

**CONSULTANCY REPORT ON SUPPORT
TOWARDS
SUSTAINABILITY OF THE NETWORK
PROJECT ON
MEDICINAL PLANTS AND TRADITIONAL
MEDICINE
(EASTERN AFRICA): KENYA**

CONSULTANT

PROF. ALLOYS S. S. ORAGO, PHD, CBiol, MiBiol

ADDRESS:

DEPARTMENT OF HEALTH SCIENCES
KENYATTA UNIVERSITY
P. O. BOX 43844-00100
NAIROBI, KENYA

CLIENT

NATIONAL MUSEUMS OF KENYA (NMK)

ADDRESS:

P. O. BOX 40658-00100
NAIROBI, KENYA

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PROJECT TITLE: NETWORK ON MEDICINAL PLANTS AND
TRADITIONAL MEDICINE (EASTERN AFRICA)

DURATION: 3 YEARS

START DATE: NOVEMBER 26, 2003

IMPLEMENTING PARTNERS

1. National Museums of Kenya (NMK) - Kenya
2. National Chemotherapeutics Research Laboratory (NCRL) - Uganda
3. Institute of Traditional Medicine (ITM) of Muhimbili University College of Health Sciences, University of Dar es Salaam - Tanzania

SPONSOR: Canadian International Development Research
Centre, Regional
Office for Eastern and Southern Africa (IDRC -
CRDI).

PROJECT COORDINATOR: Dr. Francois Gasengayire IDRC - CRDI,
Regional Office for Eastern and Southern Africa
P.O. Box 62084 - 00200, Nairobi, KENYA

PROJECT ADMINISTRATOR: DR. MARGARET MALE
IDRC - CRDI, Regional Office for
Eastern and Southern Africa
P.O. Box 62084 - 00200
Nairobi, KENYA

THE NETWORK PROJECT ON MEDICINAL PLANTS AND TRADITIONAL MEDICINE (EASTERN AFRICA): KENYA

1.0 INTRODUCTION

1.1 The Scope and Structure of the Network

The Kenyan Network for Medicinal Plants and Traditional Medicine is part of the IDRC-CDRI supported Regional Eastern African Network, the latter of which also includes participating stakeholder institutions from Uganda and Tanzania. This network project sought to establish a programmatic and collaborative platform that provides opportunity for enhanced all stakeholder (traditional health care providers, indigenous communities, researchers, NGOs, governments, development partners, consumers and private entrepreneurs) sharing of experiences, research designs and methods, project implementation, monitoring and evaluation strategies and relevant information to promote biodiversity conservation, and sustainable, safe and effective utilization of medicinal plants and herbal products as well as the integration of traditional medicine into the national health care policy.

The Regional Network is funded for an initial period of three years and its scope and project objectives are similar in each of the three countries with a national institution coordinating the national implementation and one regional theme. The coordinating and implementing institution for the Kenyan component of the regional network is the National Museums of Kenya (NMK).

Coordination of the Kenyan component for the Regional Network by NMK operates through a secretariat under the National Project Leader and two committees, namely, the Steering and Technical Advisory Committees. The Steering Committee constituted of key stakeholder institutions provides the overall guidance and evaluation of the project activities while the Technical Advisory Committee made up of technical experts in conservation, research, policy, community development and information technology facilitates strategic and effective project implementation.

The current lists of key stakeholder institutions in Kenya include:

1. Traditional Health Practitioner Associations
2. Department of Culture in the Ministry of Gender, Sports, Culture and Social Services.

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3. Department of Standards and Regulatory Services (DSRS) of the Ministry of Health.
4. Kenya Medical Research Institute (KEMRI)
5. National Council for Population and Development (NCPD) in the Ministry of Planning and National Development.
6. Kenya Industrial Research Development Institute (KIRDI).
7. National Council of Science and Technology (NCST) in the Ministry of Education, Science and Technology.
8. Kenya Agricultural Research Institute (KARI) in the Ministry of Agriculture.
9. Department of Forests in the Ministry of Environmental and Natural Resources.
10. Kenya Intellectual Property Institute (KIPI) in the Ministry of Trade and Industry.
11. Kenya Forestry Research Institute (KEFRI).
12. National Environment Management Authority (NEMA).
13. University of Nairobi (UoN).
14. Kenyatta University (KU).
15. Maseno University.
16. Kenya Working Group on Medicinal and Aromatic Plant Species (KWG-MAPS).
17. Intermediate Technologies Development Group (ITDGEA).
18. School of Alternative Medicine and Technology (SAMTECH).
19. African Academy of Sciences (AAS).
20. African Centre for Technology Studies (ACTS).
21. International Centre for Insect Physiology and Ecology (ICIPE).
22. International Plant Genetic Resource Institute (IPGRI).
23. International Centre for Research in Agro-Forestry (ICRAF).

It was anticipated that themes and activities within this network based on national priorities and regional needs would expand at the end of the initial phase and relevant support identified and consolidated for subsequent phases. The Network on Medicinal Plants and Traditional Medicine has invited all interested national, international and private organizations including development partners to join in this initiative.

1.2 General Objective

To promote the conservation and sustainable, safe and effective use of medicinal plants and herbal products as well as the integration of traditional medicine in public health services through collaboration among all stakeholders.

1.3 Specific Objectives

- a. Assess current research activities, policy and legal frameworks on medicinal plants and traditional medicine in Kenya, in order to identify gaps and determine national research priorities.
- b. Enhance research capacity and harmonization of research approaches and methodologies for sustainable management of medicinal plants and their uses in

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traditional medicine.

- c. Promote the development of collaborative projects on herbal remedies, conservation of medicinal plants and sustainable livelihoods in Kenya.
- d. Strengthen the capacity of Kenyan traditional health practitioner Associations and the collaboration between them and health workers, researchers and policy/decision makers in order to support integration of traditional medicine in the public health care.
- e. Contribute to the development and implementation of appropriate policies and legal frameworks pertaining to medicinal biodiversity conservation, traditional medicine access and benefit sharing at local, national, regional and international levels.
- f. Develop partnerships with mass media, the government of Kenya, national, regional and international organizations for dissemination and scaling-up of research results on medicinal plants.

2.0 Terms Of Reference For The Consultancy

The consultant shall:

- a. Evaluate the continued need, structure and scope of the project.
- b. Outline gaps in the current project and recommend priority future focal areas for network activities.
- c. Review and outline potential donor support (government, NGO, bilateral, multilateral, private sector and foundations) available to support projects in the current and proposed future focal activities in traditional medicine and medicinal plant conservations, research and sustainable use.
- d. Develop and recommend a resource expansion strategy for the network activities from 2005-2010 to ensure the implementation of the network activities and its sustainability.

3.0 EVALUATION OF THE CONTINUED NEED, STRUCTURE AND SCOPE OF THE PROJECT

3.1 THE SUSTAINED NEED FOR MEDICINAL PLANTS AND INDIGENOUS PHYTO-MEDICINES.

- (a) Accessibility, Healthcare and Nutritional needs

The demand for medicinal plants and the utilization of traditional medicine as a major source of primary health care in the developing world have maintained an unprecedented upward trend despite attempts by many such

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countries to increase access and equity to conventional health services among their citizenry through improved infrastructure and facility development and concomitant increased volume of medical supplies. Availability in the wild of many medicinal plants, affordability and acceptability of traditional medicine by indigenous communities in developing countries may partially account for this observation (ROK, 2003a). The other main plausible reasons that have instigated the continued use of herbal source materials as captured in the report by Kayne (2002) include the:

- (i) Long periods of experience with traditional remedies by indigenous communities.
- (ii) Observations that many isolated constituents are to be found in modern drugs.
- (iii) Ready availability of a large pool of plant materials in the tropics and subtropics.
- (iv) Profit motive for pharmaceutical companies arising from increased customer demand.

Traditional Medicine Practice in Kenya derives from two distinct sources (Lambert, 2004b). In the first group is the Indigenous Traditional Medicine Practitioners (ITMP) whose knowledge-base is dependent on non-recorded verbal communication passed on from generation to generation. Indigenous traditional medicine practitioners include traditional herbalists, bonesetters, birth attendants, astrologers, seers, fortune-tellers and faith-healers. Also included in this group are the practitioners and providers of all other types and variations of indigenous African primary health care whose object is the treatment of physical, psychological or psychiatric conditions.

The second group comprises the Non-Indigenous Traditional Medicine Practitioner (NITMP) who has received training in other forms of non-conventional medicine usually with some written record such as Ayurveda, Chinese Herbal Medicine, Unani Medicine, Reflexology, Reiki, Chiropractic, Acupuncture, Aromatherapy and Homeopathy. Both groups exclude quacks and witch-doctors with the intent of causing harm and fear. Kenya like the rest of tropical Africa has probably a longer history of traditional medicine use than other continents if we accept the origin of man being in Africa (Lambert, 2004a)

Recorded evidence indicates that medicinal plant resources contribute on the average about 50,000 species to the global biodiversity (Hamilton, 2002; Schipmann *et al.*, 2002). In the rest of tropical Africa outside South and North Africa, Bosch *et al.*, (2002) reported that 63% of the recorded 6,377 plant species had medicinal value. Furthermore, it was recently estimated that close to 3.5 billion people of the world population of 6.3 billion, mainly in the developing world use traditional health care systems (Rogo, 2004). It is instructive that indigenous methods of health care provision are globally popular, affordable,

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culturally deep-rooted, respected and accepted by local communities since time immemorial (Artherton, 1994). The use of traditional medicine (synonymous in the West with Complementary and Alternative Medicine, CAM) has likewise consistently gained immense popularity and acceptability in the USA and Europe over the last decade (Fisher and Ward, 1994; Kayne, 2002; Rogo, 2004).

The World Health Organization (WHO) estimated that 80% or more of populations in many developing countries in WHO Western Pacific Region where CAM have been integrated into national healthcare delivery systems obtained health care from traditional practitioners and birth attendants (Bannerman, 1983; Tsutani, 1993). In other developing WHO Regions where CAM integration has not been implemented, there is inadequate documentation since only a minority of the population have regular access to reliable modern medical services leaving most of the population to regularly use traditional medicine (WHO, 1996a; Bodeker, 2001; Eriki, 2004). In Kenya and the rest of the WHO African Region, between 60% and 80% of the population do not have ready access to modern medicine and rely almost wholly on traditional remedies as the primary healthcare resource (Maitai, 1996, Ngetich, 2004; Eriki, 2004). Accessibility of traditional medicine and practitioners as a major source of primary health care in African countries was illustrated and strongly supported by the data summarized in Table 1 below from Eriki (2004) and Marshal (1998).

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Table 1: Traditional medicine and Practitioners as a major source of primary health care in African countries: Ratio of practitioners to population.

Country	Traditional practitioner	Medical doctor
Zimbabwe	1: 600	1: 6,250
Swaziland	1: 100	1: 10,000
Ghana	1: 200	1: 20,000
Uganda	1: 700	1: 25,000
Tanzania	1: 400	1: 33,000
Mozambique	1: 200	1: 50,000
Kenya*	1: 378	1: 7142

Source: Eriki P. (2004) WHO/AFRO Division of Health Systems and Services Development.

* Kenya data from Marshall (1998) reporting on Machakos District of Kenya alone.

A substantial proportion of the plants used in modern herbal preparations contain active principles whose effects can be pharmacologically demonstrated despite potential complications that could arise from the frequent use of drugs in polypharmaceutical combinations (Evans, 1996; Mills and Bone, 1999). Prescriptions under these circumstances are often empirical, resulting from clinical observation and practitioner experience rather than rigorous scientific deductions.

Phytomedicines have continuously been used in Kenya in the management of a number of diseases and conditions with varied but significant levels of success. Examples of such diseases and conditions include malaria, tuberculosis, asthma, meningitis, typhoid, tetanus, amoebiasis, oral candidiasis, chronic diarrhoea, herpes zooster, helminthiasis, skin infections, sickle cell anaemia, insulin-dependent diabetes, depressed immune reconstitution, kidney failure, arthritis, fibroids, goitre, gout, prostatic, allergy, cholestralaemia, cervical cancer, sterility and hypertension (Maitai, 1996; Aduma, 1998; Orago et al., 2004; Odotte and Orago, 2005).

A number of medicinal plants have multiple uses, being food materials in their own right or are food supplements, providing energy, proteins, minerals and vitamins needed to maintain proper host cellular function. These include the appetizer and high energy yielding Mondia wytei (Lambert, 2004b) and the proteinous-immune boosting combination of Glycin max, Miccuna quadrilata, Allium sativum and Tragia brevipes

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(Odotte and Orago, 2005). Aromatic plants such as Aloe species are used as laxatives and for embalming cadavers while Myrrh (Commiphora molmol) together with Frankincense are used as perfumes, anti-perspirants, aphrodisiac and in food spicing and preservation (Maitai, 1996).

After a review of Volumes 1 and 2 of WHO's monographs for selected medicinal plants, Lambert (2004b) identified ten plant species commonly found in Kenya for which there is scientific evidence on the safety, efficacy and quality control for their appropriate use (Table 2). In a number of these cases, clinical data are available to support use whereas in others no clinical data have so far been generated and recorded.

Table 2: Selected Kenyan Medicinal plants with a pharmacopoeial summary

Plant species	Status of clinical data	Reported medical uses
<u>Allium sativum</u>	Present	Respiratory, urinary disorders
<u>Aloe vera</u>	Present	Constipation
<u>Rauwolfia vomitoria</u>	Not available	Hypertension
<u>Zingiber officinale</u>	Present	Vomiting, diarrhoea
<u>Syzygium aromaticum</u>	Not available	Toothache, asthma, minor infections
<u>Eucalyptus globosus</u>	Not available	Coughs, rheumatism
<u>Mentha piperita</u>	Present	Digestive disorders, headache
<u>Ocimum sanctum</u>	Not available	Diabetes, asthma, bronchitis
<u>Prunus africana</u>	Present	Prostate hyperplasia, stomach pain
<u>Azadirachta indica</u>	Present	Multiple uses

This sustained reliance on traditional medicine among many countries including Kenya emanates from increased costs and limited access to allopathic medicine, largely due to the underlying problems associated with poverty (Republic of Kenya - KDHS, 2004).

The potential of medicinal plants and traditional medicine in meeting the primary healthcare needs of many Kenyans has not been fully exploited so as to contribute significantly to the health care for all paradigm as spelt out through the Alma-Ata Declaration of 1978 and the 34th Session of the World Health Assembly in 1981. This has been largely attributed to a number of problems such as overexploitation of medicinal plant biodiversity, increased habitat conversion and rapid loss of related indigenous knowledge. Similarly, sporadic and scattered research and development initiatives in this area have been rendered ineffective by poor coordination and lack of financial support

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from the government and international development partners and agencies. The current situation has been exacerbated by gaps and weaknesses in existing policies including regulatory and legislative frameworks.

Nonetheless, not all has been lost. The main aim of WHO/AFRO is to contribute to the achievement of health for all in the region by optimising the use of traditional medicine (TM) through its institutionalisation, capacity building and integration into national healthcare policy including promotion of research and development initiatives (Kofi-Tsekpo, 2004; Eriki, 2004). To this end, a number of landmark initiatives and commitments by member states of the Organization of African Unity (now African Union) have followed. These include the declaration in Lusaka, Zambia in 2001 of the period between 2001 and 2010 as the Decade for African Traditional Medicine in recognition and acknowledgement of the important role TM continues to play in African societies in helping achieve the health for all paradigm (OAU/ANG/Dec. 164 XXXVII, 2001). This was subsequently followed by the adoption of the Plan of Action (POA) for implementation of the Decade for African TM by Heads of State and Governments in Maputo in 2003 and the Institution of the African Traditional Medicine Day by the WHO Director General to be observed every August 31 yearly (Eriki, 2004). The Ministry of Health in Kenya through the Department of Standards and Regulatory Services should register TMPs and integrate their practice in national health care system in recognition of the role they play in primary health care provision where upto 70% of the population consult them.

(b) Commercialization and Conservation-related issues

The global demand for raw herbal products and medicines is on the upward trend. The WHO estimates of sales were in excess of US dollars 65 billion with Africa probably contributing US dollars 6 billion of this total from the volume of plant materials in excess of 1 million metric tonnes collected annually in Africa (Lambert, 2004a; Rogo, 2004). It was estimated that upto 40% of all pharmaceuticals in industrialized countries are derived from natural sources, mainly plant biodiversity (WHO, 1996a) which include thousands of powerful, efficacious drugs that save lives somewhere in the world almost every second of the day (Huxtable, 1992).

Although a lot of people in Eastern Africa derive income from medicinal plant collection and/or trade, limited information is available on economic value of these at the local, regional and international markets. In Kenya, many medicinal and aromatic plants are exported to Europe and USA presumably through the “black market”, notably Prunus africana, Warbugia ugandensis, Azadirachta indica and Aloe species.

The traditional medicine sector in Kenya represents an important natural resource-base for economic development by virtue of providing a means of livelihood for many people including herbal plant collectors, transporters, vendors, traditional

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medicine practitioners, users, consumers and entrepreneurs. Employment opportunities would be increased and income generation to support all beneficiaries enhanced if utilization of this natural resource-base was maximized while protecting the environment from degradation (Michieka, 2004). However, medicinal plant biodiversity and traditional health services in Kenya are currently under increasing threat mainly due to a high rate of human population growth, underlying poverty, expanding agriculture, deforestation, grazing, fires and unsustainable harvesting from wild stocks and trade (Lambert, 2004a; Michieka 2004). This escalating loss of biodiversity in terms of species and ecosystem depletion could have an irreversible impact unless appropriate action is taken to regulate trade and traditional medicine practices to ensure future sustainability through medicinal plant conservation and cultivation (WWF, 1993; Marshal, 1998).

The Ministry of Agriculture should promote farming in medicinal plants in collaboration with farmers, researchers and traditional medicine practitioner associations to identify conservation, propagation and harvesting practices to ensure availability of products of medicinal plants for rational commercialization. The Ministry of Trade and Industry should document the volume and value of trade in medicinal plants and identify markets.

c) Policy, Administrative and Legal framework issues

For more than a decade, a policy making process has been going on at global, regional and national levels to address the needs, problems and challenges facing the rational use of biological resources to achieve sustainable development and conservation objectives, particularly in developing countries. As regards medicinal plants and traditional medicine, the Chiang Mai declaration and subsequently the WHO/IUCN/WWF Guidelines on the Conservation and use of medicinal plants (1993) laid the groundwork, calling on governments to develop national strategies on the conservation and use of medicinal plants. The Convention on Biological Diversity (CBD, 1992) provides a global and broad policy framework and a legal instrument whose objectives are to conserve biodiversity, use it sustainably, and ensure fair and equitable sharing of benefits. To this end the CBD recognizes the importance of traditional knowledge, innovation and practices of indigenous and local communities that are relevant for the conservation and use of biological diversity (CBD, 2001); calls on Parties to identify components of biodiversity important for conservation and sustainable use and monitor them (medicinal plants are highlighted among priority species); and sets an agenda, through the Global Strategy for plant conservation (April, 2002), to halt the rate of loss of plant species with 16 specific targets most of which are relevant to medicinal plants.

Issues of access and benefit sharing pertaining to biological genetic resources have been debated at international level within the framework of the CBD. The 6th session of the Conference of the Parties adopted the Bonn Guidelines on

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Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization (COP 6, Decision VI/24, as "a useful first step of an evolutionary process in the implementation of relevant provisions of the Convention related to access to genetic resources and benefit sharing". They are intended "to serve as inputs (for countries) when developing and drafting legislative, administrative or policy measures on access and benefit sharing". Besides, intellectual property rights issues also arise in this context.

The convention on International Trade in Endangered Species of Fauna and Flora (CITES) provides a legal framework for the regulation of trade in those endangered plant and animal species that are exploited commercially.

As regards healthcare, the WHO over the years adopted a number of resolutions and recommendations drawing attention to the important role played by traditional medicine and medicinal plants in ensuring primary healthcare of the majority of the world population, especially in developing countries. Through its traditional medicine programme, WHO developed various guidelines, standards and policies related to herbal therapies, practice, ethics, safety and efficacy, methodologies for research, legal status, and integration traditional medicine into national health care systems (Eriki, 2004).

At the African level, the OAU/AU adopted the "African Model Law for the Protection of Rights of Local Communities, Farmers and Breeders for the Regulation of access to biological diversity and to community knowledge and technologies as the duty of the State and its people. It requires the prior informed consent of both the State and the local communities before granting access to biological resources, and recognizes benefit sharing as a right of local communities consistent with the basic tenets of the CBD (Ekpere, 2002).

At national level, a number of countries in Eastern and Southern Africa developed policy directives and strategies on conservation of biological resources. Kenya and Uganda developed National Biodiversity Strategies and action plans that stress the need for promoting the conservation of biodiversity and Action Plans that stress the need for promoting the conservation of biodiversity and sustainable utilization of its components, and set up National Environment Management Authorities (NEMAs). In Ethiopia, the mandate of the institute of Biodiversity Conservation and Research (established in 1998) is primarily to conserve, evaluate and enhance the sustainable utilization of genetic resources (plants, animals and microbes) as reported by Hunduma, (2002). Several countries in the region have also national environmental and forest policies.

There are also elements of policy and legislation pertaining to traditional medicine in many countries (Tanzania, Lesotho, Zambia, Zimbabwe, Namibia). Ethiopia, Mozambique, Madagascar) in the Eastern and Southern African Region

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(Eriki, 2004).

However, these policies are not coherent or comprehensive in many cases. There are gaps within existing policy and legal frameworks such as lack of harmonization, duplication of legislation, and outdated laws (e.g. Witchcraft Acts relating to traditional medicine). Besides, their implementation is constrained by a number of factors including lack of/inadequate public awareness, insufficient capacity for research and limited infrastructure and resources. Domestication of international conventions and treaties and regional model policies and laws remains problematic.

In the Kenyan context, some of the new policy, administrative and legal frameworks that urgently require formulation to mainstream TM practice in the national healthcare system include:

- A clear and comprehensive policy on TM strategy and sustainable development.
- A legal framework for TM through the enactment of The Traditional and Alternative Healthcare Practitioners Bill, 2003 (ROK, 2003b).
- An independent, administrative and institutionalised TM framework creating an enabling environment for interactive healthcare delivery system, such as the establishment of the National Research Centre for Medicinal Plants and Traditional Medicine (NRC-MPTM).
- An action plan to implement TM policy using the available WHO Guidelines (WHO, 1996b, 1998a, 1998b).
- Policy considerations in the ministries of Health, Environment and Natural resources, Agriculture, Tourism and Wildlife, Livestock and Fisheries, and Trade and Industry with regard to the natural sources of traditional medicine and their sustainable utilization and development.

Similarly, certain existing policy, administrative and legal frameworks require updating and/or strengthening to acknowledge and refocus the contribution of traditional medicine in the national primary healthcare provision. These include:

- The Kenya National Drug Policy (ROK, 1994).
- The National Health Sector Strategin Plan: 1999-2004 (ROK, 1999).
- The Pharmacy and Poison Act, Chapter 244 (ROK, 2002).
- The Dangerous Drugs Act, Chapter 245.
- The registration of Non-Indigenous Traditional Medicine Practitioners by the Department of Standards and Regulatory Services in the Ministry of Health (ROK, 2003a).
- The Kenya Pharmaceutical sub-Sector Review for proposed Bank support for Health Sector-wide Approach (World Bank, 2003a).
- The Kenya Pharmaceutical Sector Review: An Analytical Work Concept Note (World Bank 2003b).

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d) Research and Development Issues

Over the last three decades, most of research activities in sub-Saharan Africa have concentrated on ethnobotanical and taxonomic surveys. Other studies focused on phytochemical and pharmacological screening of plants in an effort to discover and characterize active ingredients. A few investigations were successful in validating the safety and efficacy of traditional remedies and led to the development of phytomedicines in some countries (Ghana, Mali, Madagascar, Nigeria, Rwanda). Some of these activities were/are undertaken within networks such as the Natural products Research in East and Central Africa (NAPRECA). Recent activities supported by the IDRC in East Africa (Kenya, Uganda) have mainly focused on the documentation of traditional/local knowledge of medicinal plants and their use for primary health care, and are targeting most used and reportedly endangered plants with a view to improving their availability and sustainable management by local communities. A few activities are addressing safety issues of some traditional therapies. Various institutions in Ethiopia coordinated by the Institute of Biodiversity Conservation and Research currently carry out other research activities. In general, however, very few research activities have been carried out to address the conservation and sustainable use of medicinal plant genetic resources (geographic distribution, ecological requirements, reproductive biology, seed storage and germination, sustainable management). Besides, research results are scattered and their impact on both health and economic objectives has been very limited. This is due, in part, to the diversity of researchers' interests, approaches and methodologies, and lack of appropriate policies.

More research is still needed on various issues relating to health and nutrition, conservation and sustainable use/management, and policy notably, in order to achieve greater impacts on health, social, economic and conservation goals. From the health care stand point, the overall goal of research should be to reinforce the development of improved traditional practices and herbal medicinal products in order to facilitate the integration of traditional medicine into national healthcare delivery services. To this end, further research should build on past and current research results and identify the most promising opportunities and issues to focus on.

Some of the research questions that need to be addressed in this regard are:

- How can scientific knowledge be used to strengthen local practices of traditional medicine in East Africa and Kenya in particular?
- What are the key considerations in integrating traditional medicine and use of medicinal plants in public health care sector in Kenya?
- What are the factors and policies that determine and constrain household dietary diversity and nutritional status; and what are the opportunities to enhance it?

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Particular attention should also be paid to sensitization on WHO guidelines and their appropriate domestication, establishment of structures and mechanisms for implementation, and strengthening dialogue between all stakeholders.

As regards conservation and sustainable management, the overall role of research should be to contribute to halting the loss of biodiversity and to improved livelihoods of the people, through sustainable utilization of medicinal plants. Projects should be designed to complement past and current conservation studies with a focus on the most used plants in traditional medicine in Kenya, as well as those which are traded and reportedly of conservation concern. Some of the research questions that need to be addressed in this regard are:

- How can integration of cultivation and wild harvesting lead to sustainable management of medicinal plants and their habitat?
- What are the best tools and practices for quality management and standardization that promote sustainable use of medicinal plants in Kenya.
- What are appropriate mechanisms, including suitable tenure arrangements, to ensure sustainable management of medicinal plants and their habitat in Kenya, while improving equity in access to and benefits from medicinal plant resources?

Efforts of many governments in Africa in general and Kenya in particular are currently directed towards poverty reduction and food security as major goals of their national programmes. Medicinal plants can contribute towards these goals. For example the President of Uganda has recently urged the National Chemotherapeutics Research Laboratory (NCRL) to play a leading role in industrial preparation of herbal medicines, and promote cultivation of medicinal plants that can be exported. In this area, research is needed to support community-based processing of plant materials, quality control and quality management, and to provide relevant market information to producers/harvesters to increase their bargaining power and market share. Where possible, the use of certification schemes may be applied to ensure market security whilst enhancing quality control. Some of the research questions to be addressed are:

- What are the social, biological and legal impacts of domestication and cultivation of medicinal plants?
- What institutional mechanisms can support more equitable benefit sharing among local producers (e.g. markets, access to information, bio-partnerships, etc.) in Kenya?
- What are the best mechanisms to resolve potential conflicts between local level access and benefit sharing priorities, and national/international interests?

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As regards policy and legal frameworks, there is a clear need for assessment of existing policies and legislation relating to environment, forests, wildlife, plant genetic resources (access, ownership, protection of community rights, conservation), health and traditional medicine, intellectual property rights, etc, in order to identify gaps to be addressed in relation to medicinal plant issues. Research also needs to look into the challenges faced with the policy implementation process in Kenya. The aim is to advise the country on matters relating to policy development and implementation, with a view to facilitating access to plant resources/genetic material while at the same time ensuring protection of communities' rights and equitable benefit sharing, promoting sustainable development through conservation and sustainable use of medicinal plants, integrating traditional medicine into public health services, harmonization of sub-regional (Eastern Africa) policies and legislation and domesticating international conventions and treaties and regional (Africa) model policies and laws. Notably a review of process in domesticating and implementing the WHO guidelines, CBD decisions and policies such as the Bonn Guidelines on Access and Benefit sharing and the AU declaration along with the adoption of the criteria presented by the African Model Law would be worthwhile. In this regard, research needs to identify key issues of concern and develop policy briefs, work with communities to develop model scenarios and case studies, to facilitate policy forums and dissemination workshops and establish strategic links with local, national, regional and international relevant organizations (Traditional Medicine Practitioner Associations, CBOs, FBOs, NGOs, East African COMMUNITY, COMESA, SADC, AU, NEPAD, CBD, NIH, National Institute of Medical Herbalists- NIMH: UK, British Herbal Medicine Association –BHMA, European Scientific Cooperative on Phytotherapy –ESCOP, Oxford International Biomedical Centre –OIBC, WIPO).

The inherent problems in the Kenya research and development agenda on medicinal plants and traditional medicine emanate largely from gaps in:

- Regulatory control or policy to coordinate and harmonize research and information sharing on medicinal plants and their sustainable utilization in traditional medicine.
- Capacity building for traditional medicine practitioners and researchers to improve their practice and skills, and strengthens their weak TMP associations to prevent incompetent TMPs (quacks) from practising.
- Mutual understanding and trust between TMPs and their conventional counterparts by incorporating aspects of TM in the conventional training curricula of health professionals and vice versa to strengthen collaboration and cross-referrals.
- Standardized and research-based evidence on safety, efficacy and quality of TMs arising from lack of clear recognition by the government and validation by scientists of the role of TMPs and value

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to the healthcare system.

- Documentation and inventory on volumes and value of available natural sources of traditional medicine in Kenya developed by the Ministries of Environment and Natural Resources, Tourism and Wildlife in collaboration with TMP associations, researchers and local communities.
- The Ministry of Agriculture of a policy that promotes farming in medicinal plants as new cash crops in consultation with TMP associations and farmers to identify conservation, propagation and harvesting practices that ensure sustainability of this sector in commercialisation for enhanced income generation.
- An enabling political, economic, budgetary allocations, infrastructural provisions and regulatory environments for supporting and up-scaling good manufacturing practices to spur local production of TMs.
- An established legal framework for the protection of Intellectual Property Rights, Access and Benefit sharing to enhance free flow of information among Key stakeholders as a strategy in the preservation of indigenous knowledge in TM as a national system for adverse reactions to traditional medicines.
- Setting up a monitoring system for adverse reactions to traditional medicines.
- Regional and international collaboration.

3.2 Rationale for a National Network Project

There are currently a number of stakeholder organizations such as CBOs, NGOs, traditional medicine practitioner associations, research institutions and universities working on various aspects medicinal plants and traditional medicine in Kenya. Some sub-regional networks with operational branches in Kenya and a few Kenyan-based networks also exist. These include PROMETRA, NAPRECA, ASARECA, THETA, SABONET, African Ethnobotany Network, VicRes, AICAD, and National Council for Associations for Alternative Complementary Medicine and Research, KWG-MAPS, NCPD – Intersectoral Network on traditional medicine and the CCMB – Kenyatta University.

Despite the fact that these stakeholder institutions and networks may be addressing common and similar problems and issues, no formal national forum for strategic collaboration and information sharing has been established. Furthermore, certain concerns have emerged regarding various approaches, research designs and methodologies used by various networks in their investigations meant to find solutions to existing problems. This has impacted negatively on the national priority setting in the area of natural resource conservation and rational utilization of medicinal plant biodiversity in traditional medicine practice to spur economic development and ensure sustained livelihoods as a poverty reduction strategy in line with the Millennium Development Goals (WHO, 2003a). Consequently we have continued to witness blatant duplication of efforts, poor coordinating of information sharing, scattered research-derived results and lack of harmonized investigative procedures to enhance the quality and reproducibility of these findings in various laboratories and/or clinical settings. There is therefore, an urgent need for a national platform to bring together all relevant stakeholders to dialogue, work together and find solutions to general issues and challenges on thematic areas of medicinal plant biodiversity and traditional medicine.

A national network with such a stature and a determined structure will fill this gap by creating a platform and an enabling environment with unsurpassed opportunities for stakeholders to share freely pertinent information and consolidate data on their respective activities, harmonize their approaches, research designs and methodologies, work together and develop collaborative projects to address common challenges and priority issues relating to the use and conservation of medicinal plants. This forum will also enable stakeholders attain critical masses and competencies for strategic research projects in many areas (capacity building, clinical trials, conservation studies, policy formulation, IPRs issues, infrastructure development, technology transfer) and initiate processes to instil trust and bridge gaps between researchers, communities, traditional

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medicine practitioners, policy/decision makers, consumers, development partners and private entrepreneurs.

The urgent need for institutionalized TM (CAM) practitioners and practices was underscored during the inter-sectoral workshop on Traditional Medicine, HIV/AIDS, Research and sustainable development in Kenya in June, 2004 (NCPD Report, 2004). It was observed that since CAM practices and the practitioners were diverse, less exclusive, less organized, often maligned and struggle for recognition and respectability, it was instructive to give it a structure where safety, quality and efficacy of treatments and procedures could be monitored and evaluated (Crellin and Ania, 2002; Orago, 2004). Earlier on, the British Medical Association (1993) had contended that CAM systems needed to be institutionalized to establish and sustain good practice features which included having an organized structure, a single register of members, guidelines on relationships with conventional medical practitioners, a sound training at accredited institutions, an effective code of Ethics, agreed levels of competence and a proven commitment to research.

To instil in CAM systems attributes of good practice in Kenya, Orago (2004) recognized the essence of bringing together inter-sectoral stakeholders in an independent institution with an enabling environment to foster the development of strategic partnerships on CAM research and integration into the national healthcare policy.

The envisaged independently institutionalized National Network project on medicinal plants and traditional medicine will constitute the requisite strategic foundation on which this resource will be harnessed and expanded sustainably for the common good of all the stakeholders.

3.3 The structure and scope of the National Network Project

3.3.1 The proposed title of the project

The title of the project shall be:

National Research Centre for Medicinal plants and Traditional Medicine (NRC-MPTM)

3.3.2 Vision

Contribute to the improved livelihoods of healthy, wealthy and technologically empowered Kenyans through effective strategic stakeholder partnerships and sustainable utilization of medicinal plant biodiversity and their products used in the integrated traditional-conventional healthcare system.

3.3.3 Mission

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To improve health and create wealth through coordinated research, training, medicinal biodiversity conservation, rational and sustainable utilization, commercialization, regulation, integration, protection and preservation of traditional medicine practice as a natural culture heritage.

3.3.4 Specific Objectives

- Assess current research activities, policy and legal frameworks on medicinal plants and traditional medicine in Kenya, in order to identify gaps and determine national research priorities.
- Enhance research capacity and harmonization of research designs and methodologies for sustainable management of medicinal plants and their uses in traditional medicine.
- Promote the development of collaborative projects on herbal and other traditional remedies, conservation of medicinal plants and sustainable livelihoods in Kenya.
- Strengthen the capacity of traditional medicine practitioner associations and the collaboration between them and health workers, researchers, consumers and policy/decision makers in order to support integration of traditional medicine in the national public health care.
- Contribute to the development and implementation of appropriate policies and legal frameworks pertaining to medicinal biodiversity conservation and traditional medicine including access to and benefit sharing at national, regional and international levels.
- Develop partnerships with mass and electronic media, the government of Kenya, regional and international organizations for dissemination and scaling up of research findings on medicinal plants and phytomedicines.
- Strengthen community-based biodiversity conservation and rational exploitation initiatives to function as income generating ventures.
- Establish standardized systems for monitoring and scientific evaluation of treatments and procedures in traditional medicine practice for safety, quality and efficacy.

3.3.5 The Management structure of the NRC-MPTM

The NRC-MPTM shall be established as a legal independent National Institution with an administrative structure and a mandate. It shall function as a multisectoral coordinating unit for all stakeholders activities linking traditional medicine practice with medicinal plant research and sustainable development. It could initially be housed or attached to an existing national research institution, a relevant Government Department or a public University.

The terms of reference and mandate for the NRC-MPTM shall be as follows:

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- To bring together the national stakeholders under the respective themes of health, conservations, livelihoods and policy and provide a network secretariat.
- To facilitate national assessments of capacity, capability, resources and identify gaps, strengths, weaknesses, opportunities and threats.
- To facilitate the implementation of selected activities prioritised at national and regional level.
- To harmonize and publicize the outputs of the network at national level.
- To promote education and public awareness on medicinal plants and traditional medicine issues through appropriate channels such as media, NGOs, CBOs, FBOs.
- To develop partnerships/relationships with relevant government institutions, relevant regional and international organizations as well as interested development partners.
- To stimulate and enhance the effective consideration of social and gender balance within the network to provide a platform for sustainable development at grassroots level.

An IDRC officer will coordinate the work of NRC-MPTM in collaboration to develop necessary methodological tools, terms of reference for studies to be undertaken and agenda of the workshops to be organized. The officer will ensure the overall monitoring of the network project.

The management or administrative structure of NRC-MPTM shall comprise of a:

- Management Board (MB)/Steering Committee (SC)
- Secretariat
- Technical Advisory Committee (TAC)

a) The MB will be composed of 10 members or a 30% membership drawn from the heads (or their designated representatives) of participating key stakeholder institution in Kenya including representatives of development partners and international NGOs. The membership of MB will rotate on an annual basis among heads of key stakeholder institutions. The MB will have a Chairman and a Vice Chairman elected annually from among the members. The Chairman or Vice Chairman in his/her absence will set the agenda of the MB meeting and chair all meetings. The MB will:

- Be responsible for the overall management of the network, for setting up the policy and priority activities of the network.
- Facilitate and oversee the project implementation processes.
- Provide institutional ownership as well as linkages and regional integration.
- Ensure follow up at national and regional levels of the Network outcomes

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such as policy briefs.

- Approve a Memorandum of Understanding (MOU) between collaborating institutions to be used for implementation of collaborative research projects.
 - Approve Budget Estimates and Expenditure Accounts of the Network project.
 - Play a leading role in developing the Network's programmes and fundraising.
- b) The Secretariat will be composed of the Director of NRC-MPTM who will also be Secretary to the MB and head of the Kenyan component of the Regional Network project. The Director will have three Deputy Directors, each in charge of Health, Conservation and Trade. The Director and the 3 Deputy Directors will be recruited competitively and will serve a renewable contract of 3 years.
- c) The TAC will be composed of the Director and the 3 Deputy Directors of NRC-MPTM and other representative specialists drawn from participating key stakeholder institutions. The TAC will:
- Be responsible for the hands-on project implementation.
 - Provide technical overview and outcomes of the project's implementation.
 - Prepare updates on the ongoing projects for the MB.
 - Prepare terms of reference for specific studies to be undertaken.
 - Review collaborative research proposals.
 - Vet what should be published.
 - Prepare MOUs between collaborating institutions that ensure respect for relevant national and international regulations.

4.0 AN OUTLINE OF GAPS IN THE CURRENT PROJECT AND RECOMMENDATIONS OF PRIORITY FUTURE FOCAL AREAS FOR NETWORK ACTIVITIES

For the current project to meet all its objectives satisfactorily, certain gaps need to be identified and efforts made to address them. These gaps have been identified and recommendations of priority future focal areas for network activities summarized in Table 3.

Table 3: Gaps in the current project and recommendations of priority

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future focal areas for network activities

Gaps in current project	Recommendations of priority areas for network activities
(a) Policy formulation, implementation and legislative frameworks	<p>(i) Develop a clear and comprehensive national policy on TM practice and sustainable development that:</p> <ul style="list-style-type: none"> • Links traditional medicine practice with medicinal plant research and development within one multsectoral coordinating body. • Regulates and promotes the production, harvesting, processing and marketing of medicinal plants and traditional medicines. • Incorporates the conservation, cultivation, propagation, commercialization and marketing of medicinal plants into national economic and agricultural development plans. • Supports the manufacture of quality traditional medicines for local consumption and export to maximize the potential economic benefits. • Recognizes traditional medicine practice and its practitioners as legitimate professionals. • Removes all the restrictive legal impediments to the practice of traditional medicine and access to medicinal plants. • Promotes strategic partnerships and collaboration with other national and international organizations and countries. <p>(ii) Develop national action plans to implement the policy on medicinal plants and traditional medicine using the available WHO Guidelines (WHO, 1996b, 1998a, 1998b, 2000, 2002).</p> <p>(iii) Develop a legal framework for TM through the enactment of the Traditional and Alternative Healthcare Practitioners Bill, 2003 (ROK, 2003b) that:</p> <ul style="list-style-type: none"> • Defines TM practices, tools and products and its role in the provision of healthcare.

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<p>(b) Multisectoral Coordination</p>	<ul style="list-style-type: none"> • Enhances self regulation and institutionalizes TMP and TM knowledge as a natural cultural heritage. • Promotes certified registration and licensing of qualified and competent members. • Sets national standards for the scientific evaluation of TM and TM therapies. • Establishes and enforces a code of ethical TM practice. • Harmonizes relevant existing weak and outdated legislative frameworks. • Determines and spells out the required provision of resources for the development of TM. • Establishes systems for monitoring of safety, efficacy and quality of TM. • Establishes cultivation and conservation of medicinal plants to ensure sustainable use of this resource. • Promotes communication, collaboration and interaction between TMPs and allopathic medicine practitioners and possible integration in the delivery of healthcare services. • Provides opportunities for continuing education and training. • Promotes research on the use of TM for priority diseases. <p>(i) Establish a legally constituted independent, multisectoral national institution with an administrative structure and mandate (such as NRC-MPTM) to:</p> <ul style="list-style-type: none"> • Coordinate all stakeholder activities linking traditional medicine practice with medicinal plants research and sustainable development. • Includes all relevant stakeholders and government ministries of health, agriculture,
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	<p>environment and natural resources, education, trade and industry, tourism and wildlife, planning and national development.</p> <ul style="list-style-type: none"> • Serves as a national management or coordinating body. • Provides an institutional base for TM practice and TM practitioners. • Creates awareness on TM and medicinal plant issues. <p>(ii) Develop and implement through accredited training institutions harmonized capacity building programmes for various competency levels of TMPs, farmers, TM researchers and entrepreneurs by:</p> <ul style="list-style-type: none"> • Selectively running foundation courses in human biology, hygiene and sanitation; biology of pathogens, aetiology, clinical presentation, diagnosis, epidemiology and treatment; plant biology, growth, development taxonomy, biodiversity conservation, cultivation, harvesting and sustainable utilization; drug chemistry and interactions in biological systems; good manufacturing practice, safety, efficacy, quality, processing, packaging and marketing; communication skills and ethics in professional practice; research methods, data collection, management and interpretation; ICT in medical practice; Report writing. • Conducting special courses to infuse basic scientific principles, procedures and applications into TM practice. • Strengthening TMP associations to function in an integrated healthcare system. • Strengthening post-training collaboration and cross-referrals through an intercurriculum-designed trust building between TMPs and allopathic medical practitioners.
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