



# Appropriate Protection, Promotion and Access to Benefit-Sharing of Traditional Herbal Medicinal Knowledge in Uganda

African Technology Policy Studies Network  
WORKING PAPER SERIES | No. 69





# **Appropriate Protection, Promotion and Access to Benefit-Sharing of Traditional Herbal Medicinal Knowledge in Uganda**

**Wanakwakwa Job**  
LOG'EL Project

**Gateese Teopista**  
Luweero District Local Government

**Munabi Catherine**  
Uganda National Council for Science and Technology/UNCST

**Muhumuza James**  
Tropical Aloe Lands Foundation

**Lwanga Herbert**  
LOG'EL Project



**This paper should be cited as:**

African Technology Policy Studies Network, ATPS 2013: *Appropriate Protection, Promotion and Access to Benefit-Sharing of Traditional Herbal Medicinal Knowledge in Uganda* [Wanakwakwa J., Munabi C., Lwanga H., Muhumuza J., Gateese T.], ATPS WORKING PAPER No. 69

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Published by the African Technology Policy Studies Network  
P O Box 10081, 00100 GPO Nairobi Kenya

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ISBN: 978-9966-030-73-3



# Table of Contents

Acknowledgement	6
List of Acronyms	7
Abstract	8
1 Introduction	9
2 Objectives	11
3 Literature Review	12
4 Material and methods	18
5 Fieldwork Data and Preliminary Analysis	20
6 Conclusion	27
References	2

# Acknowledgement

This report was produced as part of the implementation of the African Technology Policy Studies Network (ATPS) Phase VI Strategic Plan, 2008 – 2012 funded by ATPS Donors including the Ministerie van Buitenlandse Zaken (DGIS) the Netherlands, amongst others. The authors hereby thank the ATPS for the financial and technical support during the implementation of the program. The Authors specially thank Prof. Kevin Chika Urama, the ATPS Executive Director for his visionary leadership as Program Director; Prof. Atieno Nede-Amadi, Program Coordinator; Dr. Nicholas Ozor, Senior Research Officer, ATPS; Mr. Ernest Nti Acheampong, ATPS Research Officer and the ATPS Team for the technical support during the research process.

# List of Acronyms

ABS	Access and Benefit Sharing
AICRPE	All India Coordinated Research Project on Ethnobiology
ARIPO	Africa Regional Intellectual Property Organization
CBD	Convention on Biological Diversity
FGDs	Focus Group Discussions
IK	Indigenous Knowledge
IP	Intellectual Property
IPR	Intellectual Property Right
KIIs	Key informants and in-depth interviews
THM	Traditional Healers Medicine
THMK	Traditional Healers Medicine Knowledge
TK	Traditional knowledge
TM	Traditional Medicine
UNCST	Uganda National Council for Science and Technology
WHO	World Health Organisation

# Abstract

Traditional Knowledge in Uganda as exemplified through traditional herbal medicine enjoys national patronage by individuals. It is acknowledged that this knowledge is passed on from generation to generation. The current and modern regimes on intellectual property rights are inadequate to sufficiently protect traditional knowledge and assure benefits sharing to the communities from which such knowledge comes. Culturally, this knowledge was protected through some form of “trade secrets”. This study sought to establish the extent of usage of traditional herbal medicine in Uganda and how traditional knowledge can be protected to assure benefits sharing. The study came up with various findings; for example, there are more herbalists available to the population than doctors trained in Western Medicine; that the practitioners of traditional knowledge look at it as a source of income or employment. Most herbalists are not aware of existing laws to protect use of herbal medicine. An analysis of existing laws in Uganda reveals a scattered approach in the sense that various legislations mention something on traditional knowledge. It is generally accepted that traditional knowledge can best be protected through a sui generis approach. To this end, it is concluded that the proposed bills and policies on traditional medicine can be modeled along the lines of the Swakopmund Protocol to produce an appropriate legal and institutional framework for the protection of indigenous knowledge for the benefit of the communities.



# 1. Introduction

## 1.1 Background

Traditional knowledge (TK) refers to tradition-based literary, artistic or scientific works; performances, inventions, scientific discoveries, designs, marks, names and symbols, undisclosed information and all other tradition-based innovations and creations resulting from intellectual activity in the industrial, Scientific, literary or artistic fields (Corre: 2001).

Sometimes it is also referred to as indigenous knowledge. Indigenous can be defined as native; born or growing or produced naturally in an area (Gilpin 1976: 78). It, therefore, implies that it originates from and is naturally produced, in an area. It is not introduced from outside the particular region, country or environment. In this context, traditional societies can be referred to as indigenous; as explained by Wamalwa (1991; 37).

TK is collective in nature and it is often considered the property of the entire community, not belonging to any single individual within the community. This is notwithstanding the fact that certain individuals within a community may be the ones endowed with certain specific skills such as herbalists, iron mongers and blacksmiths. The knowledge is used to sustain the community and its culture and to maintain the genetic resources necessary for the community's continued survival. TK is transmitted through specific cultural and traditional information-exchange mechanisms—for example, orally through elders or specialists (breeders, healers,) and often to only a select few people within a community (Growing Up: Outreach, No. 90/1993: 38)

The knowledge and uses of specific plants for medicinal purposes (often referred to as traditional medicine) is an important component of TK. Traditional Medicine (TM) refers to the sum total of all the 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, 1998). TM encompasses a great variety of methods of diagnosis and treatment, including physical, mental and spiritual therapies. The application of such methods is strongly influenced by the culture and beliefs dominant in a particular community, to the extent that they may be ineffective when applied in a different context. TM includes, thus, knowledge concerning medicines and their use (appropriate dosage, particular forms of administration, etc.), as well as the procedures and rituals applied by healers as part of their traditional healing methods.

Some scholars understand “protection” in the context of IPRs, where it essentially means to exclude the unauthorized use by third parties of protected knowledge (Downes, 1997). Under this approach, IPRs may constitute either an offensive mechanism to support the commercialization of TK and to ensure benefit sharing, or a defensive tool to prevent the misappropriation of traditional knowledge. Other scholars (e.g., Simpson, 1997) regard “protection” as a means to preserve traditional knowledge from uses that may erode it or negatively affect the life or culture of the communities that have developed and applied it. Protection here has a direct positive role in supporting TK-based communities’ livelihoods and cultures, and requires the application of mechanisms - such as conservation projects - where IPRs have little or no part to play.

“Benefit sharing” refers here to the fair and equitable participation of TK holders in the benefits

arising from the commercial and other utilization of TK (article 15 (7) of the Convention on Biological Diversity).

### **Problem Statement**

Traditional Herbal Medicinal Knowledge systems in situ are fast disappearing as degradation of natural resources like forests, wetlands, grasslands is taking place at an alarming rate especially in developing countries (Uganda inclusive) as well as losing cultural values and customary laws. This calls for protection of community rights over their bio-cultural heritage as a whole that is, traditional knowledge, bio-resources, culture and land. To-date, intellectual property (IP) rights are not adequately extended to the holders of TK. The requirements for IP rights protection under current IP regimes remain largely inconsistent with the nature of TK. As a result, it is neglected and considered part of the public domain with no protections or benefits for the knowledge holders, or expropriated for the financial gains of others, often referred to as biopiracy. There is a need to establish modalities, mechanisms and strategies to protect the herbal medicine knowledge holders and also enable them benefit from their knowledge.

## 2. Objectives

### 2.1 Overall objective

The research aimed at influencing policy makers to enhance and develop policies, legal frameworks, strategies and programmes, to protect Traditional Knowledge (TK) in herbal medicine in Uganda.

### 2.2 Specific objectives

The specific objectives of the study were to:

1. Assess the levels of traditional herbal knowledge among traditional herbalists, herbal users and policy makers in Uganda.
2. Determine the capacity of service provision by traditional herbalists and consumption levels of herbal users in Uganda?
3. Ascertain the level of appropriate protection and benefit sharing policies, strategies and programmes in support to herbal medicine in Uganda.
4. Come up with practical and feasible recommendations pertaining to appropriate protection and benefit sharing mechanisms for traditional herbal medicine in Uganda.

# 3. Literature Review

## 3.1 Promotion of Traditional Herbal Medicine Practices

WHO (2004) observed that 80% of the people living in the African region use traditional medicine for their health care needs. Nelson-Harrison et al (2002), noted that up to 80% of Africans or more than half a billion people visit traditional healers for some or all of their medical care. In Africa and in many developing nations, medical services are limited or unobtainable for the majority of the population. It is the traditional healers and birth attendants in rural and urban areas that have historically provided and continue to provide primary healthcare. They are the vital link to supplying the needed services in their communities, and yet their efforts must continue to expand as populations grow, and health concerns continue to increase in complexity and case numbers.

In Uganda, there is at least one traditional healer for nearly 290 people compared to one Western-trained medical practitioner for every 10,000 people in the urban areas and 50,000 people in the rural areas respectively (World Bank 2003). The majority of the population in Uganda has greater access to traditional health care more than to western health care. Traditional healers are an integral part of the local culture and are appreciated as key and sustainable sources of care and knowledge on disease and illness. About 80% of the population of Uganda relies on traditional medicine because western-trained medical personnel are limited, and traditional healers are easily consulted, living in the same community (Bannerman, et al., 1993). That points to the demand for traditional medicine for medicinal plants and the fact that the majority of the people, rural and urban alike, depend largely on herbal medicines for treating a variety of diseases (Esegu, 2002)

For example herbal medicine is used to treat a number of diseases e.g. management of HIV/AIDS (treatment of opportunistic diseases using local medicine i.e. diabetes, diarrhea, high fever), primary health care (traditional healers, maternal health, traditional medicine - outstanding is the rescuer project at Iganga that has been adopted in some 15 or so other districts of Uganda), IK – being integrated in the childhood development programme financed by the World Bank as part of IK mainstreaming policy and upscale of IK utilization for sustainable development and poverty eradication ([www.worldbank.org/afr/ik/ikseminar/nyiira.doc](http://www.worldbank.org/afr/ik/ikseminar/nyiira.doc))

In Busoga sub-region, Eastern Uganda, traditional herbal medicine is instrumental in treating and managing Malaria hence, a variety of strategies are employed by the people to stop mosquito bites. These included the burning of logs and plants such as *Albizia coriaria* or cow dung to generate smoke; filling up pits in the compound or removing material likely to promote the breeding of mosquitoes; and closing windows and doors before nightfall (Tabuti, 2006).

Of the 252 essential medicines selected by the World Health Organization, 11.1% come from plants (Medeiros Costa Neto, 1999). In India, for instance, the codified systems of medicine utilize about 2,000 plant species for medicinal purpose, while the tribal communities, who live in and around the forests, utilize over 8,000 species of plants, most of which are otherwise not known to the outside world (Pushpangadan 2002, Shankar, 1996).

The production and commercialization (including internationally) of products based on codified traditional medicine generates considerable value. For instance, the total Indian Ayurvedic market was estimated at Rs 1000 Crore in 1999 (Warrier, 1999). Traditional

medicine was estimated to generate from China, the leading country in this field, with an income of about US\$5 billion in 1999 from the international market and US\$1 billion from the domestic market. Europe's traditional medicine market in 1999 was calculated to be US\$11.9 billion (Germany contributing 38%, France 21% and United Kingdom 12%) (Pranoto, 2001). In Sri Lanka Conservation and Sustainable Use of Medicinal Plants Project has documented ancient medicinal knowledge in a community owned database; promoted the in situ conservation and cultivation of medicinal plants in local home gardens; mainstreamed IK through putting in place effective marketing techniques for herbal remedies derived from medicinal plants; transcribed ancient palm leaf manuscripts that contain information on diseases and their diagnosis, as well as prescriptions into Sinhalese; established a program to enable the bearers of traditional knowledge, community elders, to transfer their skills to selected acolytes; and created a legal and institutional framework for the protection of traditional knowledge, through the development of a National Biodiversity Strategy.

The Integrated Early Childhood Development Project in Eritrea, seeks to improve child health, child and maternal nutrition, early childhood education and care. The project includes a framework for the identification, validation, collection, storage and dissemination of IK related to early childhood development and the design of the database of such practices to facilitate their exchange among local communities and across the region. Linkages with a core IK group located in the Ministry of Local Government have been established and they are working to help them analyze and publish IK materials gathered over the last 20 years by this group. They were helped to set up a "Generative Curriculum" for IK in Eritrea in a virtual university setting under the ECDVU initiative in collaboration with the University of British Columbia, Victoria. They conducted a community exchange between different ethnic groups in different regions. The results of the C2C were reported at the International ECD Conference held in Asmara in October 2002 – where a separate session was arranged for IK which was well attended and received. ([www.worldbank.org/afr/ik/achieve.htm](http://www.worldbank.org/afr/ik/achieve.htm))

In the case of South Africa, Multitudes of individuals and institutions involved in various capacities, in indigenous medicinal plant use research - The Indigenous Plant Use Forum Directory (Hale et al. 1985). 60 herbaria that are used by participants for identifying and housing ethnobotany plant collections ; there are more than 71 academic departments doing ethnobotanical research; there is a total of 800 people on the network and at least 5 traditional healer organizations closely participating in the Indigenous Plant Use Programme (Hale et al. 1995) Amongst other inequalities, apartheid caused imbalance in health and health care hence, resulting into the majority black population to resort to herbal medicine (Kale, 1995a)

### 3.2 Conservation of traditional Herbal Medicine Resources (biodiversity)

Uganda, though small, has a very rich and varied biodiversity resulting from its biogeographical setting, varied altitudinal range (600-5100m) creating diverse physical features. With an estimated 90 vegetational communities, Uganda has more than 18,000 species of fauna and flora (NBU, 1992) although the actual figure is unknown because some species are poorly known especially those in lower life forms. The rich biodiversity acts as a source of traditional herbal medicine.

It is also noted worldwide that the increase in the demand for medicinal plants may raise their cost for the local population, for whom TM is often the only affordable medical treatment. Moreover, many medicinal plants face extinction or severe genetic loss. Hence, governments should control trade in medicinal plants in the framework of broader policies for the conservation and sustainable use of such plants, with an understanding that the loss of biodiversity may also have implications on public health. Peru, for instance, passed a law in July 1999 which bans the non value-added export of some botanical species with known healing properties, which had become the target of massive extraction by foreign laboratories.

The law covers the two best-known medicinal plants in Peru's indigenous pharmacopoeia: 'cat's claw' and 'maca'.

Although cultivation from the wild continues to provide the majority of plant material consumed by the herbal medicine industry, in Asia the trend is towards agriculturally cultivated materials that often better guarantee supplies, consistency, species identification, and high levels of post-harvest handling (ten Kate and Laird, 1999; Chandra, 2002,). In India it has been noted, however, that less than 30 of the medicinal plants utilized by the industry are under commercial cultivation. 80,000 metric tons a year of certain plant varieties are being collected from the wild. At this rate of collection, the TRM industry may crash because of lack of suppliers in the short term (Shankar, 1996). In contrast, in Africa, whose population relies greatly on Traditional medicine, virtually no investment in such cultivation of medicinal plants has been made.

In Uganda, there is a need for conservation, domestication and growing of medicinal plants for the purpose of promoting and sustaining TM. Propagation techniques are needed in some cases as propagation will lead to the conservation of rare medicinal plants and ensure that the wealth of the products remains in the country through using local knowledge, skills and materials. The health system thus becomes less dependent on external sources such as multinational companies. Developing conservation and propagation strategies of the currently-known medical plants is based on the communities' local knowledge of the environment, and shared experiences of institutions like the Entebbe Botanical Gardens, of the National Agriculture Research Organisation, and the National Chemotherapeutics Research Laboratory (World Bank, 2003).

### **3.3 Preservation and Protection of Traditional Herbal Medicinal Knowledge**

A number of ways are used by countries and communities to protect their traditional herbal knowledge. For example non-codified systems including what have been termed "folk", "rural", "tribal" and "indigenous" Traditional Medicine, which has been handed over orally from generation to generation. Such systems of medicine are generally based on traditional beliefs, norms and practices based on centuries old experiences of trials and errors, successes and failures at the household and community level. These are passed through oral tradition and may be called "people's health culture" (Balasubramanian, 1997)

However, there are cases in which TM is and has always been kept secret. In specialized areas, such as knowledge dealt with by bone-setters, midwives or traditional birth attendants and herbalists, including knowledge of healing techniques and properties of plants and animal substances, access is restricted to certain classes of people (Koon, 1999). In Kenya, for instance, a study on herbal medicine showed that most of the herbalists interviewed maintained the secrecy of their knowledge. An intruder was always heavily fined in order to deter any attempt to steal such knowledge. The problem with this type of system is that such important knowledge was owned by and confined to a few family members and rapid development on innovations was hampered by secrecy" (Muchae, 2000).

THM knowledge can also be kept in databases by some communities. For instance, the "BIOZULUA" database established by the Venezuelan Fundación para el Desarrollo de las Ciencias Físicas, Matemáticas y Naturales (FUDECI) stores information held by different ethnic groups regarding plants and animals deemed useful for food and medicinal use, as well as the associated knowledge. The collected information is handled as a trade secret in order to avoid undue appropriation and use (Vivas and Ruiz Müller, 2001).

There have been initiatives to develop proper written documentation of traditional knowledge. They essentially aim at reducing the room for the patentability of codified TRM. These initiatives document knowledge, making it available to patent examiners throughout the world, so that "prior art" is readily identifiable. These documentation efforts have been facilitated in the last years by the application of digital technology. For example in India, an exercise has

been initiated to prepare easily navigable computerized database of documented TK relating to use of medicinal and other plants (which is already under public domain) known as TK Digital Library (TKDL). Such digital databases would enable Patent Offices all over the world to search and examine any prevalent use/prior art. And thereby prevent grant of such patents and bio-piracy” (Government of India, 2000).

### **3.4 Sui Generis Protection System**

Some developing countries have also actively promoted the increased involvement of the World Intellectual Property Organization (WIPO) in the discussion and development of a sui generis regime for traditional knowledge. Sui generis literally means “of its own kind” and consists of a set of nationally recognized laws and ways of extending plant variety protection (PVP) other than through patents. TRIPS itself does not define what a sui generis system is or should be. And although TRIPS does not mention UPOV, it was generally thought that the UPOV standards meet the requirements for a sui generis system for plants. However, countries do not have to join UPOV to implement a sui generis system to comply with TRIPS. Even then, UPOV is also premised on the concept of individual ownership of property and is therefore not ideal for protecting traditional medicine.

A sui generis system might consist of some standard forms of IP protections combined with other forms, or none at all, for genetic resources. For example, a country could provide patent protections for inventions, plant variety certificates (PCV) for plant varieties or just certain varieties, and/or exclude plants from any form of IP protection at all (although this could conflict with TRIPS compliance).

Potentially, a sui generis system could be defined and implemented differently from one country to another. In addition, a sui generis system might be defined to create legal rights that recognize any associated TK relating to genetic resources and promote access and benefit sharing. The government may choose to extend protections to genetic resources and/or knowledge to a community in the form of patents, trade secrets, copyrights, farmers’ and breeders’ rights, or another creative form not currently established in the IP regime.

In addition, a sui generis system may adopt measures of protection specific to TK in order to nullify inappropriate patents. For example, the Andean Community’s Decision 486 states: patents granted on inventions obtained or developed from genetic resources or traditional knowledge, of which any member state is the country of origin, without presentation of a copy of the proper access contract or license from the community shall be nullified.

A sui generis system may legally acknowledge and protect knowledge related to the use of genetic resources even when it is not officially documented, but instead exists in the form of oral information, and traditional and historic use. Even though protections might be extended here, the government’s IP office needs to know about the knowledge or practice in order to enforce protection. Therefore, if a country has some form of a sui generis system in place, it is important for local communities to establish a working relationship with the IP office. In addition, these offices may privately maintain inventories or registries of locally held knowledge, and can assist in its protection. For example, this office can deny a patent application if the knowledge it is based on is already held in the registry.

Under a sui generis system, and as called for by the CBD, any person interested in gaining access to a community’s biological resources or knowledge for scientific, commercial or industrial purposes would need to obtain the prior informed consent of the indigenous people who possess the knowledge in question unless the knowledge is already in the public domain. This would allow the community to decide on access to and use of its genetic resources and knowledge, with the option to share or not to share them. If consent is granted, the person or persons wishing for access to lands held by indigenous communities or a conservation area, its biological resources, and associated knowledge would need to present evidence of this consent to either the IP office or to the proper authority Hansen and Van Fleet.

Customary laws may also play an important role in preserving and regulating the use of traditional knowledge in certain local/indigenous communities. Such laws are generally based on the principles of collective right and free flow of knowledge. Seeking to extend existing modern systems of IPRs protection to such communities might undermine their existing customary systems, and defeat many of the objectives that IPRs are supposed to contribute to.

An important limitation of the customary law approach is that, if adopted at the national level, it would not encompass - very much like in the case of sui generis regimes discussed above - recognition of the rights conferred in foreign countries, unless specific agreements on the matter are put in practice under international agreements or unilaterally under national laws. This limitation can be overcome through national legislation as envisaged in the Convention on Biological Diversity under the doctrine of sovereignty over genetic resources.

An example of benefit sharing is provided by the AICRPE project in India, in relation to a plant identified as *Trichopus zeylanicus travancoricus* (and called 'Arogyapacha', or "ever greener of health"). This plant has been, traditionally used by the Kanis tribe, with antifatigue and immuno-enhancing properties. Based on the lead from the Kani tribe, a scientifically validated and standardized herbal formulation ('Jeevani') was developed. The technology was transferred to a pharmaceutical company for commercial production. The Kani tribe will receive 50 per cent of the royalties paid by the company (Pushpangadan, 2002).

It should also be mentioned that Uganda, like other countries that desire to protect their traditional knowledge can benefit from the template provided by the Swakopmund Protocol prepared by countries that subscribe to the Anglophone Africa Regional Intellectual Property Organization (ARIPO). This Protocol so far provides the best example of a sui generis form of protection.

### **3.5 Policies and laws**

Different policies exist, particularly, in relation to the integration of Traditional medicine in national health care systems. Some countries, such as China, the Republic of Korea and Vietnam, have adopted measures to promote integration aimed at exploiting the complementarities of TM and modern medicine. Measures have included procedures for the registration of traditional healers or herbalists, the establishment of specialized hospitals, colleges and universities, the development of research programs, the validation and certification of TM products, the introduction of 'Good Manufacturing Practices' and the incorporation of medical doctors who have graduated from traditional medical universities, into the staff of hospitals of modern medicine to promote the use of TM in combination with the practice of Western medicine. In some countries, such as Zimbabwe and South Africa, the responsible authorities' accord substantial recognition to healers through national efforts designed to integrate traditional and Western medical systems. In others, healers are afforded no substantive recognition, their status existing purely within the custom of local communities (Lettington, 2000).

Overall, the Uganda National Culture Policy recognizes that Indigenous Knowledge (IK) is a vital sub-system of culture. IK is a key factor in social and economic development as well as cultural transformation. In addition, there is recognition of the important role of local communities in contributing their indigenous knowledge systems to enhance the sustainability of development programmes. It is important therefore to develop IK systems in Uganda to ensure that IK is maximally used for the benefit of people. Under the policy it is stated that interventions shall emphasize the preservation, integration, utilization and promotion of indigenous knowledge. Uganda is a member of ARIPO and therefore she can model her national laws along the lines envisaged in the Swakopmund Protocol.



### **3.6 Institutions**

In some countries, organizational structures (often structures imported from the West) such as associations, corporations, councils and cooperatives have been formed in order to address the communities' representation problem in benefit sharing. Some legislation has sought to provide for the recognition of indigenous groups and communities in general - e.g. Australia's Aboriginal Councils and Associations Act - or of land-owning groups in particular - e.g., Papua New Guinea's Land Groups Incorporation Act. Attempts have also been made to tailor the legislation to the particular nature, functions and powers of the indigenous body concerned, as in the case of Anangu Pitjantjatjara, the corporate body established in South Australia to hold and manage the ancestral lands of the Pitjantjatjara people (Fingleton, 1998). A review of this law, however, found in 1996 that the Act gave almost no room for local cultural variation in corporate structures and decision-making processes, and in fact caused groups to lose control over their affairs (Fingleton, 1998).

Using an Act of Parliament, institutions can be created to implement the laws and to manage all aspects relating to intellectual property protection and including benefits sharing

# 4. Materials and Methods

## 4.1 Study Area and Selection

The study area covered four (4) districts of Uganda i.e. Mukono in Central, Jinja in the East, Hoima in West and Lira in the North. These districts were selected because of the advantage of a paired proximity for convenient travel and access while at the same time they are endowed with a rich presence of communities of traditional herbal practitioners. Equally important, experiences of traditional herbalists in each of the four regions in Uganda were all represented, to reflect the national picture in the sector.

## 4.2 Methods

### 4.2.1 Study Design

The study used a combination of participant case study and cross-sectional survey in design. This is because of the varied nature of the educational backgrounds of the respondents as well as that of the TK/traditional herbalists' holders and the business sectors. Survey and interview techniques were used for collecting data. The combined design enabled the research to gather data from various respondents operating in different stages of the traditional herbal medicine value chain.

### 4.2.2 Study samples and sampling procedure

From each of the four districts, a pilot study was conducted using FGDs with herbalists and policy makers, key informant interviews with policy makers, interviews with herbalists and herbal users and a field survey. A total of 10 herbalists and herbal users per district were interviewed. This helped to determine the level of practice, developed a research strategy and selected prospective TK/traditional herbal medicine holders at community and individual levels. Then the study performed comprehensive surveys still with 30 TK/traditional herbal medicine holders and 10 herbal users per district from the selected communities and individual TK/traditional herbal medicine holders to determine the prevailing factors, opportunities and constraints affecting their TK/traditional herbal medicine practice, benefits and how their livelihoods have been affected by their TK practices. In total, 160 herbalists and herbal users participated in the final comprehensive study process.

The key informant interviews were conducted with 13 individuals/institutions at national and local levels policy makers and stakeholders in promoting THM.

### 4.2.3 Data collection

Participatory Rapid Appraisals especially through Focus Group Discussions (FGDs), key informants and in-depth interviews (KIIs) were conducted with relevant stakeholders in the traditional herbal medicine production and marketing value chains in Mukono, Jinja, Hoima and Lira districts.

The PRA aimed at determining the needs of the TK holders (traditional herbalists) and the relevant TK protection mechanisms required restrictions and challenges for the execution of business. Other parameters captured included information technology use, levels of innovation, and their constraints.

Literature surveys and review of other secondary data sources were conducted to identify the prevailing levels of innovation, how the TK is passed among the TK owners over the generations, the life cycle evolution of traditional herbal medicine products and review

of existing alternative TK protection regimes, legislation and conventions applicable to TK protection in general. Finally, the analysis of relevant International/Regional treaties conventions and protocols on the protection of Traditional Knowledge were undertaken.

## 5. Fieldwork Data and Preliminary Analysis

Data from FGDs and key informant interviews was analyzed qualitatively using transcription (including translation from local languages to English) and transcribed information was then organized, indexed and coded using qualitative analysis software. The coded data was then interpreted using content analysis techniques. The information was summarized into a research report. The data collected from 160 herbalists and herbal users using the survey questionnaire was analyzed using SPSS 12.

Results from both analyses were then triangulated to foster drawing of strong conclusions and making valid policy recommendations. Analyzed information was presented in form of illustrations, frequencies, percentages, tables and charts while at the same time being punctuated with the suitable narrative/s.

### 5.1 Results

#### 5.1.1 The levels of traditional herbal knowledge among traditional herbalists and Promotion of traditional herbal medicine practices

The sampled herbalists showed high levels of knowledge on general herbal medicine practice by giving the types of traditional herbal medicine used in their communities, types of traditional herbal medicinal knowledge; types of diseases treated and suggested ways of improving the THM practice. Specifically analysis showed the following:

#### 5.1.2 Type of most used treatment

The research indicated that 59.2% (71) of the people in the sampled districts use herbal medicine while 36.7% (44) use western medicine mostly. On the other hand 4.2% (5) indicated that they did not have knowledge on the level of use of the concerned medicine. According to the research, 65% (78) of the respondents inherited the practice from their parents / guardians / grandparents. While 35% (42) of the respondents got interested or trained in the herbal medicine practice.

The analysis also indicated that 79.2% (95) benefited in form of income from the practice while 16.7% (20) of the herbalists benefited in terms of employment and 4.2% (5) benefited in image improvement.

The support towards traditional herbal medicine promotion was also assessed. 27.5% (33%) of the respondents indicated that they get support from the government, 25% (30) get support from NGOs, 5.8% (7) indicated support from private sector and 41.7% (50) did not indicate any support from any organization.

On the other, 84.2% (101) of the respondents indicated that they get support in terms of training and sensitization while 15.8% (19) of the respondents mentioned support in terms of policies and laws.

#### 5.1.3 Ways of improving the use and protection of THM in Uganda

The respondents suggested the ways in which the use and protection of THM can be done in Uganda. 43.3% (52) of the respondents mentioned financial support as a major requirement in improving THM practice in Uganda. This was followed by 36.7% (44) that cited training herbalist in their practice. 20% (24) mentioned formulation of policies and laws for promoting

THM in Uganda. Mukono district prioritized support in terms of training at 40%, while Hoima gave the highest percentage (40%) for formulating policies and laws as one way of promoting THM in Uganda.

#### **5.1.4 Skills required by herbalists to improve THM practice in Uganda**

When the respondents were required to mention the skills that would improve THM practice, 30% (9) of the respondents indicated conservation of herbal medicine sources (biodiversity) as one of the skills required for their practice. This was followed by 26.7% (8) for THM processing, 20% (6) for harvesting ethics, 16.7% (5) for marketing and 6.7% (2) for regulation.

#### **5.1.5 Marketing**

The marketing of the traditional herbal medicine was also assessed. 69.2% (83) of the respondents mentioned that the THM in the sampled districts is sold at home-based sites. This was followed by selling the medicine at herbalists' shops that indicated 13.3% (16). The selling of THM at the sales centres was assessed at 17.5% (21).

#### **5.1.6 Policies, laws and regulations**

Regarding policies, laws and regulations, 19.2% (23) of the respondents mentioned that they had knowledge of some policies and laws that promote traditional herbal medicine. On the other hand 80.8% (97) did not have any knowledge of laws on traditional herbal medicine.

#### **5.2 Conservation of traditional herbal medicine resources (biodiversity)**

Regarding the sources of the traditional herbal medicine, 38.3% (46) of the respondents indicated THM sources from forests, followed by 26.7% (32) from grasslands, 24.2% (29) from wetlands, 8.3% (10) from hilly and mountainous areas and 2.5% (3) from other sources. The status of the THM sources was also assessed. 64.2% (77) of the respondents mentioned that the THM sources are degraded. While 15.8% (19) mentioned that the sources are fairly conserved. 11.7% (14) of the respondents said they did not know the status of the THM sources. On the other hand, 8.3% (10) mentioned that the sources are well conserved.

#### **5.2.1 Ways of conserving THM sources (biodiversity)**

The respondents were also asked to suggest ways in which THM sources could be conserved. 37.5% (45) suggested raising awareness as one of the ways of conserving THM sources. This was followed by 23.3% (28) that mentioned enrichment planting / restoration of degraded sources. 20.8% (25) of the respondents suggested domesticated cultivation / establishing herbal gardens, while 18.3% (22) gave enforcement of laws as one of the ways for conserving herbal sources.

#### **5.2.2 Laws that promote biodiversity conservation**

Regarding the knowledge on laws that promote conservation of THM sources, the analysis showed that 75.8% (91) of the respondents did not have knowledge and only 24.2% (29) had knowledge of laws on conservation of THM sources. Even the 24.2% of the respondents could not specifically mention the exact laws and their intentions or objectives.

### **5.3 The levels of traditional herbal knowledge among policy makers**

#### **5.3.1 Awareness among Policy makers on THM laws and policies**

40% (5) of the respondents mentioned that they knew some of the laws and policies that promote THM in Uganda; while 60% (7) of the sampled policy makers lacked knowledge of the laws and policies. Some of the 40% could not mention the specific laws and their objectives.

Regarding other areas like institutions responsible for THM promotion and benefit sharing, level of use of THM, programs on THM, the policy makers were fairly knowledgeable.

## **5.4 The levels of traditional herbal knowledge among herbal users**

### **Type of treatment mostly used**

The herbal users had knowledge on the use of herbal and western medicine in their respective communities. The analysis indicated that 65% (26) of the respondents use herbal medicine while 25% (10) use western medicine mostly.

#### **5.4.1 Support for promotion of THM in Uganda**

50% (20%) of the respondents indicated that the support provided towards promotion of THM is from the NGOs, Government, 15% (6) and 25% (10) reported no support from any organization.

Regarding the type of support provided, 90% (36) indicated training of herbalists in their practices and 10% (4) gave formulation of policies and laws.

90% (36) of the respondents indicated that the support provided towards THM promotion is in terms of training and sensitization; while 10% (4) of the respondents mentioned support in terms of policies and laws.

About ways of improving THM practice in Uganda, 50% (20) of the respondents mentioned financial support as a major requirement. This was followed by 33% (13) that gave training herbalists in their practice. 17% (7) mentioned formulation of policies and laws for promoting THM in Uganda.

#### **5.4.2 Policies, laws and regulations**

Regarding policies, laws and regulations, 20% (8) of the respondents mentioned that they had knowledge of some policies and laws that promote traditional herbal medicine. On the other hand 80% (32) did not have any knowledge of laws on traditional herbal medicine.

#### **5.4.3 Conservation of THM sources (biodiversity)**

33% (13) indicated THM sources as forests, followed by 31% (12) as wetlands, 23% (9) as grasslands, 10% (4) as hilly and mountainous areas and 3% (1) as others.

65% (26) of the respondents mentioned that the sources are degraded. While 15% (6) of the respondent mentioned that the sources are fairly conserved. 10% (4) mentioned that the sources are well conserved. On the other hand, 10% (4) said they did not know the status of the THM sources.

47% (19) of the respondents suggested raising awareness as one of the ways of conserving THM sources. This was followed by 27% (11) of the respondents who mentioned domesticated cultivation / establishing herbal gardens, 20% (8) that mentioned enrichment planting / restoration of degraded sources; while 6% (2) gave enforcement of laws as one of the ways for conserving herbal sources.

The analysis indicated that 67% (27) of the respondents did not have knowledge on the laws that conserve herbal sources, while only 33% (13) had knowledge of laws.

#### **5.4.4 The capacity of service provision by traditional herbalists**

Out of the respondents interviewed, 79.2% (95) had the names of the organization they practices from, 40% (48) had postal addresses and physical address while 60% (72) did not have. However, all the respondents had clearly indicated the physical locations of their practices, indicating that they rely more on directing their patients and other interested parties, to the physical locations of their herbal practices, for ease of communication and interaction compared to the postal medium. Of the 120 respondents interviewed, all of them (100%) reported owning and using mobile telephones for their herbal practice. However, none of them was using e-mail services. The analysis indicated that 40% (48) of the sampled herbalists fell under the age group of 51-65; while 38.3% (46) were under the age group of 36-50 and 21.7% (26) were under that of 21-35. The analysis showed that 56.7% (68) of the

respondents were male while 43.3% (52) were female. Of the 120 respondents interviewed, 35.8% (43) considered farming as their main occupation. This was followed by 30.8% (37) for trade, 26.7% (32) for herbal medicine practice and 6.7% (8) for formal employment. The education levels of the respondents were assessed as follows no formal education 25.8% (31), primary 40% (48), secondary 30% (36) and tertiary 4.2% (5). The analysis of the average monthly income of the sampled herbalists showed that 47.5% (57) of the respondents indicated their average monthly income as ranging between >80,000 – 140,000 Ushs. This was followed by 31.7% (38) that receives a monthly income of 20,000 – 80,000 Ushs. 20.8% (25) of the respondents indicated their average monthly income as >140,000 Ushs.

The capacity of service provision by traditional herbalists was also assessed by conducting field surveys in the sampled districts. The following parameters were assessed: source of herbal medicine, status of the source, cultivation and collection of herbal medicines (practices and sustainability), transportation of plant materials, whether the plant materials promptly unloaded and unpacked on arrival at the processing facility, protection of the plant materials from rain, sun and any form of contamination, sanitation and hygiene, disposal of wastes from the processing unit, personal hygiene and premises.

The field surveys conducted revealed that the majority of the herbalists in the sampled districts have very low capacity in processing of the THM as required under the Guidelines on regulation of traditional healers or herbal medicine in Uganda. The herbalists do not follow Good Agricultural & Collection Practices (GACP) recommended by WHO for medicinal plants e.g. they overharvest the plants, debark the medicinal plants.

The majority of herbalists sampled do not have appropriate transportation means for their THM before they are processed. Sanitation and hygiene, disposal of wastes from the processing unit, personal hygiene are not adequately observed as provided for under the guidelines. The majority of the sampled herbalists were lacking appropriate premises where THM can be processed.

## **5.5 The level of appropriate protection and benefit sharing policies, strategies and programmes in support to herbal medicine in Uganda**

In Uganda there is a fairly comprehensive legal and institution framework regarding protection and promotion of traditional herbal medicine as well as benefit sharing mechanisms. The policies include;

- The National Science and Technology Policy, 2001
- National Forest Policy, 2001
- National Environment Management Policy 1995

However, some of the important policies in promoting and protecting THM and medicinal knowledge are still in draft form. These include: the draft National Biotechnology and Biosafety Policy and the draft National Policy on Indigenous Knowledge (IK). The draft National Policy on Indigenous Knowledge (IK) seeks to guide the process of integrating IK in the national development process. The draft policy calls for recognition of the value of Indigenous Knowledge (IK) in empowering local communities and urges government to adopt and support national IK efforts and to incorporate IK in its comprehensive National Development Framework. It provides for the sensitization and advocacy for IK, documentation, Research, Validation and Dissemination of IK, commercialization and industrialization of IK, capacity building for IK and resource mobilization for IK.

Among the laws that protect, promote THM and benefit sharing include the Patents Act 1991, the constitution of the Republic of Uganda, promulgated in 1995, the National Environment Act Cap. 153, the Uganda National Council for Science and Technology Act Cap, 209, the Uganda Wildlife Act, 2000, the National Forestry and Tree Planting Act, 2003, the land Act, Cap 227 of laws of Uganda, the National Drug Statute Policy and Authority Act, 2000, and

the National Environment (Access to Genetic Resources and Benefit Sharing) Regulations, 2005.

The main objectives of the National Environment (Access to Genetic Resources and Benefit Sharing) Regulations, 2005 are, to prescribe the procedure for access to genetic resources for scientific research, commercial purposes, bio-prospecting, conservation or industrial applications; to provide for the sharing of benefits derived from genetic resources and to promote the sustainable management and utilization of genetic resources, thereby contributing to the conservation of the biological resources of Uganda. Specifically, regulation 10 states that no person shall access genetic resources from any part of Uganda, unless that person has obtained a prior written informed consent form, and entered into an accessory agreement with the lead agency, local community or owner; carried out an environment impact assessment, in accordance with regulation 16, where required; entered into a materials-transfer agreement in accordance with the regulations and obtained an access permit from the UNCTST in accordance with the regulations. While Regulation 20 (1) states that the benefits accruing from the collection, modification and use of genetic resources shall be shared in accordance with the principle of fairness and equity, and on mutually agreed terms.

Regulation 20 (2) states that the benefits accruing from access to genetic resources under a materials transfer agreement or accessory agreement shall vary on a case basis and shall include among other things participation by Ugandan citizens and institutions in scientific research and other activities involving access to genetic resources; sharing of access fees and royalties, research funds, license fees, and other special fees that support conservation of biodiversity; payment of salaries, where mutually agreed; collaboration in education and training related to genetic resources; transfer of knowledge and technology under favorable terms and, in particular, knowledge that makes use of genetic resources, including biotechnology, or knowledge that is relevant to the conservation and sustainable use of biological diversity; access to scientific information such as biological inventories and taxonomic studies; contributions to the development of the local community; benefits relating to food security and joint ownership of patents and other relevant forms of intellectual property rights.

On the other hand, there are two proposed laws that are still in draft form. These include: Industrial Property Bill (2001) and the Traditional Medicine Bill. The Industrial Property Bill (2001) provides for the promotion of inventive and innovative activities to facilitate the acquisition of technology through the grant and regulation of patents, utility models, technovations and industrial designs. The bill, if enacted into law, would modernize an important part of Uganda's regime of intellectual property law. It covers all industrial property (patents, industrial designs, utility models and technovations) except trade marks. On the other hand, the Traditional Medicine Bill seeks to establish a Council to regulate the practice of traditional medicine, to register practitioners and license practices and to provide for related matters. Practice in herbal medicine in Uganda has been under the National Drug Policy and Authority Act but it was felt that there was need to regulate traditional medicine independently and bring it to nationally and internationally acceptable standards.

Herbal medicine regulation in Uganda was established by the National Drug Authority Statute and Policy of 1993. The law for herbal medicines is the same as for conventional pharmaceuticals. There is no specific regulatory status given to herbal medicines. Claims which may be made by law include health, medical, nutrient content and cultural use claims. The National Biodiversity Strategy and Action Plan for Uganda that was prepared in accordance with Article 6a of the Conservation of Biological Diversity on general measures for conservation and sustainable use of Biodiversity seeks to promote the sustainable use and fair sharing of costs and benefits of biodiversity.



Guidelines for regulation of traditional healers or herbal medicine in Uganda are being finalized. The objective of the guidelines is to guide applicants dealing in herbal medicinal products to conform to regulatory requirements so as to foster proper monitoring of safety and efficacy issues involved. They address issues of manufacturing herbal medicine, registration and promotion of local herbal medicine. The extent of implementation of these guidelines and constraints are not known.

### **5.6 The consumption levels of traditional herbal medicine in Uganda**

It was not easy to determine the consumption level of herbal medicine in the sampled districts. However, efforts were made to interview the users and other stakeholders as well as reviewing literature on consumption levels.

The profiles of the sampled herbal users are as follows: 40% (16) of the sampled herbal users were under the age group of 51-65. This was followed by 31% (13) for age group 36-50. 64% (19) of the respondents were female while 36% (11) were male. Of the 40 respondents interviewed, 47.5% (19) were traders, 42.5% (17) were farmers and 10% (4) were formally employed. Regarding the education levels of the herbal users, 60% (24) of the respondents had their education level as primary and 30% (12) non educated.

65% (26) of the respondents mentioned that the herbal medicine is used most while 25% (10) indicated western medicine as being used most. On the other hand, 10% (4) did not have knowledge on the consumption levels of either THM or western medicine. The high levels of consumption of herbal medicine indicated in Uganda can be explained by World Bank (2003),

It mentioned that in Uganda, there is at least one traditional healer for nearly 290 people compared to one Western-trained medical practitioner for every 10,000 people in the urban areas and 50,000 people in the rural areas respectively. Bannerman, et al. (1993) observed that about 80% of the population of Uganda relies on traditional medicine because western-trained medical personnel are limited, and traditional healers are easily consulted, living in the same community.

Consumption of THM resources is prevalent at the community, district and national levels in Uganda. Specifically, consumption at community level especially in rural areas is high, as illustrated by Uganda's four regional scenarios/experiences highlighted below.

The ethno-botanical study conducted in the four parishes in Ngai and Otwal sub-counties, Oyam district, Northern Uganda – one of the areas affected by a 20-year insurgency – documented medicinal plant species for treating health conditions among the local people. The research findings reveal that a total of 41 conditions were treated with medicinal plant parts in Oyam District. The common condition being treated in Ngai and Otwal sub counties was found to be abdominal pains and this was reported by 11% of the respondents, followed by cough at 10%. Other conditions such as wounds had 5.6% headache; epilepsy and STD/STI at 4.6%. Those least mentioned at below 1% were impotence, toothache, cholera, fever, among others.

In Central Uganda, the residents near Mabira Forest Reserve have always believed that there are cures in the plant life of the forest. People seek herbal medicine for treating sexual impotence, cancer, malaria and other illnesses. Ibrahim Senfuma, a bird guide in mabira forest, says that he and his friends take *Citropsis articulata* to boost their sex drives. Locals either chew the roots and leaves of the plant (salt is added for flavor), or mix them in a half liter of water and then boil to make tea. Lowering his voice amid the crowing and squawking sounds of the forest, Senfuma confides: "I don't know if it is psychological, but it works. You feel stronger than before." Another local resident, Faziira Nakalama, proudly lists the ailments (her own and her neighbors') cured by the leaves and roots of the Pronus

Africana i.e. "Decreased immunity, stomach pains, malaria (<http://www.time.com/time/world/article/0,8599,1698267,00.html#ixzz5UiSxJpuu>)

Dr. Kamatenesi (from Makerere University) is also leading a campaign/drive, to conserve plants such as *Citropsis articulata*, or the "sex tree" together with the *Pronus Africana* - commonly used to treat malaria and some forms of cancer. Kamatenesi believes that plants like the "sex tree" may have other medicinal properties besides treating sexual impotence and says that Uganda will miss out on drug discovery and manufacturing if the government does not protect mabira forest.

Kamatenesi, Oryem, and Ogwal (2007) carried out a study to document indigenous knowledge on medicinal plants used by traditional healers in the treatment of some gynaecological morbidity ailments in reproductive healthcare in western Uganda. The documented conditions under gynaecological morbidity considered include: excessive-bleeding (hypermenorrhoea), painful menstruation (dysmenorrhoea), irregular menstruation and prolapsed uterus. Fifty-two medicinal plants were documented by the researchers as being used in the treatment of these ailments and conditions. Leaves are the most commonly harvested plant parts and the most common form harvested are the herbs 51.9%, followed by trees 25% and shrubs 17.3%. Over 50% of these herbal remedies are harvested from the wild ecosystems. The main methods of herbal remedies preparation were boiling, squeezing and pounding and the medicines are administered orally. The nutritional status of individuals plays a vital role in the well-being and in fighting diseases as some medicinal plants are used as foodstuffs like *Lycopersicon esculentum* Mill., *Mangifera indica* L., *Carica papaya* L., *Cucurbita pepo* L., *Physalis minima* L., *Rumex abyssinicus* Jacq., *Daucus carota* L., *Zingiber officinale* Roscoe and *Ananas comosus* (L.).

In Budiope/Busoga, Eastern Uganda, twenty seven species distributed between 24 genera and 16 families were reportedly used in herbal preparations for the treatment of malaria. The most frequently mentioned species were *Vernonia amygdalina* Delile, *Momordica foetida* Schumach, *Zanthoxylum chalybeum* Engl., *Lantana camara* L. and *Mangifera indica* L. Drugs from these plants were prepared as water extracts and made from single species. The drugs were administered in variable doses and over varied time periods (Tabuti, 2006)

The herbal users also indicated some constraints regarding the use of THM. These include: stomach upsets, bitterness of some herbal medicines, loss of appetite and limited awareness on legal and institutional framework on THM.

## 6. Conclusions

The research team came up with some conclusive impressions regarding the status of traditional herbal medicine in Uganda. These impressions include:

- The majority of people in sampled districts use THM more than western medicine for their health care.
- There is a low level of awareness on THM practice and promotion among policy makers and stakeholders.
- The level of appreciation of and support to the practice and promotion of traditional herbal medicine by policy-makers and other stakeholders is minimal and needs significant improvement.
- The herbalists have low capacity in THM processing, conservation of THM sources (biodiversity), marketing, and harvesting ethics.
- The herbalists showed relatively low levels of education and therefore a need to be addressed creatively and innovatively, to enable the herbalists to eventually modernize their products to high, credible levels.
- The significant mechanisms (e.g. policies, laws, institutions etc.) are not adequately implemented and enforced for the efficient and effective practice of traditional herbal medicine in the country.
- The Biotechnology and Biosafety Policy, the Policy on Indigenous Knowledge (IK), laws on the Industrial Property, the Traditional Medicine, and the Guidelines for regulation of traditional healers or herbal medicine in Uganda are not yet enacted.
- The THM materials are obtained from varied ecosystems but most of them are degraded through deforestation, wetland conversion, and unguided land use changes.
- The THMK is fairly protected by the existing legislation but the knowledge is currently not comprehensively documented, shared and therefore inaccessible.
- When determining potential options for protection, the goals and interests of knowledge holders and the community are important to consider. The policy makers could consider this hierarchy in determining the goals of protecting and promoting traditional herbal medicine and knowledge. That is; avoiding exploitation of knowledge holders (bio-piracy), avoid inappropriate IP claims, dissemination of THMK for public good and profit benefits to the knowledge holders, community and the country.
- Regardless of the exact type of IP rights protection employed, the end result must always be aimed toward a balance, that is, to better protect and provide equitable benefit to the originators of that THMK while serving the broader public health interest. In other words, access, development, and distribution must be balanced against equitable benefit sharing, sustainable development, and conservation.

### 6.1 Recommendations

1. Advocate and raise awareness on THM practices and medicinal knowledge among stakeholders (policy makers, academicians, scientists, local communities, development partners, traditional herbalists, THM users).
2. Capacity building in documentation and information management of THMK at both national and community levels.
3. Promote exchange of THMK among communities and practitioners through the establishment of community based traditional knowledge resource centres.
4. Provide support (technical, financial, programmes, projects, material) for THM promotion.
5. Capacity building for the THM practitioners is paramount. The focus should be put on the skills requested for by the practitioners and these included: THM processing, conservation of THM sources (biodiversity), marketing, harvesting ethics and regulation

of THM practice. Capacity in documentation and information management of traditional herbal medicinal knowledge should also be considered.

6. Promote conservation of THM sources (biodiversity) through raising awareness, enforcement of existing laws, enrichment planting and establishing of herbal gardens (in-situ and ex-situ conservation).
7. Empower the institutions responsible for promotion of THM and benefit sharing in terms of finance, personnel, equipment, to enable them implement the policies and programmes, and enforce laws.
8. Ensure adequate and effective coordination of the institutions responsible for THM promotion and benefit sharing.
9. Formulate a policy on Access and Benefit Sharing (ABS).
10. Formulate access and benefit sharing policy and complete and approve the draft National Biotechnology and Biosafety Policy, the draft National Policy on Indigenous Knowledge (IK), the Industrial Property Bill (2001), the Traditional Medicine Bill, and the Guidelines for regulation of traditional healers or herbal medicine in Uganda.
11. Enforce laws on biodiversity conservation as well as the ABS regulations and related laws.

# References

African model legislation for the protection of the rights of local communities, farmers and breeders, and for the regulation of access to biological resources (2000) <http://www.opbw.org/nat-imp/modellaws/oau-model-law.pdf>

Balasubramanian, K (1997) *Herbal Remedies: Consumer Protection Concerns*, Consumers International, Penang

Barnerman, R.H [et al] (1993) *Traditional Medicine and Health Care Coverage*, Geneva: World Health Organization

Bhatti, S. (2000) 'Intellectual property rights and traditional medicines', prepared for WHO-ASEAN Meeting on the TRIPS Agreement and its Impact on Drug Supply, Jakarta

Carlos M Correa (2001) *Traditional Knowledge and Intellectual Property - Issues and options surrounding the protection of traditional knowledge A Discussion Paper*, Quaker United Nations Office Geneva, Switzerland

Correa, Carlos M. (2002) *Protection and Promotion of Traditional Medicine - implications for public health in developing countries*. University of Buenos Aires, Buenos Aires

Downes, D (1997) *Using Intellectual Property as a Tool to Protect Traditional Knowledge: Recommendations for Next Steps*, Center for International Environmental Law, Washington, D.C.

Echookit (2008) *Access to Genetic Resources and Benefit Sharing in Uganda. Legal Perspective NEMA, Uganda*

Esegu, J.F.O. (2002) *Research in Medicinal Plants in Uganda*, Internal Presentation, Forest Resources Research Institute, Kampala, Uganda

Fabricant D. S. and Farnsworth N. R., (2001) *The Value of Plants Used in Traditional Medicine for Drug Discovery Environmental Health Perspectives* 109, 69-75

Fingleton, J.S. (1998) 'Legal recognition of indigenous groups', *FAO LEGAL PAPERS ONLINE*, available at <http://www.fao.org>

Gorjestani Nikolas, (2000). *Indigenous Knowledge for Development Opportunities and Challenges*; [www.unctad.org/trade\\_env/docs/gorjestani.doc](http://www.unctad.org/trade_env/docs/gorjestani.doc)

Government of India (2000) "Protection of biodiversity and traditional knowledge, the Indian experience", WT/CTE/W/156, 14 Jul 2000

Government of Uganda (2003) *The National Forestry and Tree planting Act, 2003* Kampala

Government of Uganda (GOU) (1998) *Land Act, 1998 UPPC*, Entebbe

Government of Uganda (1995) The Constitution of the Republic of Uganda 1995

Hansen, Stephen and Van Fleet, Justin (2003) Traditional Knowledge and Intellectual Property: A Handbook on Issues and Options for Traditional Knowledge Holders in Protecting their Intellectual Property and Maintaining Biological Diversity, American Association for the Advancement of Science (AAAS), Washington, DC 20005 United States of America

ICSU (2002) Science, Traditional Knowledge and Sustainable Development ICSU Series on Science for Sustainable Development No. 4 International Council for Science, Paris

Koon, O.C (1999) 'Intellectual property protection of traditional medicine and treatments in Malaysia', in Blakeney, M (Ed) Perspectives on Intellectual Property Intellectual property aspects of ethnobiology Sweet & Maxwell, London vol. 6

Kuanpoth, J (2001) 'Legal Protection of Traditional Knowledge: The case of Thai Traditional Medicine', ASEAN Workshop on the TRIPS Agreement & Traditional Medicine, WHO, Jakarta

Lettington, R (2000) 'The protection and Promotion of Traditional and Marginalized Medicinal knowledge: Romantic Dream or Twenty-First century Necessity?' Regional Conference on medicinal Plants, Traditional Medicines and Local Communities in Africa: Challenges and opportunities of the New Millennium, Nairobi

Medeiros, CN, & Eraldo (1999) 'Traditional use and sale of animals as medicines in Feira de Santana City, Bahia, Brazil', Indigenous Knowledge and Development Monitor, vol.7, issue 2  
MWLE (2001) Wetland Resource Book Ministry of Water, Lands and Environment, Kampala, Uganda

Mugisha Kamatenesi Mauda, Oryem-Origa Hannington, Ogwal Odyek (2007). African Journal of Ecology, Vol. 45 College of Natural Sciences, Makerere University, February 2007  
Mukono District State of the Environment Report (1997) [www.unep.org/Pearl/Login/OP/.../PEARLFullTextBLOB\\_1534\\_642.pdf](http://www.unep.org/Pearl/Login/OP/.../PEARLFullTextBLOB_1534_642.pdf)

Nakashima Douglas; PhD (2000) - Traditional Knowledge: Resisting and Adapting to Globalization, Paper prepared for the UNCTAD Expert Meeting on Systems and National Experiences for Protecting Traditional Knowledge, Innovations and Practices, Geneva, 30 October to 1 November 2000

National Environment Management Authority (2005) The Uganda National State of Environment Report 2004/2005. NEMA, Uganda

NEMA (2002) State of Environment Report for Uganda, 2002 NEMA. Kampala

National Environment Management Authority (2002) Uganda National Biodiversity Strategy and Action Plan (NBSAP) 2002 NEMA, Kampala Uganda

National Environment Management Authority, (2000) National Environment Act, 2000 Kampala

National Environment Management Authority (1994) National Environment Policy 1994 Ministry of Water, Lands and Environment, Kampala Uganda

Nelson-Harrison, S; King, S, Limbach, C, Jackson, C, Galiwango, A; Kisingi, K, Sirimani &

Kanyerezi, B., (2002), 'Ethnobotanical research into the 21st. century', in Iwu and Wooton (Eds), Ethnomedicine and drug Discovery, Elsevier, Ireland

Pranoto, G (2001) 'Traditional Medicine Knowledge as a Basic For The development of Allopathic Medicine: An Industry Perspective of Future Possibilities', ASEAN Workshop on the TRIPS Agreement and Traditional Medicine, organized by the Directorate General of Food and Drug Control- Indonesia, Jakarta

Pushpangadan, P (2002) 'Traditional Knowledge & Folklore - A benefit sharing model experimental in India', based on the presentation made during the Conference organized by the Commission on Intellectual Property Rights at London on 21-22 February

Simpson, T (1997) Indigenous Heritage and Self-determination: The Cultural and Intellectual Property Rights of Indigenous Peoples, International Work Group for Indigenous Affairs, Copenhagen

Subcharoen, P, Luanratana, O, Kuanpoj, J, & Assawinrangura, S. (2000) 'Indigenous Knowledge and Intellectual Property - Thai Study', Inter-regional Workshop on intellectual property rights in the context of traditional medicines. Bangkok

Swakopmund Protocol on the Protection of Traditional Knowledge and Expressions of Folklore within the Framework of the African Regional Intellectual Property Organization (ARIPO) (2010) <http://www.cbd-int/doc/measures/abs/msr-abs-aripo-en.pdf>

Tabuti, JRS (2006), Herbal medicines used in the treatment of malaria in Uganda: A case study of Budiope County, Makerere University/ The Garden Club of America. Kampala, Uganda

Ten Kate, K. & Laird, S. (1999) the commercial use of biodiversity - Access to genetic resources and benefit sharing, Earthscan, London

The Cross-Cultural Foundation of Uganda (2008) Promoting Herbal Medicine in Uganda – Traditional Health Practitioners and government Working together; [www.crossculturalfoundation.or.ug](http://www.crossculturalfoundation.or.ug)

Twarog, S. And Kapoor, P. (Eds.) (2004) Protecting and Promoting Traditional Knowledge: Systems, National Experiences and International Dimensions. United Nations Conference on Trade and Development Document No, United Nations, Geneva UNCTAD/DITC/TED/10  
Uganda Wildlife Authority (2001) The Uganda Forestry Policy 2001. Ministry of Water, Lands and Environment

Uganda Wildlife Authority (2000) Uganda Wildlife Act, 2000 UWA, Kampala.

Uganda Wildlife Authority (1999) Uganda Wildlife Policy 1999

UNDP (2005) Uganda Human Development Report 2005

Vivas Eugui, D & Ruiz Muller, M (2001) 'Handbook on mechanisms to protect the traditional knowledge of the Andean Region Indigenous Communities', prepared for the UNCTAD BIOTRADE initiative, UNCTAD, Geneva

Warrier, A, (1999) 'Branching out with the philosophy of life', The Indian Express, 29-12-

WHO, (1996) 'Guidelines for the assessment of herbal medicines', WHO Technical Report Series, No.863, Geneva

WHO (2005) Global Survey Report, [www.apps.who.int/medicinedocs/en/d/Js7916e/](http://www.apps.who.int/medicinedocs/en/d/Js7916e/)

WHO (2004) Tools for institutionalizing traditional medicine in health systems in WHO African region. World Health Organization Regional Office for Africa Brazzaville

WHO (2001) Legal Status of Traditional Medicine and Complementary/Alternative Medicine: A Worldwide Review







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The Chancery, 3rd Floor, Valley Rd.  
P O Box 10081, 00100-Nairobi, Kenya  
Tel: (254 020) 2714092, 2714168,  
2714498, 2723800  
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**ISBN: 978-9966-030-73-3**