic resources.

Introduction of Western style of development planning, supported with the assistance of development agencies, transferred the responsibility for managing natural resources to the Central government (McNeely, 1993). Conservation[6] measures which would ensure there

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[5] Sessional paper no.10 of 1965 is a document entitled African Socialism and its Application to Planning in Kenya. It has been the guide in national planning and the backbone for all the other sessional papers. The sessional paper no. 1 of 1986 is an official government document on economic policies. It was written to "propose broad and specific measures in economic management for renewed growth". Also, The paper provided a blue print for the 1989-93 national development plan and "those to follow".

[66] **Conservation** in this context will be used to mean, maintaining natural plant resources as the basis for meeting the needs of the current and future generations.

was "no thoughtless destruction of forests, vegetation, wildlife and productive land" (Kenya, 1965), were concerned with control over the extent of exploitation of natural resources as opposed to management.

Today, the few environmental policies and laws which exist are also a legacy of the colonial regime, and so are problems of conservation and resource management (Aderson and Grove, 1987). As a British colony, the country as a natural habitat teeming with spectacular wildlife, appealed to the British wildlife and habitat conservationists who took protection measures. The local people were usually regarded as spoilers of environment and ignorant of conservation (Homewood and Rodgers, 1987). Protection thus meant exclusion of the local populations. The people in turn regarded foresters as auxiliary police, since one of their main functions was to keep people out of the reserved and protected areas. These protected areas served as the source of honey, fire wood, medicines and grazing land for the local people (Bronkesha *et al*, 1980; Glazier, 1985).

After independence, the new government continued with the colonial programmes on conservation and rural economic projects without a clear awareness of the wider social implications (Anderson and Grove, 1987). Established policies towards forestry and soil conservation programmes have been concerned with the protection and use of the natural resource and not with the development of the resource users (Chambers, 1974; 1983; Collet, 1987; Riley and Bronkesha, 1988a). Conservation has also been commonly identified with the protection of animal species and habitats (Gomez-Campo, 1985).

The relationship between natural biological resources and people's culture is seldom presented as good enough reason to conserve natural resources. Aboud, (1989); Nelson, (1991b), and Matowanyika et al, (1992), have elsewhere, observed that Park management systems do not take into account local population's needs and contribution to conservation and development of parks. For instance, an on-going wrangle between the ***Loita*** Maasai of Narok district in Kenya and the Local Council over the right to conserve the ***Loita Naimina Enkio*** forest illustrates the extent of the problem (Kariuki, 1993).

If the County Council takes over the forest, the community stands to lose their sacred groves and other benefits derived from the forests such as medicines, honey and woodland products. Such cases of conflict of interest are common in Kenya. The objectives, perceptions and priorities of those advocating natural resource conservation policies and programmes have little relevance to the realities and environmental changes experienced by the local communities (Riley and Bronkesha, 1988b). The implications of such shortcomings are more exacerbated by the duplication of services found in institutions and policies pursued by the government.

2.7 National Environmental Policies and Institutions

Literature on national environment and natural resource conservation indicates an absence of a **systematic** environmental law (Bragdon, 1990). The current environmental and natural resources policies are mainly found in several regulations which are scattered in legislations such as the Water Act, the Housing Act, the Health act, and the Chiefs Act. In some cases, documents, policy pronouncements and sessional papers, on Population or Food, that have environmental implications are used to offer precise guidelines on environmental policy or principles of management (IIED,1987; UNEP, 1987; Wanjala, 1988; Bragdon, 1990; Ojwang', 1993). In others, specific policies geared towards conservation can easily be blocked out even within relevant policies.

Most regulations on conservation and forest management are based on colonial policies of ***Do's and Don'ts*** rather than policies that deal with sustainability and conservation of natural resources. Post independent efforts introduced to solve past environmental problems in the country have also been reactive and corrective rather than preventative and anticipatory (Okidi, 1984; Ojuang, 1993). For instance, for the last century, forests have been protected for the purpose of exploitation of indigenous species for timber (Hughes, 1987; Konucha and Kimondo, 1990; Amadi, 1990). This has continued to have negative effects on

ecological and human needs. Furthermore, forestry development schemes have introduced **monocultures** of industrial species like eucalyptus at the expense of diversity of local species such as medicine, fodder, soil fertility and fruits (Amadi, 1990; Barrow, 1992). This implies that conservation of forests is mainly geared towards tree protection for the benefits of lumber and related products derived from them - a policy that has been eroding diversity in the forests where medicinal plants are found.

Yet, a productive natural ecosystem requires tall and short trees, shrubs, vines, roots, fungi, and dead logs and foliage to give resistance to pests and to recycle nutrients among other things (Shiva, 1993). Additionally, medicinal plants are mainly shrubs and small trees which do not usually fall in the category of protected trees. Even with this realisation, Forestry policies have continued to encourage erosion of diversity and homogenisation of forest products. Apart from pursuing the wrong policies, the forestry people hardly have the power and influence (money, equipment, and trained personnel) to meet specific objectives (National Environment Secretariat, 1993; Wilson, 1993). By implication, forestry policies do not leave room for conservation of medicinal plant species which are seen as having no commercial value.

In other cases, where laws that govern conservation measures exist, enforcement is left to weak local administrations (Juma, 1989; Kenya, 1989). Responsibilities of environment and natural resources management are handled by several government departments, parastatals and NGO's which are not effectively coordinated (Bragdon, 1990). The National Environmental Secretariat (NES) is the national umbrella for environmental concerns. The institution creates awareness and regulates the use of the country's natural resources (National Environment Secretariat, 1981). However, it has no powers to enforce environment and social impact assessments. In many cases, therefore, destruction of natural habitats is likely to go unchecked (Bragdon, 1991). These habitats are usually the home of many medicinal plants. Conservation of medicinal plants thus, cannot be met by the current Forestry policies.

Apart from NES, responsibilities are spread among other government institutions such as The Permanent Presidential Commission on Soil Conservation and Afforestation, Forestry department, and the Ministries of Environment and Natural Resources; Wildlife; Agriculture; and Livestock. Parastatals such as KEFRI and KARI contribute to the national efforts while NGOs such as KIFCON, ACTS, and Kenya Energy and Environment Organisation (KENGO), complement national efforts (National Environmental Secretariat, 1993). This has led to conflicting objectives where there are vested interests, and confusion to the public which generally has no idea which institution to consult (Bragdon, 1990; Chaiken and Fleuret, 1990). With so many institutions dealing with environmental and natural resources conservation issues, it is unlikely that any conservation of medicinal plants can be given serious considerations. Such challenges in the conservation of natural resources, are pointers of the need to develop national policies that provide strategies for management and use of medicinal plant species.

Uncoordinated efforts in institutions have not only contributed to inadequacy in national resource conservation measures but also ignore other management mechanisms. The existing natural resource conservation policies have ignored local people's indigenous knowledge in resource management as one way of overcoming problems of conservation of the natural resource base (Glazier, 1985; Barrow, 1992), and possibly, conserving medicinal plants.

2.8 Indigenous Natural Resource Management Practices in Kenya

Unlike recorded modern western knowledge, indigenous knowledge (IK) is not clearly divided between ecological, structural, historical, and ritual knowledge. However, Indigenous Environmental Knowledge (IEK) has been described by Johnson as "a body of knowledge built by a group of people through generations of living in contact with nature" (Johnson, 1992). For centuries, the indigenous people have lived in intimate association with

nature and developed strategies and techniques that provide valuable insight into nature's conservation.

Only in the past decade has this knowledge been recognized by the western scientific community as a valuable source of ecological information (McNeely and Pitt, 1985). In 1981, the International Union for Conservation and Nature, (IUCN) recognized the importance of indigenous cultures in conservation and recommended that governments take into account the still-existing, very large reservoir of indigenous knowledge (McNeely, 1985).

Ethnic communities in Kenya, who depend on local resources for survival have evolved ways of managing these resources in arid, semi-arid, and tropical forest regions. In some areas, they continue to manage these resources where applicable by public opinion, witchcraft, taboos, and religion to implement and maintain enforcement in meeting traditional conservation objectives (Hannah, 1992). Much of African indigenous knowledge is contained in religion. Religion and belief systems in Kenya have played a central role in balancing the relationship between natural resources and humans, and the continuation of their culture. Mbiti (1969), has observed that:

> Wherever the African is, there is his religion; he carries it to the fields where he is sowing seeds or harvesting a new crop; he takes it with him to the beer party or to attend a funeral ceremony; and if he is educated, he takes religion with him to the examination room at school or university; if he is a politician he takes it to the parliament (Mbiti, 1969).

The diversity of indigenous medical practice is, therefore, inseparable from religion as it is found in all spheres of African life and shapes the way Africans perceive and interact with the physical environment (Koumare, 1983; Nyamwaya, 1992).

Communities identify with the resources available to them because survival depends on protection of these communally owned resources. If a community lives near water bodies, water is held in high esteem as the provider of food, drinking water, reeds for housing, vegetation, and a holy place of worship. Also, a mountain is viewed as a shield, provider of

rain, and the home of the supernatural being. This ensures careful utilisation and control of resources to ensure sustainability and coexistence with nature (Kapiyo 1992).

Depletion of the biological diversity has occurred where cultural sensitivity to the natural environment has been eradicated by artificially introduced habits and attitudes (Saunders, 1962; Morris, 1986; Awori, 1993; Njagi and Manu, 1993). The value of this unique indigenous knowledge is not only important for the culture in which it evolves but also for policy makers, planners and researchers striving to improve conditions in rural societies.

Cultural practices also ensure control of and access to natural resources: trends of events are carefully studied and warnings issued through stories, tales, songs, riddles, and proverbs. These are passed on to the younger generation through parents, peer groups, and elders to instil values. For example, in Kenya, the forest or the lake is said to belong to the supernatural beings, spirits, wild animals and the "unknown", and if one is to harvest any resources alone and without the elders' consent, it is believed the culprit will be haunted by the spirits or roasted alive by supernatural beings (Kapiyo, 1992). Such a story passed on in childhood is meant to deter individual greed and enable indigenous management systems to control access to natural resources.

Among the Mijikenda community on the Kenyan coast, indigenous laws prohibit anyone from farming or cutting down a tree in the remnant forests known as ***Kayas*** (Njagi and Manu, 1993). Otherwise the angered ancestral spirits are said to bring famine and illness on the community and insanity to the culprit. Today, the Kayas still provide shrines for worship for the community, ceremonies are held every four years, and respected old men still decree which herbal and ritual plants can be gathered from the Kayas (Njagi and Manu, 1993; Wilson, 1993). Thus, the forests continue to be preserved by the elders and the community is bound by the customs and traditions, (Kenyatta, 1962; Awori, 1993; Njagi and Manu, 1993).

The survival of cultural norms of indigenous people is closely linked to survival of natural resources including medicinal plants, found in Kenya and most other parts of Africa.

In spite of this reality, post-independence policies in national planning and development in many African countries such as Kenya have continued to perpetuate lack of appreciation of IK (Korten 1980; Korten and Klaus, 1984; Bronkesha, 1987; Chambers, et. al. 1989; Atteh, 1989; Warren 1991; Hammer and Mbewe, 1992; Ollumwallah 1992; Awori 1993). Yet, when unrecorded, local IK remains largely inaccessible to planners and development workers. Such gaps are more enhanced by lack of planning policies which can protect IK and medicinal plants as intellectual property.

2.9 Conclusion

Indigenous medicine is only rhetorically recognised by the government. It remains compromised and discredited because the official health establishment ignores its role as a widely utilised health care service in Kenya. As a result, conservation of medicinal plants, which are an essential component of IM is not catered for in the environmental and natural resources planning policies and action plans in Kenya. Loss of IK is eminent as communities which possess IK are being transformed by modernisation forces. Also, the ability of the government and other sectors to effectively conserve loss of medicinal plants without the communities' participation is questionable. The following chapter introduces the reader to the study area and provides the methodology.

CHAPTER THREE

RESEARCH SETTING AND METHODOLOGY

3.1 Introduction

This chapter gives the reader an insight into the study area and the fieldwork undertaken during the summer of 1993 in Kitui district, Eastern Kenya. The chapter addresses data collection methods and the interviewing processes undertaken to identify, among other objectives, the role of IM among the Akamba community of Kenya. It identifies medicinal plants used in IM and the community's level of awareness in conservation of both medicinal plant species and the IK that enables their use. The following section gives descriptive information on the study area. Background information is also provided from the published sources and field observations on the study site, its vegetation and the community's characteristics.

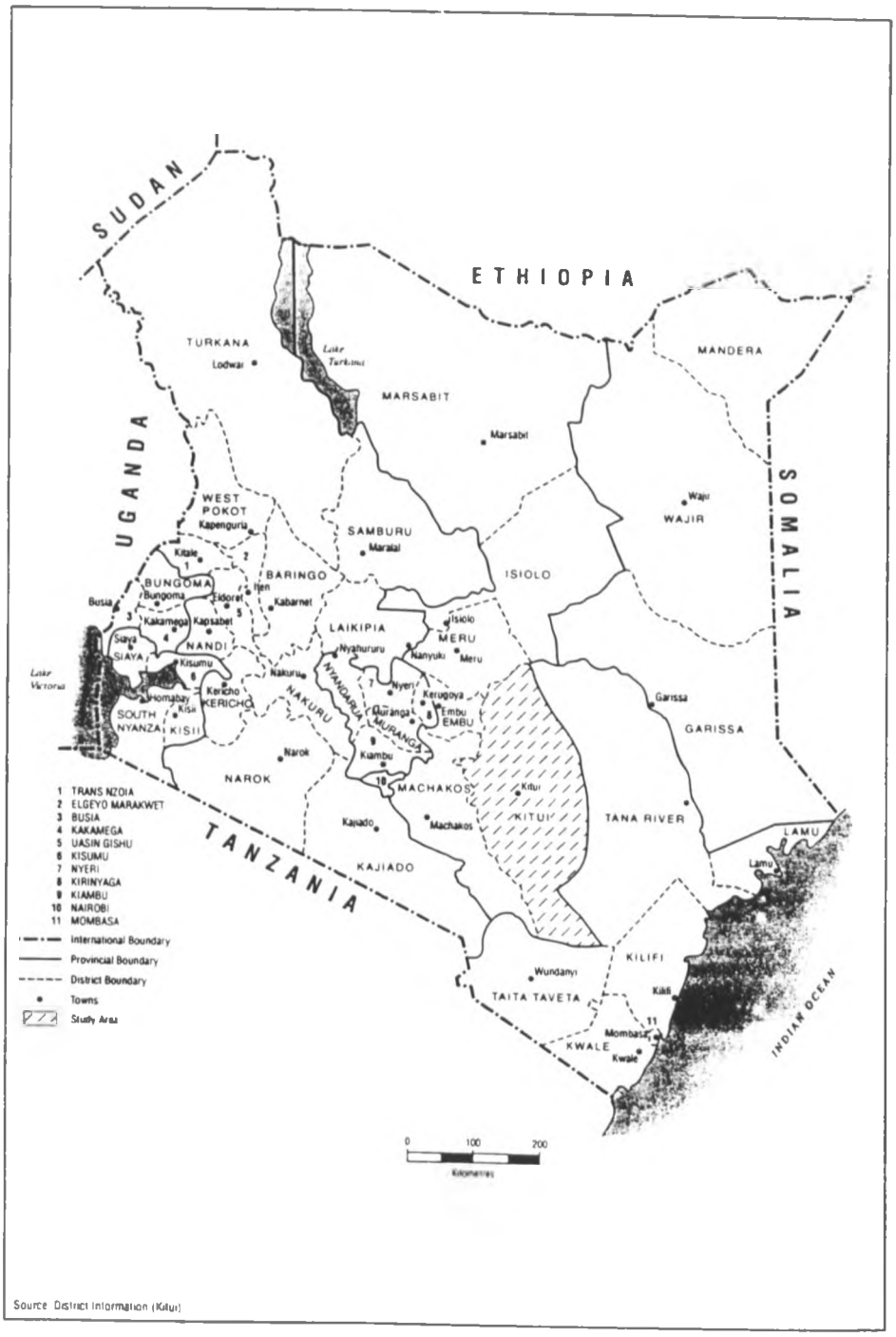
3.2 The Study Area- Kitui District, Kenya

Kenya is divided into forty eight administrative districts[7] which are headed by district commissioners. Consultations and conversations with knowledgeable people in various institutions and organisations in Nairobi led to the selection of Kitui district as the study area (figure 3.1). Several other researchers had conducted field researches in the same area and were aware of the potential that the area had in indigenous medicine.

The district is one of the six districts in Eastern Province with a total of 31,099 sq.km inclusive of 6,309 sq. km occupied by Tsavo East National Park (National Environment Secretariat, 1981b). It borders Machakos district to the west, Embu and the Meru districts to the north, Tana district to the east and Taita Taveta district to the south (fig. 3.1).

[7] A district is an administrative unit made of several divisions. Each division is composed of several locations which are made of smaller units called sub-locations. Each unit is headed by a central government official. The district is the locus of both decentralised planning and development in Kenya. (Refer to figure 3.1)

Figure 3.1:The Study Area: Kittui District



In terms of health facilities, the district is served by 4 hospitals, 9 health centres and 38 dispensaries. Most of these institutions are plagued by an acute shortage of manpower, lack of water and staff houses, poor communication and unavailability of essential drugs (Kenya, 1989a). In most cases health centres are run by two or five nurses/ clinical officers while dispensaries are manned by only one officer. This shortage of personnel has necessitated closure of most of these institutions forcing patients to cover 15 or more kilometres in order to get modern health care (Kenya, 1989b). Given the limited time and resources, it was not possible to conduct research in the whole district, which has five administrative divisions with a total population of 464,283 according to the 1979 census (results for 1989 census were not yet published but the population is currently estimated to be 786,129). The central administrative division which was selected as the study site will be briefly described later (figure 3.2).

3.3. The Natural Environment and the People

Kitui district is on continuous basement rock. It lies between 400 and 1800 meters elevation and generally slopes from west to east. In many areas of the district, which are generally plain, the landscape is interrupted by isolated inselbergs like Mutito in the eastern and Mutomo in the southern end. The highest elevations in the district are Wanzuku Hill at 1830m, the Kitui-Mutito area and the Yatta Plateau (Akong'a 1986).

The district lies in the semi arid area of the country with unreliable rainfall averaging below 600m annually. Its climate can be generally classified as hot and dry for most of the year. The natural vegetation is mostly dry bush and thickets (figure 3.3).

Figure 3.2: Data Collection Area: Central Division

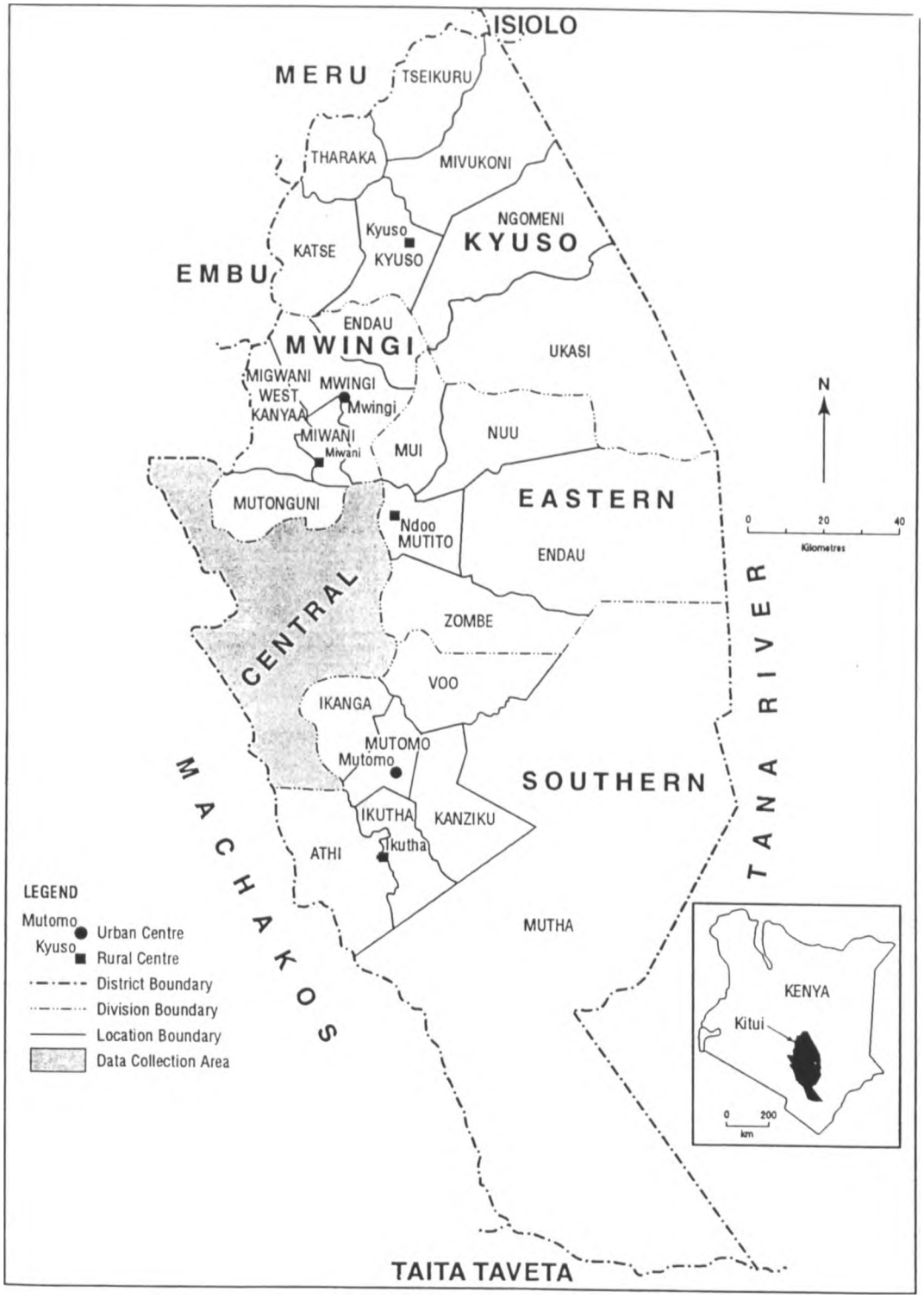
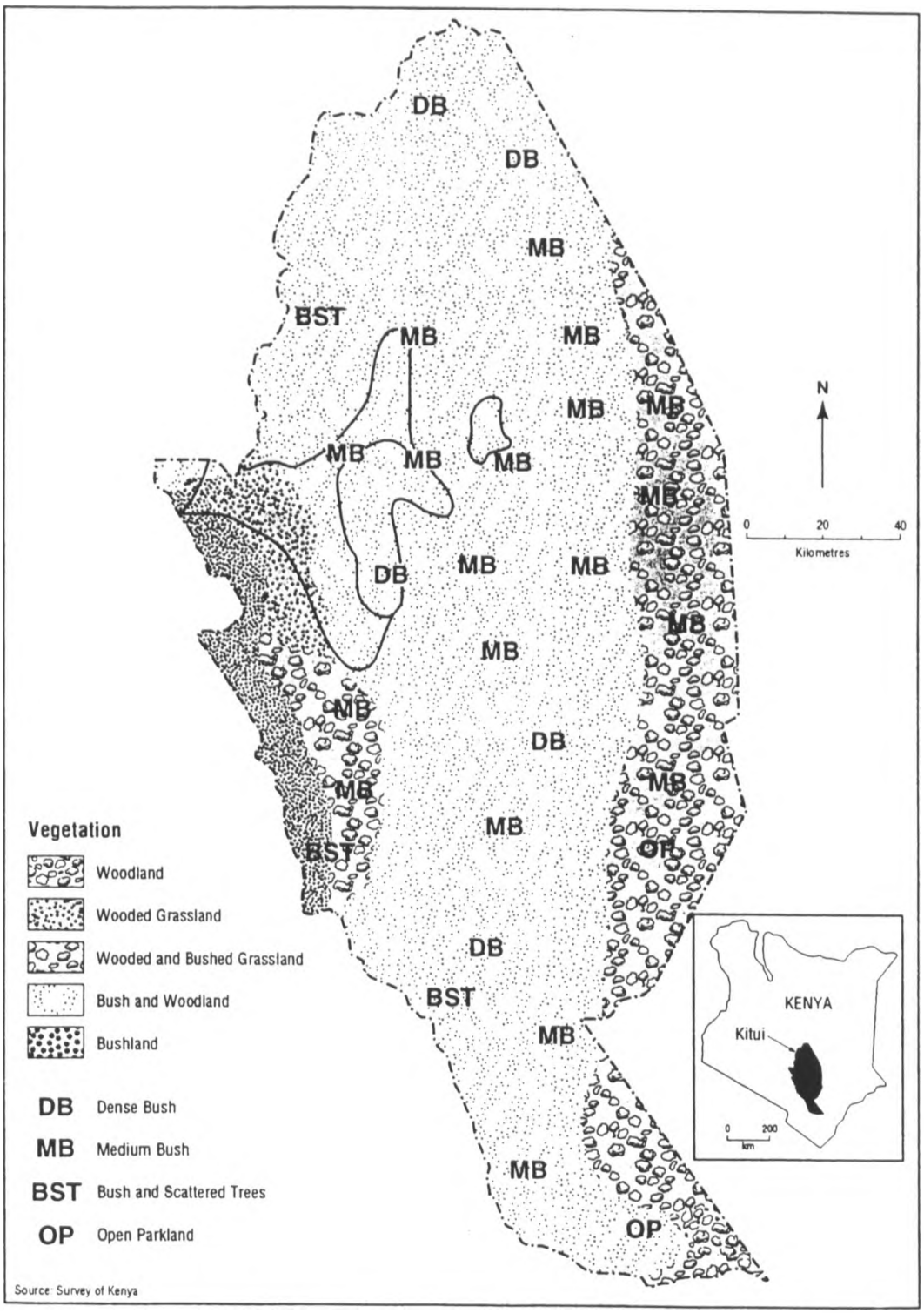


Figure 3.3: Vegetation and Ecology



There are a few permanent, seasonal rivers and streams in the district which become flooded during the rainy seasons and turn into dry sand courses in the dry season. These river beds serve as sources of water during the dry spells (Kenya, 1989a).

The people of Kitui are known as the Akamba and one person is referred to as a Mkamba. The Akamba people are Bantu-speaking agriculturists with a strong tradition of cattle-rearing. Their close cousins are the Kikuyu, Embu, and Meru peoples who occupy the neighbouring territories to the north and west of the district (Good, 1987). Myths and traditions of the Akamba state that they migrated from Central Tanzania through the Mt. Kilimanjaro area and crossed the Kenyan- Tanzania border, settling in Chyullu hills in Kenya, which today is a part of EastTsavo National park (Akonga, 1986). Many had to migrate again to create room for the establishment of the park.

The history of the Akamba from the 19th century, indicates that the community has historically gone through a series of food and water shortages leading to severe famines (Akonga, 1986; O,Leary, 1982). This is mainly attributed to the district's dry vegetation and climate. Over the years, droughts and epidemics have devastated the district and crippled livestock farming (Porter, 1979). Vast areas of the district are under shifting cultivation. Habitats are fragile and easily degraded. Human and livestock carrying capacities are very low under subsistence herding and uneven management. Trees are also cut down to provide firewood, charcoal, building material and brick making (National Environment Secretariat, 1987). Such unfavourable climatic and economic factors contribute to relatively low human population density. Population density in turn influences the number of health services availed to the population. Hence Kitui has fewer biomedical services compared to other more densely populated districts in the same province.

The use of wild forest resources is thus crucial in combating illnesses in the Akamba community. This aspect has enabled the local population to develop knowledge of poisonous, edible and medicinal herbs. Consequently, the Akamba are acclaimed for their knowledge of medicinal herbs, which has evolved through a series of survival mechanisms (Oliver, 1965;

O'Leary, 1979; Ndeti, 1972). Traditionally they are a famous community in Kenya for their *"Kamuti"*[8].

This community was thus chosen for this study because of the people's importance as indigenous healers. A quick survey of herbalists in Nairobi low income class residential area showed that most were from the Kamba community. This simple exercise was carried out by casually asking people if they knew of any Mkamba herbalist around. The response was usually accompanied by remarks such as "Are they countable in this area ?" indicating it was common knowledge that they are several. About twelve clinics were visited in low cost neighbourhoods of Nairobi city and enquiries proved that five of these twelve clinics were being run by Akamba herbalists. This number was high considering Nairobi is a cosmopolitan city and is the home of over 42 Kenyan ethnic communities.

3.4 Selection of the Study Area

Among the district's five administrative divisions namely, Eastern, Southern, Central, Kyuso and Mwingi, Central Division was selected. It has the highest population density (figure 3.4). In 1979 national census, the division had a population of 158,667 and has a currently estimated population of 268,657.

The Central Division was selected for several reasons: One, it would provide a clear picture of the local population's utilisation of herbal medicine given the relative exposure to biomedical services in comparison to other divisions (fig.3.5).

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8 The Akamba, herbs and ancestral spirits are said to be so powerful that if a Mkamba threatens to use his "kamuti" on another, its effectiveness is thought to cause physical or psychological harm by those who believe in the magic and ancestral spirits.

Figure 3.4: Population Density

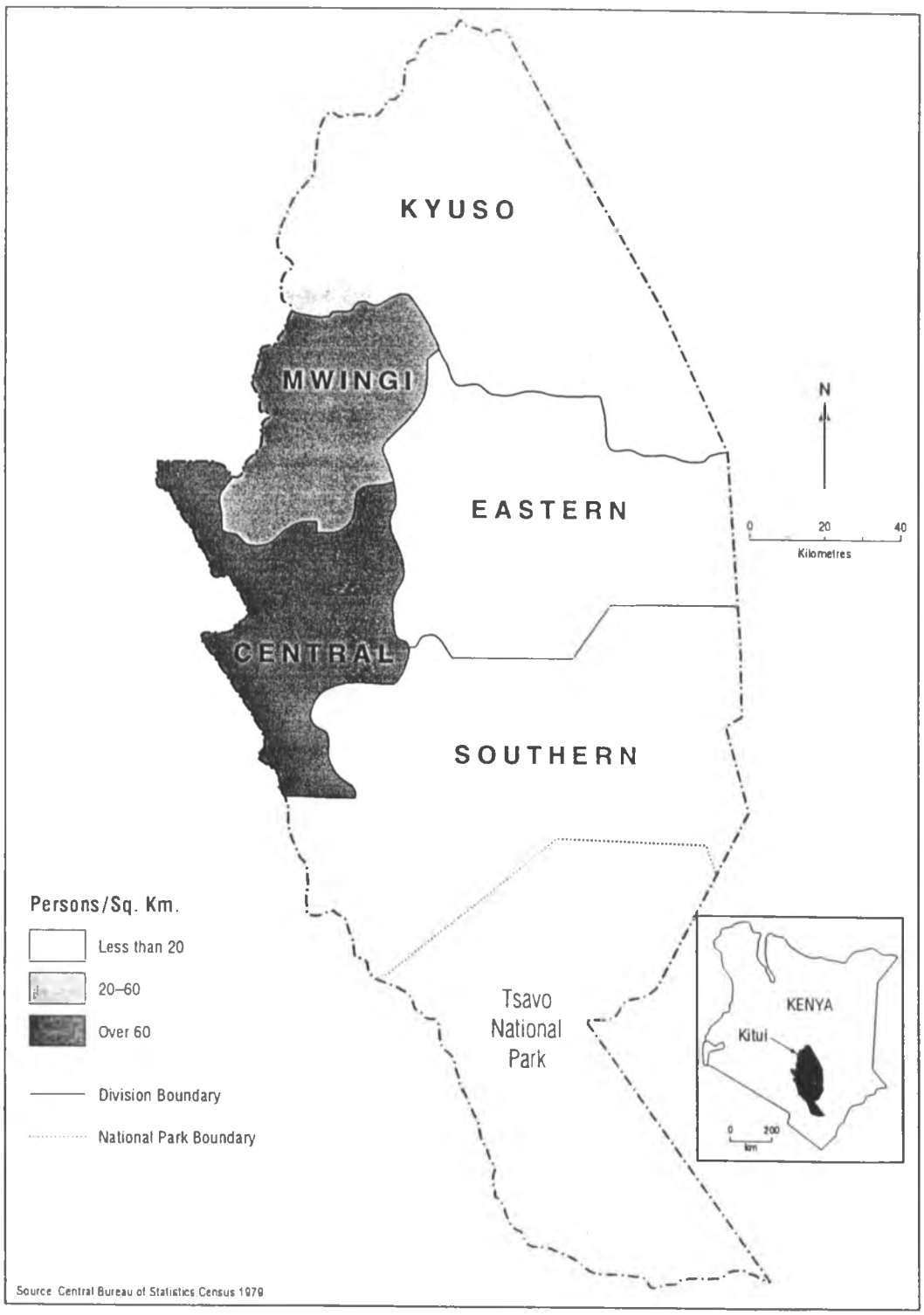
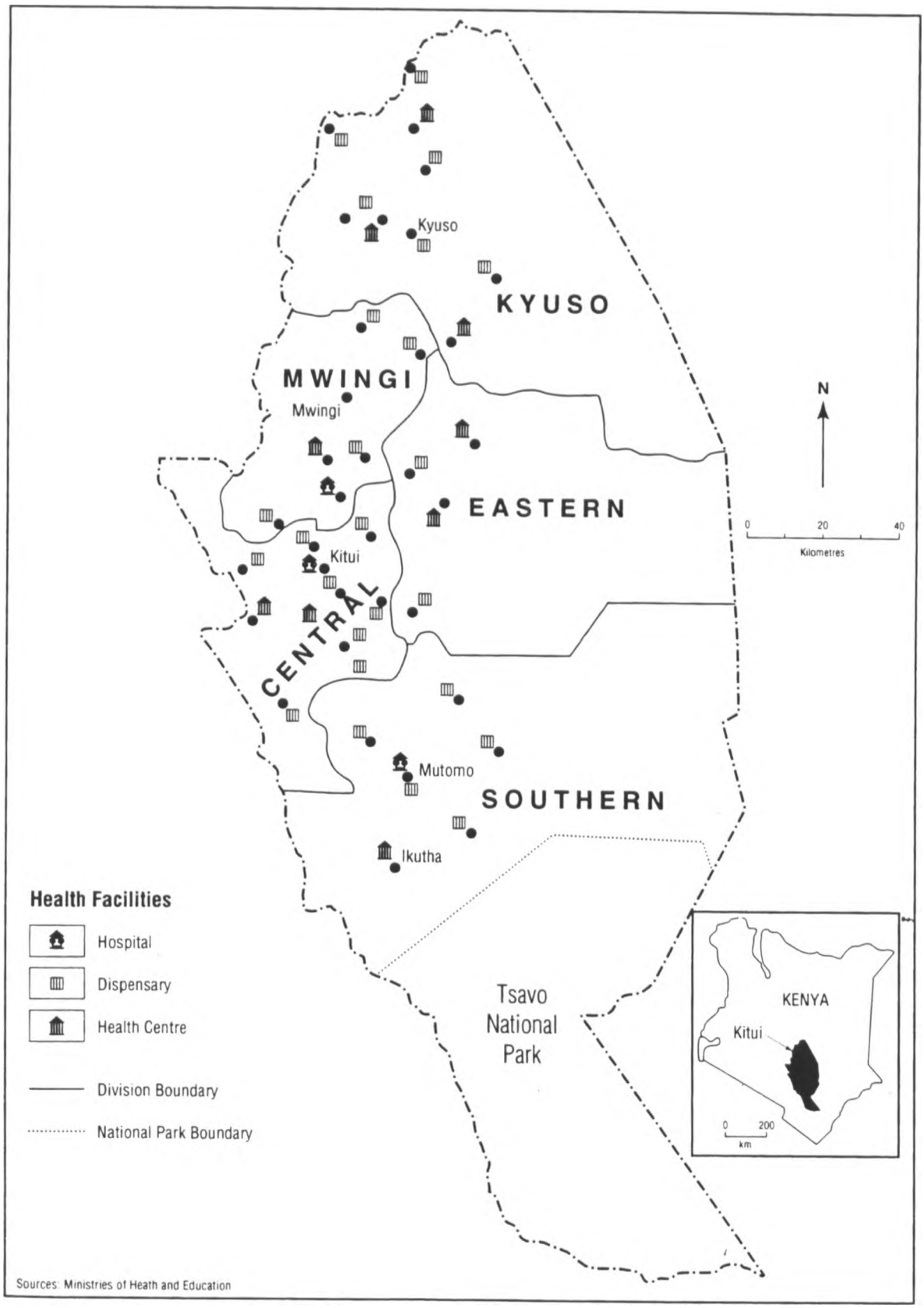


Figure 3.5: Health Facilities



Two, it provided easy access to information, stationary supplies and accommodation as it houses the district administrative headquarters as opposed to the other division headquarters which have inadequate facilities. Three, the division is also the most developed division in terms of infrastructure. Mobility was important because many places in the district lack road connections to service centres (District Development Plan 1989-93). In fact, walking and donkey rides are the dominant mode of transport in most parts of Kitui district.

3.5 Methods of Data Collection

Research findings are to a certain extent affected by the nature of the data collection methods used (Hyman, 1972; Bailey, 1989; Berg, 1989; Nachmias and Nachmias, 1987). This field research used purposeful sampling, key informants, participant observation, and literature review. Although hard numerical data in quantitative approaches are often viewed as the hallmark of modern health research, this field research preferred the fore mentioned qualitative approaches. This is because where quantitative approaches to studies in indigenous medicine or indigenous knowledge systems have been used, indigenous medicine is said to be rudimentary and has no widely recorded information (Ulin and Segall, 1980). Past studies also indicate that Kenya has no recorded data on the number of practising herbalists which makes it hard to give "scientific" numerical data (Good, 1987), hence the choice of using qualitative methods in this study.

3.5.1 Sampling Procedure

Sampling, which is a process of selecting observations, can involve probability[9] or non-probability sampling. Non-probability sampling is suitable where it is inappropriate to select probability samples. Collection of data was done using Non-probability Sampling. This method has three types of sub-methods namely, purposeful sampling, quota sampling and

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[9] Probability sampling avoids conscious or unconscious biases in selection on the part of the researcher.

reliance on available subjects sampling. **Purposive Sampling**[10] was used in this case study (Babbie, 1989).

The choice of this technique was a result of envisioned situations in which several reasons were found unfeasible to select the kinds of probability samples that normally would work in other situations. First, the **exact** proportion of the Kenyan population which use IM or is not clearly established but the estimates put it at 75 % (Maneno and Manzia 1991; Nyamwaya 1992). Second, due to the country's background of colonial history, and subsequent association of indigenous medicine with witchcraft, indigenous healers and users of herbal medicine are still hesitant to openly acknowledge their practices.

Third, rural households are aware that educated elites tend to promote new technologies, encouraging a more scientific approach to all aspects of life. They also know that their indigenous techniques in medicine and other fields are considered backward and unscientific. Many households are thus reluctant to acknowledge use of medicinal plants for fear of being labelled ignorant and backward (Good, 1987; Sindiga, 1992; Nyamwaya, 1992a). Fourth, as it was mentioned in the literature review, secrecy is very important because IM 's survival is based on how well this knowledge can be kept guarded.

Finally, purposive rather than random sampling was used because herbalists are few in number in relation to the total population and difficult to find and talk to without a careful search. For the above reasons, **Snowball**[11] sampling was used to select the respondents (McCall and Simmons, 1969).

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[10] Purposive sampling is a type of method in which the researcher uses his or her own judgement in the selection of sample members. It is sometimes called a judgemental sample (Babbie, 1989).

[11] Snowball sampling is a method through which you develop an ever-increasing set of samples observations. You ask one participant in the study to recommend others for interviewing and each of the subsequently interviewed respondents is asked for further recommendations.

3.5.2 Units of Analysis

Units of analysis in this study included herbalists, household heads, household heads/herbalists, and selected academicians in institutions and organisations dealing with both IM and natural resource management in Kenya. Herbalists in this study were defined as individuals who mainly use medicinal plants as their raw materials to treat their patients. They are also recognised by the community as healers. Household heads were those members in a household who had the most information of use of medicinal plants in treating illnesses in the household.[12] In cases where a homestead existed, the household that used herbal medicine most was selected. Household heads/herbalists were defined as those women who had responded as heads of households but later fell in the category of recognised herbalists.

A total of 70 herbalists, household heads, and household heads/herbalists were interviewed in this case study. They included 30 herbalists, 25 household heads, while 15 were household heads/ herbalists (household heads-cum herbalists). Among the total 30 herbalists interviewed were four herbalists who practised in Nairobi city. It was necessary to gather information on how they obtained their herbs and whether they were more environmentally aware than their rural counterparts (table 3.1).

Table 3.1: Composition of Key Informants

Group	Sex		Total
	Male	Female	
Herbalists	18	12	30
Household Heads	12	13	25
Household H./ Herbalists	0	15	15
Total	30	40	70

[12] A household is single dwelling unit with one or two adults and their children. Two or more households combine to make a homestead.

The 15 female household heads/ herbalists were identified later from an original number of 40 household heads after it was realised that they were herbalists who practised at home. In the analysis of data, the composition of these three groups will vary according to information being provided but where necessary, the composition will be mentioned in the course of presenting data. Besides utilisers of indigenous herbal medicine, thirteen academicians from institutions (table 3.2)whose responsibilities relate to indigenous medicine and its natural plant resource, were interviewed to shed light on policies and strategies that touch on IM development and conservation of medicinal plants. Each key informant in these institutions gave personal views of the role of his or her institution in IM resource development. Such information complemented secondary data collected in form of literature review.

Table 3.2: Members of Institutions Interviewed and Their Responsibilities

Institution	Responsibility	Key informant
National Environmental Secretariat commission (P)*	Increase public awareness of environmental issues and regulate use of the nation's productive resources	environ. officer
Department of Culture (P)	development, encouragement and promotion of Kenyan cultural heritage (includes IM)	assistant director
Kenya Indigenous Forest Conservation on Nature (KIFCON) (R)	agency assisting Forestry Department in sustainable management of Kenya's indigenous forests	research officer
Kenya Medical Research Institute (KEMRI) (R)	hosts the Centre for Traditional Medicines and Drug Research Centre	research officer
Kenya School of Law (P)	trains and deliberates on legal aspects of national laws	lecturer
Kenya Forestry Research Institute (KEFRI) (R)	national forestry research institute for forestry and development	research officer
National Museums of Kenya (herbarium section) (R)	conservation, identification and classification of plant species in East Africa	conservator
Kitui Medical Office of Health (P)	coordinates health services in the district	medical officer of health
Kenya Energy and Environment Organisation (KENGO) (R)	agency dealing with natural resource management activities	research officer
University of Nairobi (R)	research and professional training	lecturer
Ministry of Planning and National Development (P)	in charge of all planning and implementation of national plans	planner
Kenya Forestry Master Plan (P)	coordinates forest conservation efforts of other institutions	planner
Kitui District Forest Office (P)	in charge of forestry activities in the district	district forest officer

Legend

*** P = academician holding a position of a policy maker in respective institution**
R = academician holding the position of a researcher in respective institution

3.6 Data Collection Process

The process of data collection included empirical research and secondary information. Secondary information is useful in comparative studies and may enlarge the scope of generalisations increasing credibility and providing insights (Hyman, 1972; Bailey, 1989). Information gathered in the field was validated by using published documents and records. For example, it was possible to draw parallels between this field research and several works in Africa and Kenya on IM development. Secondary information was obtained from various sources such the Department of Culture, Ministries of Health and, Environment and Natural Resources, The Universities of Nairobi and Moi, Research institutions such as The National Museums of Kenya, KENGO, KEMRI, ACTS.[13] Other sources included literature materials from University of Waterloo library.

The following section briefly describes each of the various techniques chosen for the field research and their suitability in this case study. As much as possible, the choice of the techniques had to be based on acceptability of procedures to the key informants. Information from all key informants was sought through use of open-ended and coded questionnaire guidelines.

3.6.1 Preparation of Questionnaires

A list of **semi-structured questionnaires** as guidelines based on the assumptions of the study was used, with the approval of the office of human research and animal care, University of Waterloo (see Appendix B for selected questionnaire guidelines). They had been prepared at the University of Waterloo with the assistance of the thesis supervisor. Four different questionnaire guidelines were developed for the four groups of key informants interviewed. One for herbalists, another one for household heads, while the other two were

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[13] KENGO=Kenya Energy and Environmental Organisation.
KEMRI =Kenya Medical Research Institute.
ACTS= African Centre for Technology and Science.

used to interview policy makers and researchers in the fore mentioned institutions. The questionnaires for the last two groups were completed by respondents where direct interviews were not possible.

There were several additions and deletions in the herbalists' and household heads' questionnaires. The changes were made after a pilot study was conducted to test their validity and sensitivity to the issues in the field. The information given was very elaborate in order to give as much background information as possible. However, in the presentation of data, only selected information was used from the questionnaire guidelines.

3.6.2 Key Informant Interviews

In-depth interviews of key informants can be either an informal or unstructured or semi-structured conversation in which the researcher elicits the people's constructions of reality (Kill and Sailer, 1980). Interviews were held with academicians and IM users. Interviews with academicians in institutions and organisations were formal and took place in offices and usually took less time than anticipated. Discussions were held to gain more information on natural resource conservation issues in Kenya.

Factors that have affected use and development of IM were also explored. The process involved making appointments before hand. However, interviews with herbalists and household heads were more elaborate and took longer. During the interviews, informants' perceptions, opinions, knowledge, and expectations in indigenous herbal medicine practice as well as conservation of medicinal plants were sought.

3.6.3 Interviews with IM Users

Entry into the study area was through a researcher who had already gained the community's confidence. Despite the introduction, many households contacted on the initial pilot study denied any use of herbal medicine, until contact was made through a former classmate who was a local resident. The field research was conducted in the dry season

(between May and August) which made it difficult to find most people at home. Household heads, especially women had to travel for long distances in search of water, food or firewood. At times, the researcher had to accompany the respondents as they performed various household chores. Otherwise, most of them were too tired in the evenings, or too busy preparing the evening meals to answer any questions. Herbalists were easier to find. I located herbalists mainly by asking people in the area to identify individuals to whom they turn when they are ill. Having found the herbalists, I would explain my mission to them. The interviews were held in informal settings and usually took place in respondents' houses, herbal clinics, or as they worked in the field depending on circumstances.

Hypothetically, this is what would go on in an ordinary household or in a herbalist's home or herbal clinic: I would arrive accompanied by an elder or a community worker who lives and works in the neighbourhood. If it was in a home setting, a beverage would be served after an exchange of greetings. This gesture is the traditional way of welcoming visitors into a home. Then, a discussion of the prevailing problems in the area would take place for about ten minutes. Since, it was in the dry season, shortage of water and greens usually started the conversation. The purpose of my visit would not be introduced until the respondent was relaxed. Narratives of illness in the village or household would usually be used to begin the interview. If the respondent was operating from a herbal clinic, the conversation would be shorter and to the point to avoid delaying waiting patients.

The interviews had to be done without inconvenience, unpleasantness and where possible, respecting respondents' privacy. The idea was to get the respondents to **open up** and let them express themselves in their own terms, and at their own pace. Key informants insisted on non-use of tapes but allowed note-taking. This included avoiding taking photographs of respondents and their patients when requested not to, not revealing their names, and not using a tape recorder. However, not all respondents were against taking pictures. One of the respondents who had domesticated a few species of medicinal plants proudly requested the researcher to take pictures and use them to educate others. The inquiry

was broad in order to determine whether indigenous herbal medicine was used, which medicinal plants were utilised, to determine the state of conservation awareness among users of these medicinal plants, and to get a deeper understanding of IM and the reasons responsible for its continuous use. In most cases, the respondents tended to discuss their life histories elaborately rather than giving information on use of herbs. However, this aspect helped obtain considerable insight into background information and the changes that have taken place over the years in use of herbal medicine. These life histories enriched information gathered in the interviews. For in-depth Key interviewing to be used to the best advantage, it was combined with participant observation techniques to evaluate and cross-check the information given by respondents.

3.7 Participatory Observations

In addition to interviews with key informants, this study also used participatory observations. Observations were used to give a better perspective on information gathered through key informant techniques. For instance through direct observations, the researcher was able to assess the level of natural environment degradation, while key informant interviews identified the causes of the degradation.

Another main advantage of observation is directness which makes it possible to describe the observed phenomena as they occur in their natural settings. In this study, observing herbalists at work demanded less active involvement on their part than did verbal reports. This was ideal for this research, particularly with herbalists who needed concentration with their patients. Direct observation does not alter the relationship between the herbalist, his patient and their environment.

In two instances, I assumed the roles of a complete participant[14]. This approach became necessary to obtain information from two of the best known herbalists in the community who initially had withheld information. They were said to have collided with a group of researchers who had obtained invaluable information from them and later claimed the information to be their own. Observations often took place simultaneously with interviews.

3.8 Constraints in Data Collection

Finance, time spent trying to obtain information, and the need to protect identity of respondents were some of the problems encountered in the field research.

3.8.1 Finance

Financial assistance available was inadequate to cover all the expenses in the field research. Stationary expenses and transport cost were major constraints. Photocopying the questionnaires was very expensive. Several trips had to be made between Nairobi and Kitui. Such trips were necessary because most respondents interviewed from institutions were based Nairobi. Also facilities for identifying medicinal plant species were only available in Nairobi.

3.8.2 Time Spent in Obtaining Information

Time to collect data was very limited given the circumstances involved in obtaining information in the community. For example, it was difficult to get time to repeat interviews with female respondents who were household heads but later were identified as herbalists. Poor relationship between the local councils administrators and indigenous medicine users was at times a hindrance to accessing key informants in good time. A lot of time had been

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[14] Babbie,(1989) has distinguished between *complete participant* and *participant-as -observer*. In the first role complete participant's true identity is not known to those whom she or he observes, while in the second role the researcher participates fully with the knowledge of the observed.

wasted by initial use of government vehicles. Community members thought the researcher was one of the local authorities who had come to demand registration licences. This had at first drawn confusion and indifference from many members who had been approached to provide information on IM.

The most discouraging aspect in accessing information was bureaucracy in government offices. Getting statistical data proved unfruitful from the 1989 population census which is believed to contain very crucial information. Key informants who were government officials had to be visited more than two or three occasions to grant interviews even with prior appointments. They were either in meetings or attending other unprecedented official businesses. This took up more time than expected.

In other cases, a lot of time was wasted because administrative officials had not given residents in Kitui proper information of administrative boundary changes. Time was lost when several visits were made to the same respondents. In four instances, herbalists who were to be interviewed failed to wait for the researcher because they thought they belonged to a new administrative division.

In other instances, the researcher would spend a whole day accompanying one key informant collecting medicinal herbs or on other daily activities. This was because many respondents could not accurately estimate the distance to be covered on foot. In one incident, the respondent had indicated that the distance was about seven kilometres but it proved to be eighteen kilometers.

3.8.3 Identity and Information Confidentiality

It was important to keep the names of respondents confidential because of the secrecy involved in indigenous herbal medicine practice. Furthermore, indigenous healers and users of herbal medicine were still hesitant to acknowledge IM utilisation because of harassment by local authorities over licences for IM practice. Few respondents gave information on

condition that it would not be used against their profession. This necessitated confidentiality in gathering information.

There were several accusations of discrimination by other categories of IM practitioners. The researcher was accused of a bias towards herbalists by bone setters, sooth sayers, diviners, and faith healers who felt left out and that their popularity had been demeaned. It was explained that the choice of herbalists was not discriminatory, but was due to the nature of the materia-medica used.

3.8.4 Administering Questionnaire Guidelines

It was not possible to analyse data systematically from the questionnaire guidelines used in the field research for several reasons (Appendix B) Since there is very little research done or published materials or data on conservation of medicinal plants in Kenya, it still required a very detailed questionnaire guidelines to be used in the field. Also due to the sensitivity and secrecy involved in IM practice as mentioned in Chapter One, the researcher was not sure what responses to expect in the field. Given the short duration (three months) of the research, it was not possible to conduct a second round of interviews to narrow down and reorganise the questionnaires for precision of data that can be easily recorded and analysed. As a result, responses were too numerous and the respondents were not able to prioritise their answers to enable the researcher to analyse the data systematically. Therefore, the information gathered using the questionnaire guidelines will not be included in the data analysis However, this omission does not affect the quality of the findings as the concern of this thesis has focused on the behavioural (exploring whether medicinal herbs are used), rather than the clinical (efficacy) aspect of herbal medicine.

CHAPTER FOUR

UTILIZATION, MANAGEMENT AND CONSERVATION OF PLANTS IN INDIGENOUS HERBAL MEDICINE

4.1 Introduction

The chapter summarises findings of field work. The findings present views of local residents of Kitui district in Kenya on the medicinal plants used for treating various illnesses, and who practices IM. Harvesting methods, and factors affecting sustainable harvesting of medicinal plants are presented as perceived by **users.** This chapter also examines the level of the community's awareness and actions concerning natural resource conservation issues. The views of researchers and policy makers on natural resource management and environmental planning policies in Kenya are also discussed. The findings on the extent of indigenous herbal medicine utilisation reinforce the argument for the need to conserve medicinal plants.

4.2 Characteristics of Herbal Medical Practitioners

The results of the field research showed that herbal medicine practice was a very pronounced profession in Kitui. Herbalists are considered professionals by the community. They are consultants and dispensers of various types of herbal medicines. Information on their ages, educational background and how they acquired their knowledge were important pointers of who practices herbal medicine. Out of the thirty herbalists interviewed, only six were below age forty (table 4.1).

Professional herbalists were elderly people. Experience of herbal medicine practice ranged between fourteen and thirty years. These herbal medical practitioners felt that IK on medicinal plants was slowly disappearing with the passing of the elders. Judging from the ages of the specialists in this field, and the life expectancy levels, the concern was justified. The youth, who are expected to take over the task, are educated and many are no longer bound by traditions of inheritance of skills in IM practice.

Table 4.1: Ages and sex of Herbalist Respondents

Age in years	Respondents		Total
	Male	Female	
0-20	0	0	0
21-30	1	1	2
31-40	0	1	1
41-50	4	4	8
51-60	4	4	8
61-70	8	1	9
71-80	1	0	1
81 and above	1	0	1
Total	19	11	30

The community was already concerned about loss of the elders who have a wealth of experience in herbal medicine and in other aspects of IK. Four months prior to my arrival, the community had lost one of their most respected herbalists. None of the members of his family or community had taken up the profession because the young members of his family were either working in the urban areas or uninterested. Reasons contributing to this phenomenon were said to be lack of government support towards IM practice, the introduction of formal education, conventional medicine, Christianity, and the break-down of indigenous institutions.

Information on the respondents' education background showed that out of the total 70 community respondents (herbalists and household heads), over 75% of them had no basic education. Women were the majority in this practice, and as is expected, their western literacy level was lower than that of men (table 4.2).

When the question of training was posed to the respondents, all the 70 claimed to have inherited the skills, training and knowledge from relatives, especially from parents or grandparents. Data on herbal medical practitioners' age, educational background and how they acquire herbal medical knowledge is significant for planners and policy makers who may be concerned with the development and conservation of medicinal plant species in Kenya.

Table 4.2: Education Background of Respondents

Education	Herbalist		H/Hold		H/Hold/ Herbalist		Total	
	Male	Female	Male	Female	Male	Female	Male	Female
No schooling	5	8	4	9	-	15	9	28
Primary grade	5	3	8	3	-	2	12	9
H/school Level	5	0	0	2	-	2	5	4
Diploma	1	0	0	0	-	0	1	0
University	2	0	0	0	-	0	2	0
Total	18	11	12	14	-	15	30	40

Gender consideration on knowledge of medicinal plants in IM is also important because over 90% of women in Kenya are the environmental managers and this aspect provides them with a better chance of promoting and conserving medicinal plants (Shnayerson, 1990; Chiuri and Nzioki, 1992; Kanogo, 1992).

4.3 Health Seeking Behaviour in Kitui District

The Akamba people of Kitui have a wealth of knowledge on different illnesses and indigenous ways of treating them. The 70 community respondents interviewed identified several illnesses they were able to treat effectively using herbs. The most common were water related diseases such as malaria, diarrhoea, intestinal worms, urinary tract infections, and others such as diabetes, yellow fever and barrenness in women and impotence in both sexes (table 4.3).

Table 4.3: Major Illnesses Identified and Treated by Respondents

Group	Illness
Herbalists	asthma, arthritis, gout, diabetes, liver disorder, ttyphoid, epilepsy, yellow fever,
Household heads	eye infections, burns, wounds, coughs, ante-natal problems
Combined groups	malaria, child births, diarrhoea, yellow fever, body swellings, asthma, sexually transmitted diseases, worms

Herbal medicine was said to be used for self-treatment, treating members of their households and their patients. All the 70 respondents confirmed they saw patients across a wide spectrum of ages in both sexes. The informants claimed they treated patients ranging from one month old babies, to elderly clients of over 80 years of age. They also revealed an existing level of complementarity between healers themselves and between biomedical and indigenous practitioners regardless of locality.

Indigenous medicine seems to link rural and urban areas making it possible to use both IM and modern western medicine in illnesses that require specialisation. This interesting relationship came out in the course of the interviews. The four herbalists stationed in Nairobi as well as those in Kitui revealed that many herbalists have links through kinship ties which allow for both local and regional movement of practitioners, patients, and medicinal plants supplies. Those unable to treat their patients would either refer them to a more qualified herbalist or to a modern western trained practitioner depending on the nature of the illness. However, the patient would have the freedom of choice. The location of referral practitioners in both medical fields, therefore, does not seem to affect the flow and exchange of patients. According to the herbalists, what determines which professional to be recommended to the patient depends on his or her experience, and the cause and nature of the illness.

The causation of disease is important in African medicine, because people's understanding of it greatly determines the type of medication they will seek, whether western

modern or indigenous or both. Forty of the household heads were interviewed to give an indication of the type of therapy they preferred (table 4.4).

Table 4.4: Preferred Type of Therapy by Users

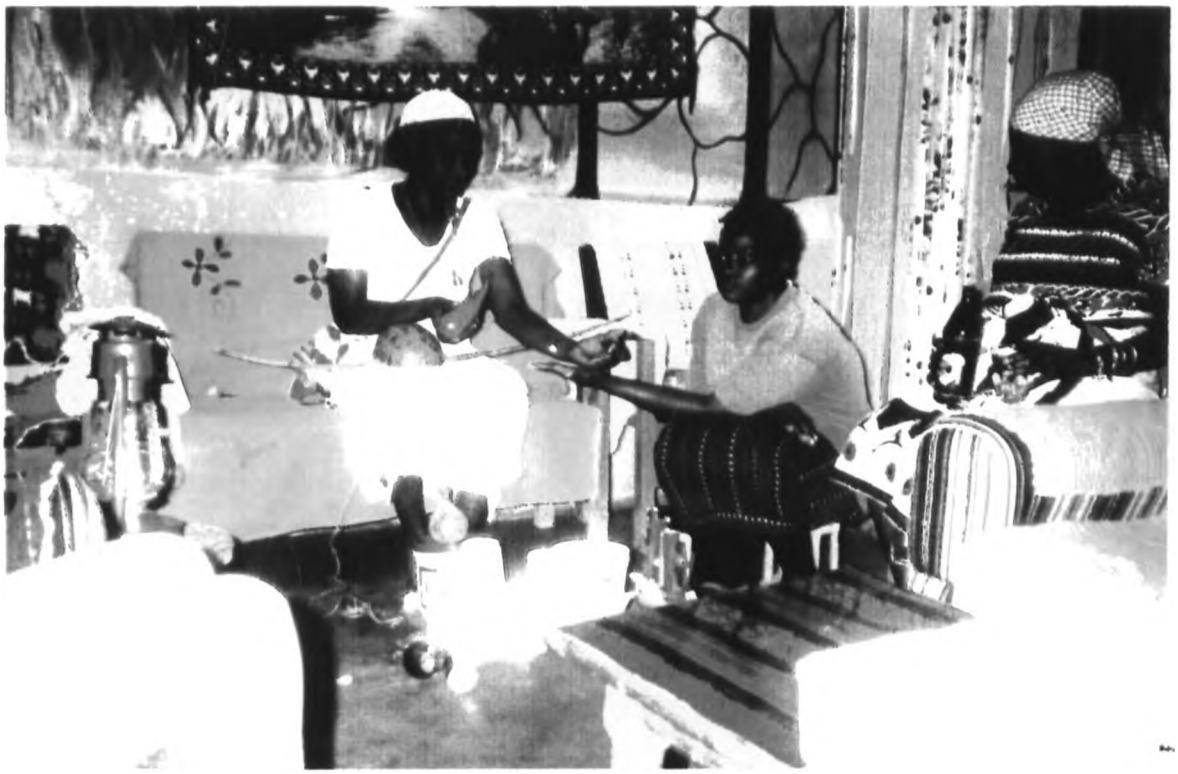
Users (40)	Modern Medicine		Indigenous Medicine		Both	
	no.	%	no.	%	no.	%
Responses	5	12.5	18	45	17	42.5

IM was more preferred than modern medicine. Reasons given for the preference of IM ranged from ease in accessibility, availability, cordial relationships with the indigenous medical practitioners (IMPS), and simplicity of dispensing instructions. It was also preferred because IM was said to be "their own" and it made them feel in control of their lives (photograph 1).

One of the female key informants explained that western modern medicine sometimes involves several types of tablets and syrups, which are difficult to distinguish for those who are not formally schooled, especially women in the rural areas. Some modern drugs need to be taken more than two times a day. This can prove to be impractical for women and children who spend the whole day away on domestic chores which means skipping several doses, thus rendering the drugs ineffective. In contrast, there was general consensus among users that herbal medicine is mostly taken conveniently with food or drinks during meals. Other reasons given in support of herbal medicine were that in some cases, the patient usually has the option of paying the fee in kind or cash. More often the fee is paid in the course of the healing process or it can even be completed after getting cured. This process can stretch between a few days and several years. Over forty two per cent of the 40 household respondents interviewed preferred use of both types of health care systems as they deemed appropriate. They explained that even with adequate modern western health services, they would like to see promotion of indigenous medicine in their community. One of the arguments advanced the respondents was specialisation.

Household respondents admitted that at times they or their patients would alternate between use of both types of medicine until they get cured. For instance, a patient would start with herbal medicine. After several weeks without proper cure, he would visit a health centre and, depending on how he felt, he might go back to the herbalist and keep on alternating between both types of medicine until finally getting well. Herbalists indicated they would refer patients to a more qualified herbalist or to a modern health clinic depending on the nature of illness.

Photograph 1: A Herbalist dispensing medicine



4.4. Indigenous Knowledge about Medicinal Plants in Kitui

All of the 70 community respondents named a wide range of species of wild medicinal plants used in treating the foregoing illnesses. About 74 different wild medicinal plants were identified which are either used in combination or separately. Eighteen of these were selected because they were mentioned by all the 70 respondents. Fewer samples were

carried from Kitui to the National Museums of Kenya, in Nairobi, for identification in order to obtain their botanical names (Table 4.5). From the information given on the various parts of the plants often used, roots and barks were used from almost every plant, while seeds were rarely used.

Out of these 74 wild medicinal plants, 15 were so basic that they were included in the treatment of almost every illness regardless of where they grew or their availability. These were identified as: *Mwaluvaini, Muteta, Muuku, Musemei, Mukolechya, Mwaitha, Musuu, Muthika, Muthumula, Muthulu, Muti, Kiluma, Mwalandathe, Mukenea, and Mukawa.* For example one medicinal plant, the Mwaluvaini *Azerderacta indica,* which has been nicknamed "forty", was said to treat over forty illnesses singly, or it would be combined with Muteta, *Strychnos henningsii,* or Mukolechya, *Zanha africana,* to treat a specific ailment, hence its nickname. Popularity of these 15 medicinal plants was based on their therapeutic values and importance to the community. *Muteta, Mukolechya, Muuku, Kithumula, Muthulu, Mukawa, and Musemei* were found to be geographically well distributed in the division. Those which were unavailable in one location would be substituted with other species perceived to have

Table 4.5: Selected Wild Medicinal Plants Used by Respondents

Local name	Botanical name	Part used	Reported use
Muthulu	*Croton megalocarpus*	roots, bark, branches	diaphragm, throat infection, rheumatism
Musuu	*Cajanus cajan*	branches, leaves	stomach ache, tonsils
Mutandambogo	*Scutia indica* *Scutia buscifolia*	roots, bark, leaves	epilepsy, dizziness, anti-sorcery, high fever
Muti,	*Aspilia mossambicensis*	leaves	eyes, burns, wounds
Syuasi	?	leaves	toothache
Muteta * >	*Strychnos henningsii*	roots	diahrroea, general body weakness, pneumonia, impotence
Kiluma	*Aloe secundiflora*	leaves	fresh wounds, stomachache, acne,
Mbaiki	*Ricinus communis*	seeds	oil used for skin ailments, hair, smooth skin, stomachache
Mwaluvaini* +>	*Azerdaracta indica*	seeds, bark, roots, leaves	abdominal pains, infertility, edema, joint pains, general body pains, continuous menstruation, contraceptives, malaria, flu, gonorrhoea, diarrhoea, gout, yellow fever, arthritis
Musemei *	*Acacia nilotica*	roots, bark, leaves, branches	coughs, abdominal pains, impotency, backache, high fever, colds
Muuku * +	*Terminalia brownii*	bark, branches	joint pains, yellow fever, infertility, edema, abdominal pains
Mukenea * >	*Zanthoxylum chalybeum*	roots, bark. leaves, stem	abdominal pains, epilepsy, peptic ulcers, pneumonia, continuous bleeding

Table 4.5 continued

Local name	Botanical name	Part used	Reported use
Mwaiitha >	*Eutada leptostacha*	roots, bark, leaves	tape worm, malaria, anaemia, haemorrhage, high fever, madness, infant gastroenteritis, epilepsy, helps increase breast milk, edema
Muvuti +	*Erythrina abyssinica*	roots, bark	diabetes, gout, liver disorder, epilepsy
Muthumula * +	*Tamarindus indica*	leaves, roots	coughs, pneumonia, anaemia, gonorrhoea, worms
Mukolechya *+	?	leaves, bark	flu, kidney ailments, allergies
Mwalandathe *+	*Pennistrum typhoides*	roots, bark	fatigue, body aches, inflammatory skin diseases, painful joints
Mukawa* + >	*Carrisa edulis*	roots	worms, witchcraft, constipation, high blood pressure

Table guide

*** = the most commonly used medicinal plant**
> = one medicinal herb is combined with another for treatment
+ = a widely distributed medicinal plant in the study area

the same healing qualities. A researcher in the Kenya medical research institute (K.E.M.R.I.) in Nairobi, which is doing research in indigenous medicine confirmed that the institute had identified medicinal compounds in ***Muteta, Mwaluvaini, Kiluma, Muuku and Muthumula*** and the research was in progress for others.

4.5 Collection and Harvesting of Medicinal Plants

All 70 community respondents confirmed that the medicinal plants they use grow wild and the quantity required depends on individual needs. Medicinal plants were collected

from several sources including respondents' own gardens, in the neighbourhood, and from communal and government land (photograph 2).

Photograph 2: One of the Medicinal Plant Collection Areas

The distance covered to the source would depend on availability and quantity of the medicinal herbs required, but it ranged between five to ten kilometres and in some cases users would travel as far away as Tanzania.

Responding to the question of quantity harvested, household users said they would require smaller quantities for domestic use which can be collected from their own land or from the neighbours' farms. Herbalists, on the other hand, require large quantities which are collected without fee from communal land or from government land with permission. They usually employ collectors, or buy from independent commercial collectors on a pay-for-delivery basis. Obtaining permission to harvest medicinal plants from government land is said to be a long and tedious procedure which encourages unauthorised harvesting from public forests, national parks and game reserves. Harvesting procedure also depends on those

involved (users or commercial collectors), the season, and the plant parts to be harvested. The process usually takes place during the dry season because it is easier to dig the roots and the load is lighter to carry. The part of the plant or tree collected depends on age, curative potency, storage (longevity and convenience) and bulkiness. Young shoots are not harvested-unless the nature of the species dictates as much-because they are considered "tomorrow's granary". It is also important to harvest medicinal plants during the dry season when most of them are mainly dormant.

According to four of the oldest herbalists in Kitui, harvesting steps involve briefing collectors on the amount of herbs to harvest from each plant, when to collect because some plants are poisonous in certain stages of their growth, and the age and required parts of the plants. Some plants may have very poisonous roots while the leaves and the seeds are medicinal. Such information requires an apprentice form of training from experienced herbalists. These four herbalists pointed out that maturity of the plant is not only important for potency, but if some plants are harvested at a tender age, the remnants can fail to multiply.

The same respondents also suggested that commercial collectors were more concerned with profit than sustainable harvesting. They were concerned that most of the herbalists in the urban areas employ young men who are paid according the amount they collect. To seek out the truth, the complaint was posed to the four Nairobi herbalists interviewed. Although they had trained their collectors, the four herbalists acknowledged that they and their assistants are still unable to harvest enough supplies because they are far from the rural areas and are often hindered by seasonal factors. For example, some plants flower at different times in the year in different climatic zones and others are only available at certain seasons which involves travel over long distances to the source. Harvesting is also a long and difficult process. It involves digging the roots, removing the barks, cutting branches into small pieces, tying them into bundles and transporting for drying. Roots and barks are said to

be commonly used, unlike seeds which are hard to find, and leaves, which dry quickly.[15] Thus, herbalists in urban areas sometimes supplement inadequate supplies by buying from independent collectors in the local markets over whose harvesting methods they have no control. This seems to confirm the four Kitui herbalists' fear of uncontrolled harvesting by commercial collectors, whom they partly blame for the local shortage.

4.6 Sustainable Management and conservation of Medicinal Plant Resources

Elderly herbal medicine users were well informed about indigenous methods which encouraged sustainable harvesting of medicinal plants. When questioned about the changes that have affected availability of medicinal plant supplies, four of the oldest respondents in Kitui all aged over 70 years observed that most of the young generation who have formal schooling are not bound by the taboos and are getting attracted to indigenous medicine for economic reasons, especially the medicinal herbal collectors.

Traditionally, not every one would have access to the knowledge of medicinal plants. It was a well guarded secret and only a trusted member of the family would be identified and trained to carry on the trade of his or her ageing family member. They identified the following social mechanisms which were said to be employed to ensure sustainable harvesting of medicinal plants according to indigenous methods.

4.6.1 Taboos

In the past, taboos regulated strict adherence to the laws of the land. Breaking them meant heavy punishment from the community and the gods. Most taboos did not allow large scale clearing of bushes. To ensure discipline, people were obliged to take an oath which

[15] The use of roots and barks has implications in terms of sustainable harvesting because many of the medicinal plants can dry up from removal of the bark and several roots.

would make them abide by the rules. Breaking the oath was a taboo and considered a very serious offence. For instance, it was a taboo to cut down a tree or even cultivate near shrines which were found in forests.

4.6.2. Council of Elders.

The council of elders or ***Nzama,*** which was composed of respectable old men, would deal with cases involving one or more the clans or ***Mbai***. Nzama was the executing agency of the community. Nzama ensured sacred groves and market places, which were considered community property, were not encroached on. Accusations of having cut down a tree would be settled by the Nzama depending on the seriousness of the offence. A customary penalty of a bull or a goat would be paid for light offences. In cases where the offence was very serious, the culprit would be forcefully ejected out of the clan's borders and was expected to die from the wrath of the gods or become insane. This was one aspect of rigid social control.

4.6.3 Communal Land Ownership

The five elderly respondents also pointed out that land was communally owned and each person had a social responsibility towards it. No unnecessary clearing of under-growth was allowed. These practices were part of the indigenous methods of preservation of natural habitats and biodiversity.

On posing the question of availability of medicinal plants in their locality, all the 70 community respondents were aware of environmental changes that had occurred over time. There was increased loss of vegetation and most of the forest cover. This meant that users had to travel further to collect their herbs than they previously did. Respondents were asked to identify factors responsible for loss of vegetation on land where they collect medicinal herbs. The six major factors identified according to order of importance were: drought, bush burning and forest clearing, charcoal burning, destruction by wildlife and inability to gain access to government land to collect medicinal herbs.

Observations by the researcher of the general environmental situation in the area showed signs of land degradation. Some pieces of land were being cleared for cultivation and trees had been felled for charcoal burning, wood carving, brick-making, and harvesting of firewood for fuel. The response often given to the question of whether such activities have been contributing to the scarcity of medicinal herbs in the area was that it was "normal". Observation made in the locality, of the frequency of the foregoing activities, indicated that they were the biggest contributors to loss of forest cover in the area (photograph 3).

Photograph 3: A Portion of Deforested Land

The government has in effect declared charcoal burning illegal in the area but enforcing the law has proved to be very difficult as people usually fell trees and burn charcoal at night. Although brick making was very rampant, it was not identified as a cause of loss of forest cover by any key informant, in spite of the amount of woodfuel needed.

However, a positive attitude among respondents on conservation issues was evident throughout the interviews. There was an expectation that the government would take up

measures for educating the public on the importance of herbal medicine and invoke interest in conservation efforts. Six of the most educated respondents who were also better-off economically (four from Nairobi and two from the study area), had started cultivating their own individual herbal gardens. Regardless, wild medicinal plants have continued to be the major source of their drugs.

One woman was found to have different perceptions about IM and conservation of medicinal plants than others. This female respondent had boarding facilities for her patients who mingled freely with the members of the family. Of eight patients, two had come from as far away as Kisumu and Kakamega, over 450 km away. This woman herbalist was said to be very competent in treating barrenness and diabetes. Patients were provided with free meals as they recuperated. The woman revealed that patients were charged a fee depending on their ability to pay which they usually did during the healing process, or after getting cured.

The woman respondent had also planted several medicinal herbs in her kitchen garden through enlisting the assistance of local NGOs which deal with environmental issues in Kitui (JIKA and KENGO)[16]. Her concern for loss of medicinal plants had prompted her to take further action. (Photograph 4) She and other women herbalists had organized themselves into a women's group and solicited a plot from the local authorities for planting medicinal plants. The process of acquiring land was ongoing during the interview period.

On the other hand, men who had higher education showed a lot of interest and concern for in-situ conservation. The four male herbalists consulted in Nairobi and one in Kitui had also started individual planting of several medicinal plant species.

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[16] Japan International Co-operative Agency (JICA), and Kenya Energy and Environment Organisation, have established offices in Kitui to address environmental and reforestation programmes.

Photograph 4: A Herbalist in Her Kitchen Medicinal Plant Garden

4.7 Approaches to Institutional Natural Resource Management and Conservation

The views of the 13 academicians[17] interviewed on issues affecting IM development and its natural resource conservation reinforced observations made by IM users in the case study.

The most important issues raised by these respondents were:

1), That attitude of the government towards IM and lack of clear policies has been hindering its development.

2), The legal status of IM practice in Kenya generated differences between policy makers. For example, a lawyer from the University of Nairobi argued that lack of any legal backing saved indigenous medicine in theory because the Witchcraft Ordinance Act of 1925, which

[17] The positions of these respondents are described in Chapter three, table 3.2

suppressed witchcraft, had excluded native therapeutics. But one of the assistant directors in the department of Culture under whose jurisdiction IM falls, contended that it is this vagueness in definition that has continued to make genuine indigenous medical practitioners and the users of IM seem illegitimate, and treated as such.

3), Inappropriate land use policies encouraged sub-division of land. The argument was that dividing up land into individual plots does in fact lead to land mortgages, debts and the destruction of culture and community. However, one policy maker felt that with the modern economy, communal land tenure discourages conservation efforts based on social responsibility. He pointed out that conservation can effectively be achieved through clearly defined policy on land use and through public education on conservation.

4.8 Conclusion

Several issues have been raised in this chapter. It is obvious from this study that IM is widely used in Kitui District. Several medicinal plants are used to treat a number of illnesses. Population pressure and other economic factors not withstanding, this thesis is not arguing for a complete return to indigenous health and indigenous natural resource management systems, but it is calling for changes in the existing government policies. The next chapter will present summary of the research findings based on the major issues raised in this thesis.

CHAPTER FIVE

DISCUSSION AND SUMMARY OF RESEARCH FINDINGS

5.1 Introduction

An objective of this thesis was to identify the role played by indigenous herbal medicine in the health of the local population as well as the medicinal plants utilised in IM. The first section of this chapter discusses the findings in chapter IV on indigenous medicine practice and utilisation and conservation of medicinal plants in Kitui. The second part of the chapter raises issues from preceding chapters on management of natural plant resources in Kenya. A summary of the research findings are given at the end of the chapter.

5.2 Choice of Therapy in Kitui District.

Results of Kitui case study indicate that people's choice of therapy between IM and western modern medicine is determined by cause, type of illness, and affordability among other factors. These observations are similar to those identified by van Luijk (1971) in a similar study in Kenya on how a people's idea of cause and etiology of illness determine the type of therapy to seek. If one believes an illness has resulted from the wrath of an angry spirit, then one visits an indigenous healer. According to Jelliffe and Bennet (1960), African systems classify three general groups of illness. The first are trivial every day complaints treated by home remedies; the second are "European diseases" or those diseases like yaws that respond to western scientific therapy and lastly the "African diseases" or those ailments that respond to African medicine, such as ancestral or spirit-induced ones.

5.3 Professionalisation of Indigenous Medicine

It is clear from the findings in this thesis that medicinal plants are an important resource needed for continued viability of indigenous herbal medicine. Information from

respondents in Kitui revealed that there are several illnesses effectively treated by the indigenous medical practitioners using medicinal plants.

There is substantial complementarity of modern medicine and IM which indicates wide use of both types of medicine in close conjunction with each other. Results from Kitui field research showed that herbalists often send patients to other more qualified herbalists or to modern western trained doctors. In some cases, medicinal herbs are used for self-treatment, before seeking help from either a herbalist or a conventional doctor or the patients keep alternating between the two health services until they are cured. In other instances, emergency cases are referred to conventional clinics and hospitals and only after the patient is out of danger does the herbalist resume his/her services. The results are similar to other findings by van Luijik (1982) who conducted research in the same community.

This phenomenon of medical pluralism has also been observed by Nyamwaya (1992b) in other studies in Kenya's indigenous medicine. He has noted that there is a normal sequencing in the use of existing health service alternatives. He indicates that individuals and families respond to illnesses in unique ways and may use both conventional and indigenous medicines in four forms of interaction namely, supplementary, complementary, competitive and alternative. In supplementary cases, laboratory examination of malaria may be done in a biomedical clinic and the patient may use indigenous herbs to treat the illness. On the other hand, a complementary form of relationship may involve use of both types of medicine, where a patient may be admitted to a conventional hospital and a therapeutic ceremony that deals with psychological aspects is performed for the patient (Nyamwaya, 1992). Each form of medicine may also be used competitively or alternatively for the same illness depending on the patient's needs (Thomas and Kramer, 1980; Chavunduka, 1983; Good, 1987). These observations are parallel to other case studies in Africa. Zeller (1974-75) reports that among the Baganda of Uganda, indigenous medicine is more widely used than modern western medicine because it is more accessible but where the latter is also accessible, it is used as much. Last and Chavunduka (1986) point to the role played by financial costs, transport

problems and perceived efficacy in influencing how African communities relate to modern western medicine.

5.4 Official Recognition of Indigenous Medicine in Kenya

One of the most important aspects of indigenous herbal medical practice that unfolded in this research is its unofficial status. In spite of its popularity and effectiveness in both rural and urban environs, IM still lacks government backing. According to the indigenous herbal medicine practitioners in Kitui, harassment by the local authorities was one of the major factors discouraging development of herbal medicine practice. Respondents interviewed from various institutions saw the absence of progressive legal avenues and policies aimed at upgrading IM as major drawbacks in development of IM.

Part of the problem of the low status of IM in Kenya is clearly indicated by the negative attitude of the medical professionals and local authorities in government circles. Both of these institutions reflect the official stand of the government towards IM, which shows that various gaps exist in IM practice, in the form of legal, technical and organisational aspects.

Legally, IM operates in a vacuum. Herbalists are not recognized by the Medical Practitioners and Dentists Board. At the technical level, there has been no coordinated scientific research into the therapeutic strategies and pharmacopoeia of IM (Nyamwaya, 1992; Kokwaro, 1993: Gachathi, 1989). Results from the case study confirm this fact. Such problems hinder further development and refinement of indigenous medicine and pose dangers to the users of medicinal herbs, who may be exposed to harmful practices and toxic substances. Lack of recognition of indigenous medicine also means that there is no support given to its practitioners in the form of training and management skills. This gap creates room for malpractice and further reinforces the negative attitudes attributed to IM. For instance due to lack of regulations by the government, there is no system of sanctions that can

be applied to practitioners, who are not controlled by the indigenous social system. This shortfall was noted in Kitui by four herbalists who accused commercial collectors of medicinal plants of unsustainable harvesting methods. It is clear from this thesis that the existing hostility and misunderstanding between IM practitioners, policy makers and researchers are as a result of some of the problems mentioned above.

Due to lack of an organised structure, there are no set of ethics that guide indigenous medical practitioners (IMPs) nor are there professional regulations which could guard against proliferation of poorly trained practitioners.

5.4.1 Nurturing Indigenous Medical Practitioners

Considerable evidence in this study indicates that indigenous healers are professionals in their own right. Indigenous knowledge is found to be crucial in both conservation of medicinal plants and preservation of indigenous medicine practice. The role of indigenous healers is, therefore, central to the survival of indigenous medicine as they hold the indigenous knowledge needed in identification, utilisation, and conservation of the medicinal plants utilised in IM.

Besides, indigenous healers still influence the course of medical practices in Kitui and in other parts of Kenya because they belong to the same culture as the recipients of their services. They share common beliefs, values and symbols of communications. Their services are thus appreciated in both rural and urban areas by both rich and poor clients. Due to their central role in the society, they hold influential positions in their communities and they can play an important role in the conservation of indigenous herbal medicinal resources in the society. In terms of the findings of this case study, the issue of gender in herbal medicine practice deserves a special mention.

5.4.2. Gender Bias in Indigenous Medicine Practice

Although this thesis is not a gender based study, results from Kitui field research dictate that women are an important force in IM. Out of the 70 key informants interviewed, over 55% were women who were found in the three categories of herbalists (11), household/herbalists (15), and household heads (14), (please refer to table 3.1 in chapter III). Their sheer number in this case study using purposeful sampling of key informants, implies that planners and policy makers should address the role of women in policies that deal with conservation of medicinal plants and IM development.

Results from the case study show that women are able to organise themselves into a group in an attempt to obtain land for cultivating medicinal plants. Also one woman maintains a shelter out of concern for patients from long distances. Field observations indicated that these two ideas were lacking among the male respondents. The implication here is that both women and men have different interests and ideas, which are valuable in herbal medicine practice, and in conservation and utilisation of medicinal plants. Similar findings have been observed in other resource management case studies on soil erosion in Kenya (Thomas-Slayter et al, 1991). Other scholars have put a case for women because they have been custodians, selectors and preservers of valued indigenous local seeds in agriculture and forestry, whether for food, fodder, fertiliser or medicine (Maathai, 1992; Shiva, 1993).

In the foregoing observations, environmental programmes need to include women in the government plan of action not only because of their numbers, but because women's enormous responsibilities demand their voice in the most fundamental decisions affecting their lives (Shaynerson, 1990; Thomas-slayter et al, 1991; Abug, 1992; Clift, 1992; Maathai, 1992; Shiva, 1992;). Women's knowledge and skills are the mainstay of indigenous resource management as valuable breeders, conservers, and producers of plant diversity,(Juma, 1989; Suliman, 1991; Kabeberi-Macharia, 1992; Kigotho, 1993). Thus, their active role in conservation of medicinal plants and in development of IM should be more pronounced, rather than being viewed as passive consumers only.

However, observations from the research have shown that women are likely to be left out in the decision making process because their household responsibilities, invisibility and low income status isolate them from the mainstream of "professional" exposure. Other surveys done on indigenous medicine and conservation of medicinal plants in a different locality, of the same community by Good (1987) and Rocheleau (1981), confirm that women have different knowledge on medicinal plants but are sidelined in many development projects. From the above analysis, it is clear that women need be represented in every level of planning and implementation from community to the national level, to avoid walling out a multitude of innovations awaiting recognition (Abug, 1992; Kameri-Mbote, 1992). Furthermore, conservation of medicinal plants requires that planners and policy makers recognise the role of IM in the community health.

5.5 Implications of Low status of Indigenous Medicine

The existence of indigenous medicine, which is not fully recognised, receives little technical support, and with hardly any effective regulation, leads to many negative effects (Nyamwaya, 1992). One such major negative effect is the continuous loss of both indigenous knowledge, and medicinal plants which are the key to IM survival. It is evident from the literature review and in the Kitui case study that indigenous herbal practitioners and community members with specialised indigenous knowledge in medicinal plants, have inadequate communal or government avenues for protecting and conserving this knowledge. To close this gap, resource management strategies need to include conservation programmes based on communities' culture, values, skills, knowledge and wisdom as the basis of sustainable livelihoods and production systems. This is in agreement with Chambers (1983: 1989) who has found that conservation measures require a new vision that puts people first, rather than last. For instance, in the case of Kitui, other sources of income need to be reviewed and introduced to the community to ease the pressure on charcoal burning and

brick-making. Other researchers elsewhere (Korten and Klauss, 1984; McNeely and Pitt, 1985; WECD, 1987; Plotkin, 1991; Bronkesha, 1987; Shiva, 1993; Bell, 1987), have realised that citizen participation and community-based resource management are some of the critical variables towards attaining sustainable development.

If local involvement in natural plant resource management is to have an impact, it has to begin at the grassroots level with the farmers taking up the idea. This fact has become increasingly important to project organisers in other parts of Kenya on tree planting missions. Ostberg (1988), in a tree planting programme in West Pokot area of Northern Kenya found that community self-reliance, awareness, and education are important approaches to conservation of natural resources.

In addition, such knowledge and wisdom needs to be guarded and regulated for the benefit of those who command this specialised knowledge of plant life in their environment. This is in agreement with other research findings among the Maasai of Kenya (Sindiga, 1994). As the findings bear witness in the previous chapters, local communities still have managed to keep some of their cultural aspects intact. The herbalists and household heads interviewed showed they had substantial indigenous knowledge of over 74 medicinal plants which they have successfully identified and explained their medicinal value to the society. The potential of indigenous knowledge on medicinal plants is great and includes a lot of information on the type of plants, their uses, role in people's health, the state of the plants (i.e. cultivated or completely wild) and the importance placed on the medicinal herbs by the local people.

Nevertheless, the respondents in this case study voiced their concern over the loss of IK in the community. Some of the issues that the respondents regard as responsible for the breakdown of the indigenous knowledge system in relation to conservation of medicinal plants are set forth below.

5.5.1 Indigenous Knowledge System

Results from the Kitui case study suggest that **the passing of the old generation, break-down of social control mechanisms, and conflicting situations regarding community environmental awareness,** are weakening the indigenous knowledge system and sustainable harvesting of medicinal plants in Kitui. The average ages of the practitioners, which ranged between fifty and seventy years is significant to the survival of IM in Kenya. It also has serious implications in terms of passing on the experience and the unrecorded indigenous knowledge on medicinal herbs. Introduction of formal education, conventional medicine, christianity, and the break-down of indigenous institutions has exacerbated IM development problems. The reality is that there is an urgent need for legal, institutional and policy initiatives which should focus on the preservation of indigenous medicine practice.

Observations made by members of the Kitui community imply that methods of harvesting medicinal plants are not themselves a major threat to the conservation and preservation of this plant resource. It is factors such as the breakdown of indigenous mechanisms of social control that are, however, threatening sustainability of medicinal plants. The fact that commercial collectors of the medicinal herbs take no responsibility for their harvesting methods indicate that not everybody is bound by the taboos. This can in the long run introduce an unsustainable mode that may eventually make even those currently bound by indigenous enforcements feel no social obligation to preservation of the medicinal herbs. The break down of the indigenous social control system also means that the knowledge is no longer in the custody of the community as a result of the factors mentioned above. This has been underscored by Sindiga in other case studies in Kenya (Sindiga, 1991; 1994).

A conflicting situation was observed in relation to factors affecting the use of natural plant resources. From observations, there were many on-going activities of charcoal burning,[18] brick making, bush burning and clearing hilly land for cultivation during this

[18] The demand for charcoal is large since 95% of the Kenyan population use fuel wood as their source of energy (Bronkesha, and Riley, 1987).

research period. The fact that the informants identified the these activities as largely responsible for loss of forest cover and plant diversity, and could link their actions (or what they saw as a normal way of life) to degradation of resources was intriguing and conflicting. One of the informants who was clearing a portion of marginal land explained that the decision about clearing the bush when he had no alternative piece of land was a matter of competition between priorities: a choice between hunger and environmental protection.

This statement reflects part of the frustration felt by people towards the government for banning charcoal burning without providing people with an alternative source of income or a chance to express their feelings. The implications of these observations are that sustainable resource management will not be achieved without practical community-based management approaches that take into account the people's needs. It also shows the inevitability of the community's predicament. Besides problems pointed out by the community, it was observed that formal organisations also share the responsibility for degradation of natural habitats as noted below.

5.5.2 Challenges to Government Institutions

Problems related to IM and natural resource management practices in Kenya signify inadequate government policies and plans, lack of community involvement, and lack of partnership and coordination amongst organisations responsible for IM resource conservation and management. Introduction of new policies does not solve any problems because they are based on the old ones which are themselves inadequate.

Literature review and observations made by the thirteen academicians interviewed show that many of national resource management and environmental programmes have not actively involved the communities and build upon or even acknowledge indigenous local practices. The National Environment Action Plan (NEAP), currently being launched in Kenya to provide guidelines for environmental concerns, does not stipulate the **role** the local

communities will play in conservation, neither does it include indigenous knowledge as a part of solution to past environmental management mistakes, despite the potential IK holds.

It is also evident that many efforts in environmental conservation in Kenya have not involved a partnership of the government, private sector, and the community who have a stake in natural resource conservation. Government institutions and NGOs mainly tend to do independent research with very little or no collaboration amongst themselves and with the community. In most cases, the efforts are not felt nationally particularly at the grassroots level, because it involves high level and specialised research. For example, the ordinary person in the society, who has direct contact with the environment on a daily basis, is not always reached by the research findings. The community's local knowledge of environment is not used in the decision-making process.

Private conservation financing on the other hand, rarely interests the private sector because the benefits of conservation investments such as clean air and water, genetic diversity, and intact ecosystems are not sold to the consumer (World Resources Institute, 1990). Due to lack of a link between the parties involved in conservation efforts, each sector's diverse interests generate conflict although the objectives are often the same. The cases of the Maasai and one of the County Councils, over control of forest resources, which were referred to in the literature review, indicate the extent of the problem. The implications suggest that survival of threatened species largely depends on the appropriate overall conservation of the endangered ecosystems in which they occur.

Threatened wild animals are generally protected in national parks and orphanages and partly in forest reserves. However, threatened wild plant species often have no definite place for protection as they are lost as forest resources continue to be cleared for commercial and subsistence agriculture. Nevertheless, literature review suggests that indigenous forests where wild medicinal plants are found are not fast-growing and are being replaced with fast-growing soft wood plantations as a result of high fuel wood demands due to population pressure.

Observations from this thesis show that the government needs to review its policies and action plans in relation to natural resource management and health, if conservation of medicinal plants is to be achieved at the national level. However, implementation of these policies and action plans should not be realised at the expense of ignoring the local people and the value of their indigenous knowledge systems.

5.6 Summary of the Findings

Indigenous herbal medicine plays an important role in the health of the Kitui community. Medicinal plants are vital in indigenous medical health delivery system. However, the role of the community in conservation of this resource is inadequate and ill-defined. There is also lack of clearly delineated government conservation policies to enable continuous utilisation and preservation of these medicinal plants. Equally threatened is the promotion and development of indigenous knowledge systems (IKS), within which indigenous herbal medicine is practised. It is within IKS that conservation and promotion of medicinal plants will be ensured. Therefore, successful management and promotion of medicinal plants, IM and IK are dependent upon the willingness of the government agencies, communities, researchers and non-governmental interest groups to support and incorporate them in relevant development programmes and plans. Recommendations that address the foregoing issues will be provided in the following chapter.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter outlines **conclusions** arising from the findings in the preceding chapters, and suggests **recommendations** for the conservation of medicinal plants, promotion of herbal medicine in indigenous medicine, and indigenous knowledge systems. These recommendations are for the government, IMPs and rural communities. Each has a crucial role to play in conservation, promotion, and preservation of indigenous medicine resource base, especially herbal medicine, for it to remain accessible and available over the long run. The recommendations have implications for other communities in Kenya and in Africa concerned with planning for management and conservation of IM and its resource base.

6.2 Conclusions

This thesis started with five objectives namely, a) to identify the role played by indigenous herbal medicine by the community; b) to identify some representative examples of the medicinal plants utilised in IM by the community; c) investigate the level of perceptions of the local community on conservation of medicinal plants; d) how indigenous knowledge in IM can be utilised in conservation of medicinal plants. Finally, based on the above four objectives: e) to review of existing environmental and natural resource management policies in Kenya with a view to recommend policy measures that can lead to conservation and management of medicinal plants. However, the results of the field research indicate that only three of the objectives (a,b,and e) have been addressed fully. The initial five objectives were not covered due to previously unknown difficulties in information gathering in the field as pointed out in Chapter Three, sections 3.8.3. and 3.8.4 of this thesis. Conclusions of this study will, therefore, be based on these three addressed objectives (a, b,

and e). The other two will form the basis for further field research which the researcher intends to pursue.

a). The findings from this case study have supported that indigenous herbal medicine is an important and major element in the health care of the Kenyan population. Its holistic approach makes, IM to be a favoured health care service as it caters for psychological, physical and spiritual needs as opposed to reductionist modern medicine. The research findings show that it is preferred by 45% of the users who are mainly women.

b). Wild medicinal plants are the major therapeutic element in indigenous herbal medicine. Results from the field research show that IM users are able to identify and use about 74 medicinal herbs to treat various illnesses in the community. Fifteen of these medicinal herbs are basically used in almost every treatment. However, sustainable conservation and harvesting of these precious herbs is not ensured by both the users and the government. Similarly, indigenous knowledge on their use, which is not yet recorded, is not safeguarded or ensured with the passing of the elders .

e) Review of existing policies on environment and natural resource management in relation to indigenous medicine resource base has some implications which have been explored. Some important issues observed are: lack of legal and technical government support for the development of IM; inadequate official support and recognition of the indigenous medical practitioners (IMPs); lack of systematic environmental law; absence of a national policy on conservation of medicinal plants; failure to use and develop indigenous knowledge on conservation and management of natural resources, and inability by the government to establish a partnership between itself and the community in conservation and management of natural resources at the grassroot level.

This study has focused on use, conservation, and management of medicinal plants and indigenous herbal medicine due to the limitations outlined in chapter Two. However, conservation and development plans must incorporate the larger realms of indigenous medicine and indigenous knowledge systems.

6.3 Recommendations

All three concerns of IM practice (indigenous knowledge system, medicinal plants, indigenous medicine) have been taken into consideration despite this thesis emphasising the conservation of medicinal plants. It is the combination of the three aspects, with emphasis on the linkages among them, that will make the efforts viable and rewarding to the policy makers, planners and the beneficiaries of the IM health care. The following recommendations are for the government, the community and herbalists.

6.3.1 Recommendations for the Government

A. Given that Kenya is a land-based economy, conservation of its natural resource is crucial to the country's overall development. Conservation needs to become a part of every possible section of national development. Therefore, the government should reorganise its planning system and planning processes. The current rational comprehensive approach needs to be complemented with integrative approaches, especially on conservation planning. Such efforts require planners and planning to move from **planning by the state** with its remoteness from people's every day concerns and practices, to effective citizen participation planning. Community members as the users of **knowledge-in-practice** are a crucial attribute in effective conservation planning. The government should recognise and utilise community institutions such the clan networks, extended families and the elders, which remain an under-utilised human resource for planning, implementing, and managing development activities in Kenya. Local communities should be made partners in conservation by involving them in preparation of management plans especially on conservation of medicinal plants.

B. As women are the majority users of IM, there is need for a gender-responsive national policy taking into consideration the particular needs of women in all spheres. Planners and policy makers should focus on policies that recognise and promote the role of women in conservation. This should include representation of women in planning and policy-making in every sector of development planning. There should be training workshops where women can

benefit from other areas in agroforestry and in primary health care education. In the case of Kitui, the female herbalist who had planted herbs in her kitchen garden can be encouraged to educate other women in the area.

C. There should be a concrete and relevant environmental law which will help the government to incorporate environmental issues in all its plans. The environmental law should embrace aspects which will exhibit a sensitivity to the use of natural resource issues as well as the cultures and the needs of the local populations.

D. The government should also re-examine and change the existing national policies and legislation which are ambiguous in relation to indigenous medicine health care delivery system. A new public health system needs to be developed to incorporate IM. Policy makers, health planners, and workers should jointly look into, and develop the resources in the indigenous medicine that meet the needs of the local communities. The "Recommendations of The WHO meeting on the Promotion and Development of Traditional Medicine" (see Appendix A for summary), should serve as a guide to activities which should be considered when developing national policies for IM development. Cooperation between Western and indigenous medicine should be encouraged. Kenya can emulate examples from other African and Asian countries such as Swaziland, Ghana, Thailand and China, which are making positive use of WHO-formulated policy development guidelines on IM (Warren *et al*, 1982; Green and Makhubu, 1984; Desawadi, 1991).

E. As a member of The WHO, the Kenya government is a signatory of its recommendation on IM. Therefore, the government has to de stigmatise IM through educational and promotional campaigns, to encourage young people to join the profession. Such campaigns need to include creation of medical schools and universities to teach IM healing techniques.

F. The government should adopt health plans and policies to promote and train all indigenous medical practitioners (IMPs) whose services are needed by the communities. In the process, the government needs to encourage the formation of an umbrella organisation for

all IMPs in the country. The organisation should be a conglomeration of all IM specialist associations. For example, herbalists association should be a member of the umbrella organisation.

G. The government needs to urgently address the issue of intellectual property rights of indigenous knowledge from both a national and international perspective. Legal and policy measures must be established to deal with ownership and patenting rights of medicinal plants and IK protection.

H. Specific conservation measures of medicinal plants should include collaboration and cooperation with other countries to allow exchange of experiences, knowledge, and technology, to avoid duplication of services and unnecessary expenditure. For example, in other African countries such as Mali, Malawi, Niger and Madagascar, incentives such as returning traditional control structures are working (McNeely, 1993; Mkando, 1992). Moreover, many Asian countries such as Indonesia, Thailand, China, Sri Lanka and India have continued to compile lists of material medica to assess their availability, shortages, plans for cultivation, collection, and conservation, and possibilities for developing new drugs and substitutes (Alok, 1991; de Alwis, 1991; Desawadi, 1991; Lokubandara, 1991; Rifai and Kawartinata, 1991). In the case of Kitui, the government should allow herbalists and the community to harvest medicinal plants from protected areas. In exchange, they can be encouraged to domesticate a set number of medicinal plants per year in their own plots. However, before local populations are allowed access, proper assessments of protected areas need to be done to determine any negative ecological effects on environment.

6.3.2 Recommendations for the Community

A. The community should start inter cropping medicinal plants with other crops.

B. IM users should seek for a communal forest where members can ensure a stable source of medicinal plants.

C. The community needs to seek information on the use and effects of the medicinal plants in use. This should include insisting on getting feedback on researched medicinal plants.

D. The members of the community should seek to gain access to herbal knowledge from other societies, especially on how to grow, store and conserve medicinal plants.

E. The community should also hold several meetings to discuss use of IM and its future. These discussions should aim at de stigmatising the use of IM in public, and how to curb degradation of natural habitat. In the case of Kitui, the community should suggest other sources of income which the government should review and introduce to the community to ease the pressure on charcoal burning and brick burning-making. These community meetings should involve government officials, IMPs and western trained health officials.

6.3.3 Recommendation for Herbalists

A. Herbalists must form professional associations to enable them to fight for their recognition, and their rights to gain access to obtain medicinal plants in parks and protected areas. The association should also be given a mandate to deal with issues of copyrights on any information given by IMP's.

B. Each herbalist should grow as many medicinal plants as possible if they have land. Those who do not own land should seek plots from local councils for growing medicinal plants.

C. Herbalists should campaign to promote their profession in order to attract young people to carry on the profession. Campaigns should be spearheaded by those herbalists who have awareness on the need to promote IM. Educational campaigns should include sustainable utilisation of medicinal plants. In case of Kitui, where roots and barks are used most, non-destructive methods should be incorporated in harvesting methods. Any realisation of the fore mentioned recommendations will require commitment from all the parties concerned.

In conclusion, efforts to share and communicate the findings of this field work for the benefit of IM users and policy makers can be achieved through workshops and seminars. It is intended that the field staff in the department of culture under whose jurisdiction IM falls, will be sensitised through departmental briefings and workshops. At the national level, much can be learned from the Kitui case study and different ideas may be tried out before being applied because the potential to transfer knowledge and experience to other areas exists.

In order to develop indigenous herbal medicine and indigenous knowledge systems to their full potential, and to provide for continuity towards realisation of long term health and environmental goals, more research is needed in two areas. 1). Further research is needed to obtain reliable data on medicinal plants in order to ascertain and focus on species that might soon become endangered. Although information in the case study shows that indigenous healers are able to list medicinal plants found in their region and which they commonly use, they were only able to make rough estimates of their availability by either classifying them as available or scarce. This means that the government will also have to encourage further research on the issue of medicinal plants' property rights. National policies governing what share of property rights the governments will have and how this will be determined is needed.

2). There is also need to pursue further research on the role of parks and protected areas in conservation of natural resources. The current conservation policies do not adequately address problems of ecological changing patterns in different areas in Kenya. More research is needed in this area to determine how conservation will be integrated with development of local human communities.

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Appendix A: THE WHO RECOMMENDATIONS(1978)

A. Collection and dissemination of information pertaining to indigenous medicine.

Organised efforts should be made to ensure collection of information and dissemination through:

1. Promotion of collection of basic information by surveys on:
   - -IM personnel categories in practice (census).
   - -IM centres or functioning services.
   - -utilisation of practitioners of IM in health services.
   - -diseases known to have been successfully treated by IMPs.
   - -IM drugs, preparation or medicaments, IM pharmacopoeias.
   - -determinants of manpower needs for primary health care services.
   - -collaborating factors and supportive infrastructure for promotion of IM.
   - -literary resources to gather information and compile bibliographies on IM.

2. Special meetings, such as conferences, seminars and workshops.

3. Publications, such as journals and bibliographies.

B. Educational programmes

Educational programmes could be planned and executed with the following aims:

1. To educate the community on new health on new health policy and to enlist its support and cooperation.

2. To change the unfavourable attitudes of members of the health allied professions.

3. To disseminate information on IM for use and application.

4. To assure IMP's that new policies and approaches are in support of the practice of IM, and that they are aimed at enhancing it for safety, efficacy and wider use at low cost.

5. To assure IMP's that where IM is drugs have been studied and adverse side-effects eliminated, the drugs should be produce in the same or similar form for general use.

C. Application of IM to primary health care

Promotion of services especially in primary health care (PHC) should be intensified by:

1. Application of appropriate technology of health care improvement based on simplicity, safety, efficacy and availability at low cost.

2. Selection of essential plants, drugs, or techniques employed in IM, for use in public health services and particularly in PHC.

3. Approval of proved useful methods and techniques, such as acupuncture and Yoga, ***herbal medicine*** (italics mine) for use in public health services.

4. Integration of IM and western medicine in training programmes at various levels[19]

5. Introduction of IM into public hospitals, dispensaries and health centres. The functions of IMP's should be carefully coordinated to ensure efficiency.

6. Incorporation of self-evaluating mechanisms for continuous evaluation and feedback in order to improve the technique or reorient the programmes whenever necessary.

D. Manpower development

Coordinated steps should be taken in collaboration with WHO to promote manpower development in IM by:

1. Training the various categories of IMP's workers (including those with limited skills), such as TBA's, bone setters and ***herbalists*** (italics mine).

2. Encouraging IMP's to form societies as a means of checking harmful practices, eliminating quacks and charlatans, assuring continuous informal education, cultural loyalty, and the conservation of a high level professional ethics and practice.

3. Organising educational activities in IM either by establishing new training centres or by revising existing carriculas to include subjects related to IM.

4. Technical boards, chairs for IM in schools, and new institutes could be created, and a directorate of IM could also be set up in health ministries[20]

E. Multidisciplinary research programme

A planned multidisciplinary research programme should be formulated and implemented as follows:

1. Operational research on IM in health care systems.

2. Various aspects of medicinal plant research, such as plant identification. classification, phytochemistry, pharmacology, and laboratory and clinical trials for therapy.

3. Studies in Psychosocial and cultural aspects and behavioural patterns.

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[19] These recommendations were made in 1978 and only one of them has been implemented in Kenya to a certain degree- the training and integration of traditional birth attendants (TBAS) into PHC.

[20] The Department of Culture, under whose jurisdiction IM falls, had started registering all herbalists in the country in 1986. They were issued with certificates of recognition and that was as far as it went.

4. Manpower development and health team training, including development of effective training methods.

5. Role of IM in other fields of medical research, such as fertility regulation, treatment of infertility, control of tropical endemic diseases, cancer therapy, the care of drug-dependent persons, and the ageing process.

6. Validation of popular IM therapies.

7. Promotion of research activities on the integration of various systems of medicine.

8. Establishment of national institutes for research into IM.

Appendix B: QUESTIONNAIRE GUIDELINES

Selected Questionnaire guidelines for Academicians, herbalists and household heads

A. Academicians

1(a) Is there a government policy on conservation of indigenous trees and plants? Yes No
b)If Yes, what is the policy?

2. a) Are there existing plans/programmes for implementing policies on conservation of medicinal plants? Yes No
b) Who are the implementing agencies?

3. Is there collaboration between your organisation and herbalists in ascertaining medicinal value in plants that they use? Yes No

4(a) Please list constraints that in your view hinder use of herbal medicine.

b) Which of these constraints originate from:-
i) Attitude of Government?
ii) Attitude of Communities?
iii)Attitude of Individuals?
iv) Attitude of Professionals?

5. What are the limitations of integrating a policy on the use of medicinal plants with a policy on conservation of natural forests?

6. a) Can indigenous knowledge on local environment be of any significance towards conservation of medicinal plants? Yes No
b) If yes, how can it be applied in practice?

7. Is your institution consulted in the development of environmental policy with a view to conserving indigenous forests? Yes No

8. Please in your view which agency/agencies are best placed to deal with issues on conservation of medicinal plants in Kenya?

9. a) Are you doing any clinical trials in laboratory? Yes No
b)Which plants have you tested for efficiency, side effects and toxicity?

10.(a) In your view, are indigenous practices in conservation of bio-diversity/environment of relevance for application in the management of natural resources at present time in Kenya? Yes No

11.(a) Do you think indigenous herbal medicine should be promoted in Kenya?
Yes No
b) If No, what are the reasons?
c) If yes, what aspects of herbal medicine?

12(a) Are there specific constraints you see hindering the use of herbal medicine?
Yes No

b) What are the constraints?
c) What is the origin of the constraints?
i) Attitude of government?
ii) attitude of communities?
iii) Attitude of Individuals?
iv) Attitude of Professionals?

13. In your view, what are possible ways of overcoming the constraints?

15. What are the limitations in integrating these solutions in environmental policy?

B. Herbalists

1.Which are the most common diseases that you treat?

2. Who comes to see you most for treatment?

Average Age	Children	Women	Men
.....	.....	.....	....

3. Please, list names of plants, the parts used, and illnesses that each plant treats.

Herbal Plant	Root	Bark	Leaves	Stem	Illnesses
.....	.....	.....	.....	.....	.....

4. From whom/where did you acquire knowledge on herbal medicine? Through:
a) A member of family
b) A Friend c) Training? d) Other?

5. How long did you train?

6. From your experience, are there diseases that indigenous herbal medicine is more effective in treating than conventional medicine? Yes... No....
b)If Yes, list them c) Why are they more effective?

7. Are there diseases in the community dealt with effectively by conventional medicine Yes No
b) If No, why?

8. What do you do when faced with a disease you cannot treat?

9. (a) In your opinion are there constraints that hinder promotion and use of indigenous herbal medicine? Yes No
b) What is the origin of the constraints?

10. What can be done to overcome the constraints?

11. How do you get medicinal plants?
 i) Collect them myself?
 ii) Buy from sellers?
 iii)Employ someone to collect them?
 i)If employee, has s/he skills in identification of herbal plants?

12. How long does it take to collect the herbs at the site?

13. Who owns the land where herbs are collected?
 a) Government
  i) Parks
  ii) Forest reserve
 b) Community (common) land
 c) Private land

14. (a) Were there taboos in Kenyan Communities that regulated harvesting and use of medicinal plants?
 Yes No
(b) If Yes, name them
(c) Were they effective? Why?

15. What changes have taken place in the areas where you collect medicinal herbs in respect to climate, wildlife and human activities?
 a) Climate b) Wildlife c) Human activities d) No changes
 e) Other

16. If there are changes, what have people done to cope with them?

17. What new role would you like to see herbal medicine play in:
 a) Promotion of community health? b) Promotion of conservation of environment/bio-diversity? c) Other?

C. Household heads

1. Which member(s) of your household use herbal medicine?
 a) Husband b) Wife c) Children over/under twelve years d) Others

2. What diseases do you diagnose and treat by yourself?

3. How did you acquire knowledge on herbal medicine?
 a) From family member b) From a friend c) Self-trained (Name how)
 d) Others.

4. Please, list herbal plants commonly used by your household, part of plant used and illnesses for which they are used.

Name of Plant	Leaves	Root	Stem	Bark	Other	Illness
.....	.....	.....	.....	.....	.....	.....

5. What do you do when faced with an illness you cannot treat?

6. (a) Given a choice between indigenous and conventional medicine for treating same illness, which would you prefer? b) Please give reasons.

7. Are local indigenous views/knowledge used as a guide in the extraction of herbs from local sources? Yes No
b) If No, who should have the responsibility of providing this guidance?

8. Where do you get your medicinal plants from?

9. Do you encounter any problems in getting access to the herbs?
a) Government land?
b) Household land?
c) Community land?
d) Market?
e) Hawkers?
f) Other?

10. Do you get them during a particular season or are they available whenever you want them?