IMPLICATIONS OF THE INTERNATIONAL BIOTECHNOLOGY LEGAL REGIME ON THE PRESERVATION OF INDIGENOUS KNOWLEDGE (IK) IN UGANDA:

EDWIN MUHEREZA KOSIA BARUGAHARE

REG. NO. 2005 / HD09 / 4133U

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF LAWS OF MAKERERE UNIVERSITY

JUNE 2008

DECLARATION

I, EDWIN MUHEREZA KOSIA BARUGAHARE, do declare that the work presented herein is my own except where it is acknowledged and that it has never been presented anywhere for the award of any degree.

Candidate**: EDWIN MUHEREZA KOSIA BARUGAHARE**

Signature:……..

Address: E-mail: baru01ug@yahoo.com

Tel: +256 712 314947

Submitted with our Consent

1. Supervisor**: Prof. J. OLOKA-ONYANGO**

   Signature: ……..

   Date: ……

2. Supervisor: **MR. EMMANUEL KASIMBAZI**

   Signature: ……..

   Date: **……..**

DEDICATION

To my parents**,** Kosia Barugahare and Violet Barugahare whose selfless sacrifice and determination enabled me to be where I am today.

ACKNOWLEDGEMENT

So many people contributed towards the completion of this piece of work, I cannot afford to mention all of them here and must say thank you to all of you. Nevertheless, I wish to extend my sincere gratitude in a special way to my supervisors, Prof. Oloka Onyango and Mr**.** Emmanuel Kasimbazi whose constructive criticism, guidance and advice enabled me to complete this dissertation. I particularly thank Prof Onyango for providing me with his reading materials and his consistent prompt response towards correcting my mistakes and advice without which the completion of this dissertation would have been undoubtedly difficult. In a special way I thank Rebecca Luyiga for her secretarial contribution rendered to me during the writing of this dissertation and Patrick G. Barugahare for his professional advice, his inspiration and for permitting me use his office materials and staff to successfully complete this dissertation.

TABLE OF CONTENTS

LIST OF FIGURES/ ILLUSTRATIONS/PLATES (PICTURES)

LIST OF ACRONYMS

1. ACODE - Advocates Coalition for Development and Environment
2. CBD - Convention on Biological Diversity
3. FAO - Food and Agriculture Organisation
4. IK - Indigenous Knowledge
5. IPR - Intellectual Property Rights
6. NCRL - National Chemotherapeutics Research Laboratory
7. NEMA - National Environment Management Authority
8. THETA - Traditional and Modern Health Practitioners Together Against AIDS and Other Diseases
9. TRIPS - Agreements on the Trade-Related Aspects of Intellectual Property Rights
10. UNCED - United Nations Conference on Environment and Development
11. UNCST - Uganda National Council of Science and Technology
12. UNEP - United Nations Environmental Programme
13. WCED - World Commission on Environment and Development
14. WSSD - World Summit on Sustainable Development
15. WTO - World Trade Organisation

LIST OF INTERNATIONAL TREATIES

1. Agreements on Trade-Related Aspects of Intellectual Property Rights
2. United Nations Convention on Biological Diversity (1992)
3. Uruguay Round Agreement Establishing the World Trade Organisation (WTO) (1994)

OTHER INTERNATIONAL LEGAL INSTRUMENTS

1. Rio Declaration on Environment and Development (1992)
2. Stockholm Declaration on Human Environment (1972)
3. The Model Law of the Organisation of African Unity on Community Rights and the Control of Access to Biological Resources (1998)

LIST OF STATUTES

1. The Agricultural Seeds and Plant Act Cap. 28.
2. The National Environment Act Cap. 153.
3. The National Drug Policy and Authority Act Cap. 206.
4. The National Council for Science and Technology Act Cap. 209.
5. The Patents Act Cap. 216.

ABSTRACT

This study examines the relevance of the Convention on Biological Diversity (CBD) and the TRIPS Agreement to a developing country like Uganda. Indigenous Knowledge (IK) preservation mechanisms have been perceived as an opportunity through which developing countries can achieve sustainable development. It remains unclear as to whether such mechanisms will be beneficial to developing countries like Uganda. The problem is compounded by the fact that Indigenous Knowledge is strongly linked to developmental and economic issues with the result that if a country was to do away with such knowledge without adequate compensation, its economic development would be seriously affected. The study also analyses how the Organization of African Unity (OAU) Model law on Community Rights and the Control of Access to Biological Resources, relates to the CBD and the TRIPS agreement, how it resembles and differs from the two international legal regimes providing for indigenous knowledge and the implications this has Uganda being signatory to the model law. The study analyses how the contradictions existing at the international and regional level will have far reaching implications on Uganda as far as compliance and the drafting of national laws is concerned.

The study reviews Uganda's Laws and Policies relevant for IK preservation vis-à-vis the tensions and convergences existing between the CBD, the TRIPS Agreement and the OAU Model Law. It also makes proposals and the required reforms necessary for the establishment of an effective regime of IK preservation. The study finds that there is no specific legislation and policy dealing with issues of indigenous knowledge in Uganda and as such the knowledge is vulnerable to exploitation without benefits accruing to the beneficiaries. Finally, the study recommends possible measures to fill in that lacuna.

CHAPTER ONE

BACKGROUND TO THE STUDY

This chapter provides the background to the study and how the research was been conducted. It sets out the objectives of the study and the research questions which were set at the very beginning of the study and the scope of the research. The relevant literature about indigenous knowledge is reviewed as a basis for justifying why this research is necessary.

1.0 Introduction

The specific definition of indigenous knowledge has not been established though the general view is that it is knowledge which has been developed by local communities over generations but which still continues to be developed. Indigenous knowledge (IK) has been recognized as having played and is still playing crucial roles in economic, social and cultural life and development not only in traditional societies but also in modern societies.[1] In particular the recent increased awareness of the value of biodiversity and the need for its conservation and sustainable use for present and future agriculture and provision of health care has highlighted the role and critical importance of IK.[2] According to Rural Advancement Foundation International (RAFI), 80% of the world's people rely on IK for their medicinal needs and half to two-thirds of the world's people depend on foods provided through IK of plants, animals, insects, microbes and farming systems.[3]

The most complex set of problems facing the future of traditional knowledge comes from the misappropriation of this knowledge from the local communities and indigenous peoples who should be its rightful owners.[4] Indigenous knowledge (IK) preservation in Uganda was not well documented until 1999 when a workshop was held to formulate a national strategy and

[1] Martin Khor (2002) , *Intellectual Property, Biodiversity and Sustainable Development: Resolving the Difficult Issues,* London, Zed Books Ltd., at 15.
[2] Ibid.. at 15.
[3] Rural Advancement Foundation International (RAFI), (1997), *Conserving Indigenous Knowledge: Integrating Two Systems of Innovation*, New York, RAFI and UNDP cited in Khor, op.cit., at 17.
[4] Khor (2002), op. cit., at 19.

framework of action for the sustainable application of IK for development.[5] Thereafter, a national steering committee was established in 2000 and a number of activities in areas such as agriculture, traditional medicine, environmental management, management of HIV/AIDS and agricultural bio-diversity and local storage methods have been undertaken as a follow up action. For example in Iganga District of Uganda, leveraging traditional knowledge systems with simple and appropriate modern communications helped to dramatically reduce high maternal mortality rates under the rescuer project.[6] The IK strategy is to be implemented in several ways such as IK in Uganda's Poverty Eradication and Action Plan (PEAP). The World Bank has also provided an Institutional Development Fund (IDF) grant to support the development of a national centre or IK and the incorporation of IK into the operations of the healthy and agricultural ministries. The steering committee monitors the implementation process. The National Agricultural Research Organisation (NARO) has drafted a plan to incorporate IK in its activities. [7]

Global efforts to tackle IK issues in the sustainable development process began with the World Commission on Environment and Development (WCED) established in 1982 by the United Nations General Assembly. The Commission called for "the recognition and protection of tribal and indigenous peoples' rights to land and other resources that sustain their way of life – rights they may define in terms that do not fit into standard legal setting."[8] It further recommended that local institutions through which indigenous and local peoples socialize and conduct their economic activities should be strengthened.[9]

In recent years, there has been increasing public interest in the subject of Intellectual Property Rights (IPRs) and its relationship with sustainable

[5] At the workshop organized by Uganda National Council for Science and Technology, held at Kampala in 1999 which was attended by participants from private and private sector, Non-governmental organizations and civil society, the result of which was *The Kampala Declaration on Indigenous Knowledge for Sustainable Development"* 8 – 9 December 1999.
[6] Nicolas Gorjestani (2000), "Indigenous Knowledge for Development: Opportunities and Challenges, A paper presented at the UNCTAD Conference on Traditional Knowledge, Geneva, November 1, 2000.
[7] Ibid., at 5.
[8] Ibid,, at 12.
[9]Khor (2002), op. cit., at 9.

development, including the environment and human development.[10] This issue has also been the subject of intense debate in inter-governmental organisations, particularly the World Trade Organisation (WTO) and the Food and Agriculture Organisation (FAO).[11] Rules and provisions relating to IPRs are central to the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) in the WTO, in the Convention on Biological Diversity (CBD),[12] and The Model Law of the Organisation of African Unity on Community Rights and the Control of Access to Biological Resources (OAU Model Law).[13]

Agenda 21 adopted by more than 160 States at the United Nations Conference on Environment and Development (UNCED) contains a whole chapter on indigenous peoples' concerns and makes a wide range of recommendations on how these people's rights should be protected. The Rio Declaration, which is an output of the UNCED, recognized the role of indigenous and local people in global efforts to achieve sustainable development under Principle 22. The CBD, which was signed by more than 150 states during the UNCED, recognized the rights and role of indigenous and local peoples in traditional knowledge and innovations.[14]

The TRIPS agreement, which is administered by the WTO, sets minimum standards for countries to follow in protecting intellectual property. Its objectives are stated in the preamble as "to reduce distortions and provide adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade. The growing awareness of the interdependence of biotechnology and biodiversity culminated in the fourth WTO Ministerial Conference, held in Doha, Qatar, in November 2001. The subsequent Doha Declaration stressed, among others, (i) that the TRIPS agreement be implemented in a manner supportive of public health by

[10] International Labour Organisation (ILO) Convention created in 1919 in the wake of Versailles Treaty, The United Nations Conference on Environment and Development (UNCED) 1992, WCED 1982 and the Conventions adopted from these conferences such as the CBD, TRIPS and the Rio Declaration.
[11] Khor (2002), op. cit., at 9.
[12] See Article 8(j) of CBD.
[13] See The OAU Model Law generally.
[14] Article 8(i) of CBD.

promoting access to existing medicines and research and development of new medicines, and (ii) that the WTO TRIPS Council examines the relationship between the TRIPS agreement and the CBD.[15] Particular attention was to the protection of traditional knowledge and folklore, the promotion of technological innovation, and the transfer and dissemination of technology in a manner conducive to social and economic welfare.

The OAU Model Law approved by OAU in its meeting of the Ministerial Council, followed by a Summit of Heads of State and government, in May – June 1998, aims to regulate access to biological and community knowledge and technologies so that, on one hand, access by the Modern Sector (mostly trans-national corporations and Northern initiators) is subject to the conditions agreed in the CBD, but on the other, the traditional access by indigenous and local communities is maintained.[16]

However, the World Trade regime has not confronted the implications of the TRIPS Agreement for the protection and use of traditional knowledge. On the whole, international debate on issues of intellectual property protection in general and rights in traditional knowledge in particular, is characterized by tension and inconsistency.[17]

1.1 Statement of the Problem

The recognition and requirement for state parties to provide mechanisms for the protection and promotion of IK under the Convention on Biological Diversity and OAU Model Law present numerous development opportunities to countries like Uganda. These include representing and maintaining knowledge, innovations and practices of indigenous and local communities and equitable sharing of benefits arising from the utilization of such knowledge. However, there is wide spread concern in the developing world over misappropriation of IK by agricultural and pharmaceutical companies from industrialized countries. These companies obtain patents on inventions based on genetic resources and traditional knowledge from the

[15] John Mugabi (2004), *Intellectual Property Protection and Traditional Knowledge: An Exploration in International Policy Discourse,* African Center for Technology Studies, Nairobi, at 10.
[16] See Article 3 and Article 4, of the OAU Model law.
[17] Mugabe (2002), op. cit., at 9.

developing world, while the latter is not only saddled with the cost of preserving biodiversity but also deprived of the opportunity to share in its benefits. The misappropriation of local communities' resources, their knowledge or the products of their knowledge is a violation of their rights, and poses a threat to the preservation of IK and conservation of biodiversity. Unfortunately, this misappropriation is legally backed by the TRIPS. In the circumstances, it is not clear to what extent Uganda's laws and policies can effectively conserve biodiversity and preserve IK.

1.2 Objectives of the Study

1.2.1 General Objective

The main objective of the study is to investigate the impact of the international and regional biotechnology laws on the preservation of IK in Uganda.

1.2.2 Specific objectives

The following are specific objectives of the study:

i) To analyze the tensions and convergences within the international regimes governing the preservation of IK and protection of IPR.
ii) To examine regional legal regime governing the preservation of IK and protection of IPR.
iii) To evaluate the adequacy of the existing legal and policy framework governing IK in Uganda in the face of the tensions between the CBD and TRIPS Agreement.
iv) To give proposals and recommendations for a more effective legal and policy framework for the preservation of IK and protection of IPR.

1.3 Research Questions

The main research question for the study is: How is the international and regional biotechnology legal regime affecting the preservation of IK in

Uganda? The following specific research questions have been posed to further guide the study:

i) What are the tensions and convergences within the international regimes governing the preservation of IK and protection of IPR?

ii) How adequate is the regional legal regime for protection and preservation of IK?

iii) How adequate is Uganda's current legal and policy framework on IK in the face of the tensions between the CBD and TRIPS Agreement?

iv) In what manner should the legal and policy framework critical to the preservation and protection of IK be relieved, revised, amended or what kind of laws and policies require introduction to facilitate the protection and preservation of IK?

1.4 Scope of the Study

The temporal scope of the study covers the period from the inception of the debate on the special attention to IK in 1982 up to the present. Particular emphasis has been laid on the discussion of the relevance of the CBD, the OAU Model Law and TRIPS mechanism dealing with IK and its relevance to Uganda. The geographical scope of the study includes NCRL since the organisation has already undertaken the incorporation of IK in its activities. The study also analyses the TRIPS and CBD with particular attention on the tensions and convergences existing within the two and the OAU Model law. In addition the study reviews Uganda's laws and policies as well as specific areas of IK application in Uganda.

1.5 Conceptual Framework

The problem of misappropriation of IK is having a toll on IK and biodiversity. This problem has been encouraged by the tensions existing between CBD and TRIPS which problem has been translated to domestic level creating an unfavourable environment for domestic laws and policies to preserve IK which has led to violation of local communities' right to their knowledge and no adequate sharing of benefits from their knowledge.

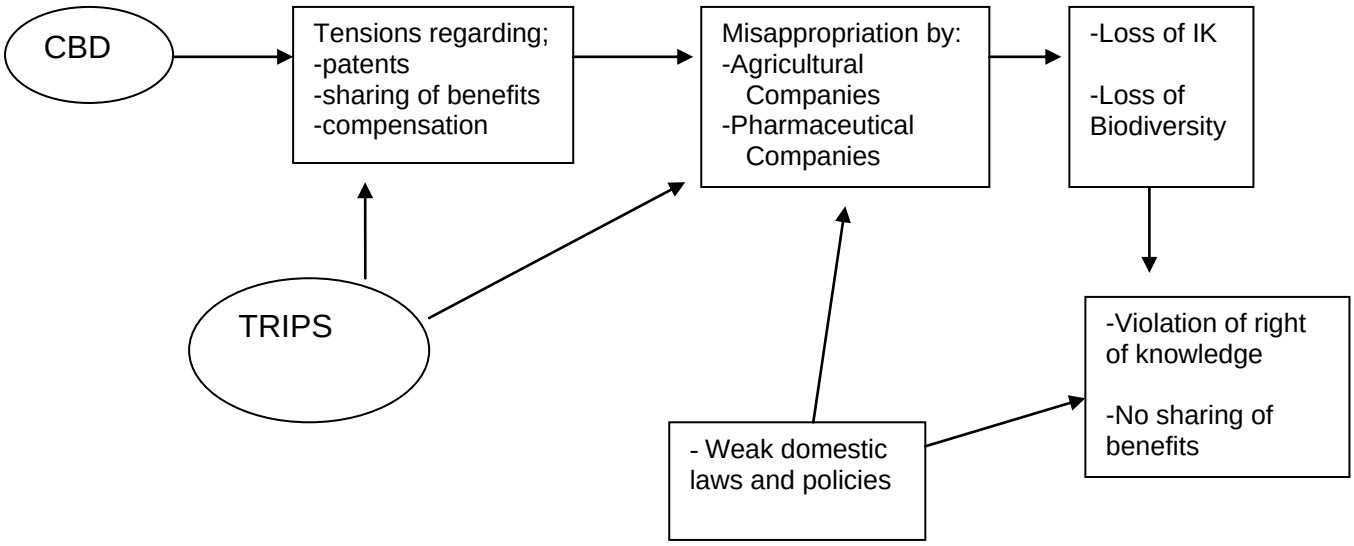


Fig. 1.1 Factors contributing to Misappropriation of IK

1.6 Literature Review

The debate on the global efforts to tackle issues of indigenous people's knowledge was first thrown into limelight in 1982 by the World Commission on Environment and Development (WCED).

Since then a number of publications and writings have been written. Most of these publications are general in nature and those that are specific, relate to other countries other than Uganda. With the conclusion of the CBD in 1992, under which the concept of traditional knowledge is provided, a number of scholars have released various publications but considering that traditional knowledge is still a relatively new concept, not all the legal regulatory, policy and institutional issues, especially as they relate to the specific circumstances of Uganda, have been addressed by such scholarly publications. This study has undertaken a comprehensive review of this literature and evaluated its relevance to the Ugandan traditional knowledge situation.

Martin Khor,[18] examines the role played by traditional knowledge in economic, social and cultural life and development, not only in traditional societies but also in modern societies. His study also focuses on among other issues, the threats to traditional knowledge and that the most complex set of problems facing the future and potential misappropriation of this knowledge from the local communities and indigenous peoples who should be its rightful owners. The above study is very useful to this study in two important respects. Firstly, it specifically discusses the importance of traditional knowledge in sustainable development and secondly it focuses on the potential dangers to this knowledge. However apart from the two issues examined, the study does not specifically recommend how traditional knowledge can be protected and promoted. The researcher's efforts are partly, a response to that need.

Edgar J. Asebey[19] discusses the traditional knowledge as viewed by the developed world and the historical development of the traditional knowledge at international level. The author also makes a case for the protection of this knowledge and the justly compensation to indigenous people for the use of their intellectual property. The above author's discussion of the above issue is general and is not specific on any given country. This study will address the concept of traditional knowledge, specifically with its relevance to the situation in Uganda.

Ronald Naluwairo and Eunice Musiime,[20] examine the farmers' views on genetically modified organisms. They state that intellectual property right regime associated with genetically modified organisms disregards indigenous and traditional knowledge and takes away farmers' food sovereignty and diminishes farmers' rights to save, re-use and exchange seeds and that the technology will make the farmers more dependent on multinational companies that will demand payment for the patented G M plants and seeds, and for chemicals and fertilizers. While this study is useful in terms of showing the genetically modified organism as potential threat to traditional knowledge and

[18] See Khor (2002), op. cit., note 1.
[19] Scientific Publication (1996), *Biodiversity, Biotechnology and Sustainable Development in Health and Agriculture: Emerging Issues*, No. 6560, Pan American Health Organisation WHO Washington DC at 195.
[20] ACODE (2004), *Parliamentary Public Hearing on Genetically Modified Organisms in Uganda: A New Approach to Soliciting People's Views on Emerging Issues in Society*, Acode Public Policy Dialogue Series No. 6, 2004.

the problems likely to be suffered by farmers as a result of patenting genetically modified plants and seeds, the study does not give any comprehensive assessment of the legal regime protecting and promoting traditional knowledge and its relevance to Uganda hence there is need for further study.

Charles R. McMarnis,[21] examines the international conventions sought to strengthen international intellectual property and the conflict between the CBD and TRIPS Agreement. The study further discusses the growing interdependence of biotechnology and biodiversity and the international initiatives taken to protect traditional knowledge. Although, the above study does not specifically mention Uganda, it is reasonable to assume that the anticipated traditional knowledge protection will apply to local communities / people in Uganda. The above study therefore helps to justify the urgency to take action to protect traditional knowledge and one way of doing this is to conduct research studies on the above issue.

John Mugabe,[22] examines the international debates surrounding TRIPS and the CBD and the fault lines dividing the technology – rich industrialized countries located in northern hemisphere, and the biodiversity – rich developing countries located in the tropics and southern hemisphere. He discusses the contribution made by developing countries and their traditional peoples to the global drugs industry and the potential dangers to the traditional knowledge. The author also assesses the legal protection of the traditional knowledge under the international convention. Although the study is relevant on the issue of international legal protection of traditional knowledge, it does not suggest solutions to the potential dangers to traditional knowledge and the study is at international level, thus there is need for further study.

[21] Charles R . Mc Marnis (2003),"Intellectual property, genetic resources and traditional knowledge protection thinking globally, acting locally." Lectures occasional papers 2003 – No. 1 accessed at www.law.west.educ / iglis / lecture papers / Mc Marnis R C Paper 2003 - 1

[22] Khor (2004), op. cit., note 15.

John Ntambirweki,[23] makes useful contributions to the study by highlighting the question of technology transfer, intellectual property rights and the Convention on Biological Diversity (1992) and the relevant laws in Uganda. Nevertheless, the observations made by the above author were in the context of the Convention on Biological Diversity and therefore do not directly address issues set out under the TRIPS Agreement regarding traditional knowledge. Consequently, while the above study makes a useful contribution to this research work, it does not effectively address the main objective of the research which is an evaluation of the protection and promotion of traditional knowledge measures set out in the CBD and TRIPS to Uganda.

The State of Environment Report for Uganda (2002)[24] gives progress on the action taken by Uganda in relation to biotechnology which is stated to include undertaking of biotechnology related research and development activities by NARO, strengthening human, institutional and infrastructural capacity in all aspects of biotechnology and undertaking awareness campaigns. Apart from a general outline of the progress made with regard to embracing biotechnology, the above report does not give any comprehensive assessment of traditional knowledge under the biotechnology regime and its relevance to Uganda. This study will critically examine the relevance of biotechnology regime in protecting and promoting traditional knowledge.

1.7 Methodology

The methodology of the study is mainly qualitative since most part of the research is library based. This is supplemented by quantitative method through several interviews with key informants who have knowledge about the issue of indigenous knowledge.

[23]Food and Agriculture Organisation (FAO) (1996), *Evaluation of the Implications of Ratifying the Convention on Biological Diversity in Uganda, Consultancy Report*, Food and Agriculture Organisation (FAO), May 1996 (Dar es salaam), 68 – 79.

[24] See National Environment Management Authority (2002), State of Environment Report for Uganda, NEMA, Kampala, at 188.

1.7.1 Research Design

The study employs an analytical qualitative research design. This research has been preferred because the nature of the study and the objectives thereof can best be achieved through the analysis of the international conventions, national laws and policies as well as empirical data from key informants all of which are qualitative in nature.

1.7.2 Population and Sampling

The population for this study includes officials from the relevant government departments like NEMA, NARO, UNCST, NCRL, organisations like ACODE and IUCN and the academia.

Purposive sampling has been employed to select key informants from the above population.

1.7.3 Data Collection

Two types of data have been collected; secondary data have been collected from review and analysis of International Conventions and Instruments, reports and other literature relevant to the objectives of the study. Also relevant laws and policies on IK in Uganda will be reviewed.

The second type of data is primary data which has been elicited from unstructured interviews with officials from various stakeholders.

Accordingly therefore two major methods of data collection have been used:

1. Document review and analysis has been used to collect secondary data from the libraries and internet.

2. In-depth interviewing has been used to collect primary data from the key informants. This has been with the use of an interview guide.

1.7.4 Data Analysis

Data from the interviews has been edited and the responses have been recorded according to the major themes and sub themes of the study.

Since data from these interviews was bulky because of the relatively small number of interviewees, analysis has been manual and has been effected through the matrix method.

Important verbatim quotes was recorded and used to illustrate certain points. This analysed data has been enriched by findings from secondary data.

1.7.5 Obstacles

Given the fact that traditional knowledge protection is still in its infant stages, I encountered a problem with regard to obtaining relevant information. In addition, some information from some libraries was outdated and not ideally stocked. The above problems have been tackled by supplementing the library research with internet originated materials.

Another obstacle has been people not willing to give interview time and failing to honour appointments. These obstacles have been solved by choosing different officials in the same organisation.

CHAPTER TWO

THE PRESERVATION AND PROTECTION OF IK: THE INTERNATIONAL PERSPECTIVE

This chapter examines the international legal regime for the protection and preservation of indigenous knowledge. It specifically analyses the Convention on Biological Diversity and the TRIPS Agreement, how they contradict each other and the measures so far taken to reconcile the two.

2.0 Introduction

What amounts to indigenous knowledge (IK) has been a subject of considerable discussion and although the debate is not yet completely resolved, there is now a generally acceptable agreement of what it entails. Indigenous knowledge comprises knowledge which has been developed by local communities over generations, but which still continues to be developed.[1] Indigenous Knowledge has also been defined as knowledge held, evolved and passed on by indigenous peoples about their environment, plants and animals and the interaction of the two.[2] Indigenous knowledge is used at the local level by communities as the basis for making decisions pertaining to food security, human and animal health, education, natural resource management and other vital activities. IK is a key element of the community identity of the poor and constitutes the main asset in their efforts to achieve control of their own lives. For these reasons, the potential contributions of IK to locally managed, sustainable and cost effective survival strategies can be very significant for the development process and should thus be promoted.[3]

The importance of IK in economic, social and cultural life and development has heightened in recent years as a result of the increased awareness of the environmental crisis; the role modern technologies,

[1] Ronald Naluwairo (2006), From Concept to Action: The Protection and Promotion of Farmers' Rights in East Africa. ACODE Policy Research Series, No. 15, 2006, ACODE, Kampala.
[2] Erica-Irene A. Daes (1998), Protection of intellectual property of indigenous peoples: some observations and current developments on the Protection of the intellectual Property of indigenous people, paper presented at WIPO Roundtable on intellectual property and indigenous peoples, Geneva, July 23 and 24 at 2.
[3] Gorjestani (2000), op. cit., at 1.

production methods and the recent increased awareness of the value of the biodiversity, the need for its conservation and sustainable use, for present and future agriculture and the provision of health care.[4] For example a report prepared by the Rural Advancement Fund International (RAFI) estimated that at the beginning of the 1990s, worldwide sales of pharmaceuticals amounted to more than US$ 130,000 billion annually.[5]

Amidst the importance and threats to indigenous knowledge is the conflicting international legal regime manifested through the various provisions of the TRIPS, (1994) and the CBD, (1994). The former for its control of global intellectual property rights that is, the right to use any innovation and the latter for its establishment of principles for the management of the world's biodiversity, the raw material of the life-sciences. This chapter discusses the legal regimes regulating indigenous knowledge at international level with particular emphasis on the tensions and convergences inherent in the TRIPS Agreement and the CBD.

2.1 Tracing the Roots of Indigenous Knowledge Protection

The role of indigenous knowledge in sustainable development and the need for its preservation can be traced to the establishment of the World Commission on Environment and Development (WCED) in 1982 by the United Nations General Assembly which devoted attention to issues of indigenous peoples, particularly their knowledge in the sustainable development process.[6]

The Commission observed that:

> *Tribal and indigenous peoples will need special attention as the forces of economic development disrupt their traditional lifestyles – lifestyles that can offer modern societies many lessons in the management of resources in complex forest, mountain and dry land ecosystems. Some are threatened with virtual extinction by insensitive development over which they have no control. Their traditional rights should be recognized and they should be*

[4] Khor (2002), op. cit., at 15.
[5] Rural Advancement Fund International (RAFI) (1994), op. cit., at 10.
[6] Mugabe (2004), op. cit., at 20.

given a decisive voice in formulating policies about resource development in their areas.[7]

The Commission called for "the recognition and protection of their traditional rights to land and other resources that sustain their way of life – rights they may define in terms that do not fit into standard legal systems.[8] It further recommended that local institutions through which indigenous and local peoples socialise and conduct their economic activities should be strengthened. Though it did not explicitly address the question of intellectual protection of traditional knowledge, it created a political framework for addressing these issues within environmental circles.

2.2 The United Nations Conference on Environment and Development (UNCED) 1992.

The UNCED which was held in 1992 in Rio de Janeiro, Brazil at the recommendation of WCED, addressed issues of intellectual property rights in traditional knowledge and innovations.[9] Agenda 21 which was adopted by more than 160 states at the UNCED contains a whole chapter on indigenous peoples' concerns and makes a wide range of recommendations on how their rights should be protected. Chapter 26 begins by noting that indigenous peoples and their communities, which represent a significant percentage of the global population, have developed a holistic relationship with the natural environment.[10] It observes that "indigenous peoples and their communities should enjoy the full measure of human rights and fundamental freedoms without hindrance or discrimination" and recommends that governments should adopt policies and/or legal instruments that will protect the intellectual and cultural property of indigenous peoples.[11]

Another output of UNCED, the Rio Declaration, also recognizes the role of indigenous and local people in global efforts to achieve sustainable development. Principle 22 states that:

---

[7] World Commission on Environment and Development (1987), Our Common Future, Oxford University Press, Oxford, at 12.
[8] Ibid., at 115.
[9] Mugabe (2004), op. cit., at 21
[10] Agenda 21.
[11] Agenda 21.

> *Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development*.

Another outcome from UNCED was the establishment of the Commission on Sustainable Development (CSD) within the United Nations Environment Programme (UNEP).[12] An ad hoc intergovernmental panel on Forests within the CSD considered a range of matters concerning sustainable forest management, including the role of 'traditional forest related knowledge' a significant area of work relevant to indigenous peoples' rights to ecological knowledge.[13]

The Forests Principles[14], Section 5 (a) of, recommended that:

> *National forest policies should recognise and duly support the identity, culture and the rights of indigenous peoples, their communities and other communities and forest dwellers. Appropriate conditions should be promoted for these groups to enable them to have an economic stake in forest use, perform economic activities, and achieve and maintain cultural identity and social organisation as well as adequate levels of livelihood and well-being*.

Section 12 (d) goes further to recommend that benefits arising from the utilization of indigenous knowledge should therefore be equitably shared with such people.

[12] Doxtater Micheal (1997), "Biological Diversity and Indigenous Knowledge". Research Paper 17 1997 – 98. Australian Parliamentary Library at 12.
[13] "Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests." Also adopted at UNCED.
[14] Ibid., at 12.

2.3 The Adoption of Convention on Biological Diversity (CBD)

The CBD, which was concluded on 5th June 1992, was the result of discussions at the Rio de Janeiro 1992 UNCED (the "Earth Summit") and directed towards a strategy for sustainable development, following negotiations that had commenced in November 1990 under the United Nations Environment Programme (UNEP).[15]

The CBD, administered by UNEP, established principles/objectives for the protection of the environment while ensuring ongoing economic development, empathizing the conservation of biodiversity, sustainable use, and fair and equitable benefit sharing of that use of genetic resources.[16]
The CBD preamble states that:

> *The close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components*.[17]

The CBD now has 188 parties, thus potentially providing for global coverage[18] and important acknowledgement of indigenous cultural and intellectual property rights. The CBD also recognises that nation states have the sovereign right to exploit their own resources and the authority to determine the conditions of access to them.[19]

Article 8 (j) is perhaps the most authoritative provision dealing with traditional knowledge. It provides that each contracting party shall as far as possible and as appropriate, "subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant to the

[15] Adair R John (1997), "The Bioprospecting Question: Should the United States charge Biotechnology Companies for the Commercial Use of Public Wile Genetic Resources" 24 Ecology Law Quarterly 131, at 142.
[16] Gibson Johanna (2004), "Traditional knowledge and the International Context for Protection", Vol. 1 Issue 1, March, Scripted at 68.
[17] Convention on Biological Diversity, 1992.
[18] Sutherland Jeffrey (1995), "Intellectual and Cultural Property Rights and Bio-Prospecting", 34 Development Bulletin 36, at 37.
[19] Articles 3 and 15 of CBD.

conservation and sustainable use of biological diversity and promote their wide application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.[20]

There are a number of limitations with Article 8 (j) in so far as the question of intellectual property rights in traditional knowledge is concerned. First, the Convention leaves the protection of the knowledge, innovations and practices of indigenous and local communities to the discretion of parties. As John Mugabe[21] has remarked, some parties to the CBD may infact invoke the language of Article 8 not to undertake any measures that protect indigenous and local peoples' knowledge, innovations and other legislation" and "as far as possible and as appropriate" was promoted during the negotiations for the CBD by governments that did not want to commit themselves to protection of indigenous peoples and their rights. Article 8 should be made mandatory not discretionary on parties, to achieve an effective measure of protecting indigenous knowledge.

Secondly, Article 8(j) does not talk of protection of the knowledge but merely calls on parties to "respect, preserve and maintain it." It does not guarantee indigenous and local people any rights in traditional knowledge. Although without explicit recognition of communal property rights, Article 8(j) is an important acknowledgment of authority in the community and an extension of rights in ownership beyond that which can be protected by existing intellectual property laws.

2.3.1 The Neem Case[22]

The Neem tree is an indigenous tree to India and other parts of south and South East Asia.[23] In 1990, the US granted W R Grace & Co. patents for extraction and storage processes of neem tree under patent no. 4946681 and in 1994 under US patent No. 5124349 for improving the storage stability of

[20] Convention on Biological Diversity, 1992.
[21] Mugabe (2004), op. cit., at 21
[22] Sidartha Prakash (1998), Country Study: India – Local Species (Tumeric, Neem and Basmati) WTO / WB, accessed on www.itd.org/issues/indiat.htm on 27th March 2007.
[23] Ibid., at 4.

neem seed extracts and for the storage of stable insecticidal composition comprising neem seed extract respectively.[24] The W R Grace patents provoked a national outcry and with a lot of pressure from various groups, the Indian government filed a complaint to the US patent office accusing W R Grace of copying an Indian invention. However in the end, the government of India withdrew its complaint as it realised that the US based company had in fact created a "new invention" for the neem extraction process and the patent was not based on traditional knowledge.[25] However this case raises a question of what is meant by a new invention? Does it mean that the modification of a process on an already known process amount to a new invention?

Probably the dissatisfaction from the above case is the one that led to a legal challenge by three opponents namely Vandana Shiva, Magda Aelvoet and the International Federation of Organic Agriculture Movements in 1995.[26] Their joint action claimed that the fungicidal properties of the neem tree had been public knowledge in India for many centuries and could not be patented in the USA by the Company Thermo Trilogy.[27] The European Patent office upheld a decision to revoke in its entirety a patent on a fungicidal product derived from seeds of the Neem. The main body of the patent was tested with regard to novelty, disclosure and inventive step as provided for under the TRIPS, and was revoked after failing to meet those requirements.[28]

Furthermore, the CBD recognises the importance of traditional use of genetic resources in the sustainable preservation of biological diversity. Article 10 (c) obliges each contracting party, as far as possible and appropriate, to

> *Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements.*

---

[24] Ibid., at 4.
[25] Ibid., at 4.
[26] Land Mark Victory in World's first case against Biopiracy!! European Patent Office upholds decision to revoke Neem Patent accessed on www.grain.org/bio-ipr/neem case.htm on 27th March 2007.
[27] Ibid.
[28] Ibid.

The CBD establishes access to the biological resources of developing countries and asserts that intellectual property rights must not conflict with the conservation and sustainable use of biodiversity,[29] the encouragement and development of exchange and the use of indigenous and traditional knowledge and technologies, in the spirit of the CBD.

Over time, the biodiversity regime's approach to intellectual property protection has evolved beyond the text of the CBD. The conference of the parties (COP), the convocation of CBD members that determines how the convention should be applied and implemented, has given detailed attention to harmonizing Intellectual Property Rights (IPRs) with the CBD's objectives. For example, the third COP held in Argentina in November 1996 agreed,[30] on the need to "develop national legislation and corresponding strategies for the implementation of Article 8 (j) in consultation with representatives of their indigenous and local communities".[31]

Paragraph 9 of Decision 111/14 recommended that a workshop on traditional knowledge and biodiversity be convened, prior to the fourth COP, to deliberate on the implementation of Article 8(j), assess priorities for the future work by parties and by COP, and provide advice to COP on the possibility of developing a work plan on Article 8 (j) and related provisions including modalities for such a work plan.

In response to this decision, a workshop on Traditional knowledge and Biological Diversity was held in Madrid, Spain from 24th to 28th November at the invitation of the Government of Spain.[32] At the Madrid workshop, there was consensus that Article 8 (j) of the CBD did not provide an adequate legal basis for protecting the knowledge and innovations of indigenous people.

Concerns on the intellectual property protection of traditional knowledge have occupied the agenda of the COPs. The third COP called for dissemination of case studies on the relationships between intellectual

[29] Articles 16.5, 17 (2) (Exchange of Information) and 18 (4) (Technical and Scientific Cooperation) of CBD.
[30] Decision, 111/14 of COP.
[31] Ibid.
[32] Mugabe (2004), op. cit., at 13.

property rights and the knowledge, innovations and practices of indigenous and local communities.[33]

The fourth COP, recognised the importance of making intellectual property-related provisions of Article 8 (j) and related provisions of the CBD and provisions of international agreements relating to intellectual property mutually supportive, and the desirability of undertaking further co-operation and consultation with the World Intellectual Property Organisation (WIPO).[34]

In 2000, the WIPO General Assembly agreed to establish an intergovernmental committee (IGC) on intellectual property and Genetic Resources, Traditional knowledge and Folklore.[35] At the second meeting held in December 2001, several developing countries proposed without objections from other participating countries, that WIPO should produce a document providing elements for model sui generis protection for traditional knowledge.[36]

On the whole, these findings are being made as a result of the recognition that the CBD does not contain adequate legal obligations to protect any property rights of indigenous and local peoples in their traditional knowledge.

2.4 The Agreement on Trade–Related Aspects of Intellectual Property Rights (the TRIPS Agreement).

One of the main results of the Uruguay Round of negotiations concluded in 1994 with the establishment of the World Trade Organisation (WTO), was a comprehensive international agreement on intellectual rights (TRIPS).[37] The TRIPS is a part of the WTO of 1994, the result of the Uruguay Round of trade negotiations of the General Agreement on Tariffs and Trade (GATT). Thus when a country becomes a signatory to the WTO to access the

[33]Ibid., at 13.
[34] Decision IV/9.
[35] International Centre for Trade and Sustainable Development (ICTSD) (2003), Intellectual Property Rights: Implications for Development. ICTSD, UNCTAD, Policy Discussion Paper, August 2003 at 123.
[36]Ibid.
[37] The TRIPS Agreement (2000), A Guide for the South: The Uruguay Round Agreement on Trade – Related Intellectual Property Rights, South Centre, Geneva, at 1.

subsequent trade advantages, that country must also implement the basic provisions set down by the TRIPS.[38]

Prior to TRIPS, an international framework for intellectual property standards was in operation in the form of the various instruments administered by the World Intellectual Property Organisation (WIPO).[39] The administrative role of WIPO was compromised by the fact that the Organisation had no means by which to enforce its decisions. After losing billions of dollars through infringement of its intellectual property throughout the World, the United States argued for international protection of intellectual property rights at the Uruguay Round of GATT.[40]

The TRIPS became effective January 1, 1995 and it requires member nations to comply with international treaties and conventions protecting intellectual property, including the implementation of such provisions in national laws.

By and large, developed countries have been the strongest promoters and defenders of TRIPS while developing countries were and still are in general skeptical about the claimed benefits for them of TRIPS.[41] This can be evidenced in the negotiations and adoption of TRIPS. A significant number of developing countries were opposed to TRIPS being part of the Uruguay Round of Negotiations which would result in the establishment of WTO.[42] After the subject entered the negotiating remit anyway, they tried to limit what they considered to be the more damaging aspects of the proposals that were made mainly by developed countries.[43]

The negotiation and adoption of the TRIPS Agreement has added new dimensions to the debate on intellectual property rights in traditional knowledge. It sets minimum standards for countries to follow in protecting intellectual property. Its objective is stated in the preamble as:

---

[38] Ibid., at 1.
[39] Gibson (2004), op. cit., at 67.
[40] Gibson (2004), op. cit., at 68.
[41] Khor (2002), op. cit., at 10.
[42] Countries like China, Brazil, India, Taiwan and Thailand had to be threatened by unilateral retaliatory trade sanctions to change their stand on the matter.
[43] Khor (2000), op. cit., at 10.

> *To reduce distortions and impediments to international trade and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade*.[44]

Countries that ratify the Agreement are expected to establish comprehensive intellectual property protection systems covering patents, copyright, geographical indications, industrial designs, trade marks and trade secrets. However, Article 1 of the TRIPS Agreement provides some flexibility in the implementation of the provisions of the Agreement. Paragraph 1 of the Article states:

> *Members may, but shall not be obliged to, implement in their domestic law more extensive protection than is require by the Agreement, provided that such protection does not contravene the provisions of the Agreement.*

According to Dutfield,[45] parties to the TRIPS Agreement can invoke this provision to enact legislation for protecting traditional knowledge since it does not prevent any member from enacting legislation to protect such a category of knowledge. The TRIPS Agreement requires member states to provide patent protection for "any inventions, whether products or processes, in all fields of technology, provided that they are new, involve and inventive step and are capable of industrial application."[46]

The most challenging problem especially for least developed countries with regard to the implementation of the TRIPS is how to allocate their scarce resources towards its enforcement, costs must be borne before the benefits accrue and for least developed countries, these are likely to be particularly erroneous. In addition, since regulators and courts in many developing countries are likely to lack experience in dealing with IPR–related matters, they will need financial and appropriate technical support to enable them implement the TRIPS.[47]

Table 2.1: Sample of IPR – related projects of the World Bank with costs

[44] Countries like China, Brazil, India, Taiwan and Thailand had to be threatened by unilateral retaliatory trade sanctions to change their stand on the matter.
[45] Cited in Mugabe (2004), op. cit., at 12.
[46] Article 27.1 of the TRIPS Agreement.
[47] ICTSD, UNCTAD Policy Discussion Paper. op. cit., at 49.

Country	Project Description	Cost
Brazil, 1997 – 2002	Train staff administering IP laws – component of Science and Technology Reform project	$ 4.0 million
Indonesia, 1997 – 2003	Improve IPR regulatory framework – component of Information Infrastructure Development project	$ 14.7 million
Mexico, 1992 – 1996	Establish agency to implement industrial property laws – component of Science and Technology Infrastructure project	$ 32.1 million

Source: Finger, JM and Schuler, P, "Implementation of Uruguay Round commitments: the development challenge", World Bank Development Research Group, Policy Research Working Paper 2215, Washington DC, World Bank, October 1999.

Table 2.2: Estimates of IPR reform in selected developing countries.

Country	Reforms needed	Cost
Bangladesh	Draft new laws, improve enforcement	$ 250,000 one-time plus $ 1.1 million annually
Chile	Draft new laws, train staff administering IP laws	$ 718,000 one-time plus $ 837,000
Egypt	Train staff administering IP laws	$ 1.8 million
India	Modernize patent office	$5.9 million
United Republic of Tanzania	Draft new laws, develop enforcement capability	$1.0 – 1.5 million

Source: UNCTAD, 1996,

According to Mugabe, the "inventive step" and "capable of industrial application" requirements are deemed "to be synonymous with the terms 'non–obvious' and 'useful' respectively. Traditional knowledge products fail the test for patenting on one, or all, of the "new", "inventive step" and "industrial application" standards. On the "new" standard they will probably fail because by its very nature traditional knowledge has been known for some length of time.

2.4.1 The Turmeric Patent Case[48]

In March 1995, two expatriate Indians at the University of Mississippi Medical Centre, Jackson, (Suman Das and Hari har P. Cohly) were granted a

[48] Siddarth (1998), op. cit., at 2.

US patent for turmeric to be used to heal wounds.[49] The Indian Council for Scientific and Industrial Research (CSIR) filed a case with the US Patent office challenging the patent on the grounds of, prior art i.e. existing public knowledge. CSIR said turmeric has been used for thousands of years for healing wounds and rashes and therefore its use as a medicine was not a new invention.[50] The claim had to be backed by written documentation claiming traditional wisdom. CSIR went so far to present an ancient Sanskrit text and a patent published in 1953 in the Journal of the Indian Medical Association.[51] The US Patent office upheld the objection and cancelled the patent after it failed to satisfy three criteria of novelty, non-obviousness and utility.[52]

However, this case raises some concern. The fact that the patent was initially granted shows the difficulty of checking in one country whether public knowledge about an idea already exists in another country. Often the check involves a search by the patent office for written evidence which is hard especially among developing countries without computerized databases, pooled information and international or regional co-operation while in most cases indigenous knowledge is unwritten accelerating the appropriation of indigenous knowledge since there is no written evidence of its existence.

Article 27.3 (b) of the TRIPS has generated controversy and opportunity. It states that:

> *Members may also exclude from patentability… plants and animals other than micro organisms, and essentially biological and microbiological processes. However, members shall provide for the protection of plant varieties either by patents or by an effective sui generic systems or by a combination thereof. The provisions of this sub-paragraph shall be reviewed four years after the entry into force of the WTO Agreement.*

[49] US Patent No. 5, 401, 504.
[50] Siddarth (1998), op. cit., at 3.
[51] Ibid.
[52] Ibid.

First, there is controversy as to what [53]"*an effective sui generis*" regime is. "Effectiveness" of the *sui generis system* is not defined. The nature of a *sui generis* system is also left to individual members to determine thus the term *sui generis* may offer a wider range of policy choices because it could presumably include any arrangement for plant varieties that offers recognition to innovators with or without monetary benefit or monopoly control.[54]

Secondly, multinational companies and developed countries are likely to promote plant breeders' rights as the most effective sui generis system. Plant breeders' rights may be used as a measure of effectiveness under the TRIPS Agreement, thereby limiting the ability of developing countries to develop a system to properly reflect their own social and economic needs. It could also erode the prospects of ensuring that the benefits from the use of plant genetic resources are shared in a fair and equitable manner.

Indeed the Indigenous people's statement on TRIPS Article 27.3 (b), noted that,

> *We are aware of the various implications of the TRIPS Agreement on our lives as indigenous peoples… it will undermine food security since the diversity and agricultural production on which our communities depend would be eroded and would be controlled by individual private and foreign interests…*[55]

The TRIPS Agreement[56] requires that a patent applicant disclose sufficient and clear information regarding the invention so that another person "skilled in the art" would be able to reproduce the product or complete the process. This is a standard patent law condition. This condition of information disclosure could erode the rights of indigenous and local people because it would make traditional knowledge easily available to commercial entities.[57] Given the absence of financial and organizational competencies of indigenous and local peoples to monitor and enforce patents in modern

[53] Mugabi (2004), op. cit. at 13.
[54] Ibid., at 13.
[55] Indigenous Peoples' Statement on TRIPS 27.3 (27.3): No to Patenting of Life. Indigenous Peoples' Statement on the TRIPS of the WTO Agreement, Geneva 25 July 1999 para.5.
[56] Article 29.1
[57] Indigenous People's Statement on TRIPs 27.3 (b) op. cit., para 5.

economic space, their knowledge could easily be used without due compensation.[58]

2.5 Conflict between the Private Rights of IPR Holders under TRIPS and the Community Rights of Traditional Knowledge Holders under CBD

In the preamble to TRIPS, it is recognised that intellectual property rights are private rights.[59] Under TRIPS[60], a patent confers exclusive rights on its owner to prevent third parties from making, using, offering for sale, selling or importing the patented product. IPR owners are taken to be natural or legal persons and the exclusive rights are conferred on the private individuals or private legal entities. This makes it an offence for others to make, sell or use the product or to use the process except with the owner's permission, which is usually given only on licence or on the payment of royalty. This system of exclusive and private rights clashes with the traditional social and economic systems favoured by the CBD in which local communities make use of and develop biodiversity including crops and medicinal plants. The contribution and nature of traditional knowledge and of the indigenous and local communities that own it is recognised by Article 8 (j) of the CBD which calls for respect, preservation and maintenance of knowledge, innovations and practices of indigenous communities.[61]

Also Article 15 of CBD spells out conditions for access to genetic resources, requiring that access shall be subject to prior informed consent of the contracting party providing such resources.[62] However, the Contribution and nature of community knowledge and community rights are not recognised in the TRIPS Agreement. Instead, the patent system endorsed by TRIPS favours private individuals and institutions, enabling them to acquire "rights", including rights over the products or knowledge whose development was mainly carried out by the local communities. This TRIPS position facilitates the appropriation of the knowledge and resources of indigenous and local

[58] See observation on Turmeric patent case op. cit.,
[59] Khor (2004), op. cit., at 56.
[60] Article 8.
[61] Khor (2004), op. cit., at 57.
[62] Article 15.5 of CBD.

communities and bio-piracy which is counter to the principles and provisions of the CBD that oblige countries to recognise local community rights and fair benefit – sharing. Indeed, one of the main objectives of establishing the CBD was to counter the possibility of misappropriation or bio-piracy, whilst one of the likely effects of TRIPS is to contribute to this practice.

2.5.1 The "Arogyapacha" Case [63]

The case involved an energy-giving plant used by the Kani tribal people in the Southern Indian State of Kerala. "Discovered" accidentally by members of an Indian scientific expedition in the early 1990's, the Plant, known by the Kani as *arogyapacha*, was tested by a local research institute TBGRI.[64]

The institute then obtained a license from the Kerala Drug Control Department to Produce and market a tonic based on the plant. It was named Jeevani (derived from the Sanskrit word meaning "life"). The product was patented in 1996, following which the research institute transferred the production license to a local drug manufacturer.

Although the Kani Trust received half the license fee and royalty and the project was hailed as the first experiment of benefit sharing with a local community in India and perhaps the whole world, the Kanis have been restricted in exploitation of the arogyapacha plant by the Indian forest department under a draconian forest law.[65]

2.6 The treatment of knowledge holders or innovators using modern and traditional technology by the CBD and the TRIPS.

Whilst the CBD adequately recognizes the nature and crucial role of traditional knowledge and practices in biodiversity conservation and use[66], the TRIPS is constructed in ways that effectively deny this and instead rewards

[63] "Indigenous People demand more over Medicinal Plants" reported in "*The Sunday Monitor*" April 16, 2006 at 16.
[64] Ibid.
[65] Max Martin (1998), How to Sell a Wonder Herb. Down to Earth, Vol. 7 No. 12, Centre for Science and Environment (CSE), New Delhi accessed on www.oneworld.org/cse/htmi/dte/dte 98 1115/ dte - cover. htm. on 28th March 2007.
[66] See Article 8(j) of the CBD.

additions to knowledge made through modern technology. For example, the criteria for a patent claim for an invention under article 27.1 of the TRIPS are that it must be new, involve an inventive step and be capable of industrial application.[67] The requirement of an identifiable inventor dismisses the knowledge systems and the innovations of indigenous peoples and farmers because they innovate communally, accretionally over time, sometimes inter-generationally. Their innovations are for the common social good and are not intended for industrial application. The requirement that patent specifications must provide evidence of an inventive step or an act that would not be obvious to one skilled in the art has a limitation when the same criterion is applied to indigenous knowledge. This is because it is not only difficult to identify a specific act of creation in the area of indigenous knowledge but also because such acts may have taken place in the distant past.[68] More to that the lack of economic self-sufficiency of many traditional communities, the unequal power relations between them and the corporate world, and the high cost of litigation, would make it very difficult for them to protect their knowledge through the patent system. The costs of preparing and prosecuting a patent application, and of periodically renewing the patent after it has been granted, are well beyond the financial means of most communities, so using the patent system is still likely to be prohibitively expensive for them.[69] The TRIPS definition therefore takes no account of the knowledge systems of the indigenous peoples.

2.7 The system of prior informed consent of states and communities under the CBD versus unilateral patent actions by private companies and researchers under the TRIPS Agreement.

The CBD states that[70] "access to genetic resources shall be subject to prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that party." Thus, intending collectors of

[67] Khor (2004), op. cit., at 58.
[68] ICTSD, UNCTAD, Policy Discussion Paper op. cit., at 61.
[69] Ibid.,at 61.
[70] Article 15.5.

biological resources or of knowledge relating to these have to provide sufficient information of their work and how it is intended to be used, and obtain consent before starting the work.[71]

This implies that consent can also be denied, and that consent is conditional on mutually agreed terms for benefit sharing between the collector, the state and local communities. The prior-informed-consent requirement is thus a measure to prevent the misappropriation of resources and knowledge, and to facilitate fair benefit- sharing.

In TRIPS, there is no provision that applicants for patents or other IPRs over biological resources have to obtain prior informed consent. There is thus no recognition in TRIPS of the rights of the country in which the biological resource or knowledge of its use is located. Thus, patent applicants can submit claims on biological resources or knowledge to patent offices in any country (that recognizes such patentability) and the patent offices can approve the claims without going through a process even of checking with the authorities of the country or countries of origin.[72] In addition, patent law tends to be formulated in ways that tend to be highly supportive of corporate interests and the demands of traditional peoples and communities are rarely if ever taken into account when patent regulations are reformed.[73] Thus, while the CBD has established the principle and obligation of prior informed consent as a check against misappropriation or bio piracy, TRIPS on the other hand, facilitates the possibility of such misappropriation by not recognizing the need for and thus omitting a mechanism of prior informed consent.

2.7.1 The Hoodia Plant Case[74]

The Hoodia Plant case pitted the San population of Southern Africa – supported by a coalition of NGO's against western and other pharmaceutical

[71] Khor (2004), op. cit., at 59

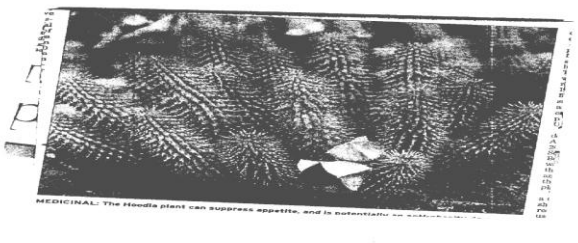
[72] Ibid., at 60.

[73] A good example is the unwillingness of government policy makers to take seriously proposals that patent applications, where appropriate, should provide evidence if prior informed consent of indigenous peoples whose knowledge has been used by the applicants for their innovations. The European Union rejected such a proposal when drawing up the 1998 Directive on the Legal Protection of Biotechnological inventions.

[74] *The Sunday Monitor* April 16, 2006, reported by Panos Features: "*Indigenous People Demand more over Medicinal Plants." at 16.*

firms. The Hoodia is a succulent plant found in the Kalahari Desert that can suppress appetite, and could potentially be used as an anti-obesity drug.[75] The plant's active ingredient was patented by a South African research institute in the late 1990s. It gave a license to a British Company, which in turn sold additional development and marketing licenses to Pfizer, the multinational drug company, and the food giant Unilever.[76] After a protracted dispute, a deal was struck with the South African research institute in 2003 whereby the San People of South Africa, Namibia, Botswana, Zambia and Angola would receive a percentage of the royalties from the sales of any future drugs produced from their knowledge of the Hoodia plant. The San based their claims on a CBD Provision, which says that states should get a share of benefits resulting from the commercial use of local genetic resources and traditional knowledge.

Figure 1: The Hoodia Plant which can suppress appetite, and is potentially an anti-obesity drug.



Source: The Sunday Monitor April 16, 2006 at 16.

However, all is not lost as far as the protection of indigenous knowledge is concerned, because the adoption of the TRIPS after the CBD has added new dimensions to the debate on intellectual property rights. The TRIPS Agreement sets minimum standards for countries to follow in protecting intellectual property. Its objective is stated in the preamble as:

[75] ICTSD, UNCTAD Policy Discussion Paper. op. cit., at 78.
[76] Ibid., at 78.

> *…to reduce distortions and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade.*

Countries that ratify the Agreement are expected to establish comprehensive intellectual property protection systems covering patents, copyright, geographical indications, industrial designs, trade marks and trade secrets.

However, Article 1 of the TRIPS Agreement[77] provides some flexibility in the implementation of the provisions of the Agreement. It states in paragraph 1 of the article that:

> *Members may, but shall not be obliged to, implement in their domestic law more extensive protection than is required by the Agreement, provided that such protection does not contravene the provisions of the Agreement.*

Thus, parties to the TRIPS Agreement can invoke this provision in order to enact legislation for protecting traditional knowledge. The absence of any mention of traditional knowledge in the agreement does not prevent any member from enacting legislation to protect such a category of knowledge.

2.8 Developments in World Intellectual Property Organisation (WIPO) On Protection of Indigenous Knowledge

The World Intellectual Property Organisation (WIPO) is a United Nations Specialised agency that promotes the protection of intellectual property worldwide. WIPO works with its 176 Member States and, when appropriate, with other organisations. The Global Intellectual Property Issues Division;

[77] Article 1 (on the Nature and Scope of the Obligations).

which is responsible for issues related to indigenous peoples, is located at WIPOs headquarters in Geneva, Switzerland.[102]

There have been a number of initiatives in recent years by WIPO to address the inadequacy of international law in relation to the protection of indigenous people's intellectual property. In 1992, the working group on Indigenous Populations and the WIPO held a technical conference on indigenous peoples.[78] Participants recommended that the United Nations develop more effective measures to protect the intellectual and cultural property rights of indigenous peoples.

In 1998 and 1999, a series of nine fact-finding missions on traditional knowledge, innovations and creativity were undertaken.[79] WIPO fielded the missions as part of its study of current approaches to, and future possibilities for, the protection of intellectual property rights of those who hold traditional knowledge, including indigenous peoples.

In July 2000, a draft report on all the fact-finding missions was published for public comment on the WIPO website and in paper form.[80] WIPO also published a study on the role of intellectual property rights in the sharing of benefits arising from the use of biological resources and associated traditional knowledge. The study was commissioned jointly with the United Nations Environment Programme (UNEP). The most recent development is that the member states of WIPO have established an inter-governmental committee on Intellectual Property and Genetic Resources, Traditional knowledge and Folklore to discuss these subjects. Discussions will focus on three primary themes: access to genetic resources and benefit sharing; the Protection of traditional knowledge, whether or not associate with those resources; and the protection of expressions of folklore.

[78] Ibid., at 2.
[79] Ibid., at 3.
[80] Ibid.

2.9 Conclusion

The negotiating history of the CBD and the TRIPS explain the tensions within the two, while the North wanted to hang on to its advantages in biotechnology particularly genetic engineering and the biodiversity rich-South which wanted technology transfer in exchange. The North insisted that technology transfer should be linked to the Northern form of IPRs in order to protect the interests of their private sectors, particularly their trans-national corporations. Conversely, the South wanted to make sure that IPRS do not damage the prospects for the conservation and sustainable use of its biodiversity.

The issue of IPRs over biological materials and genetic resources has serious implications for sustainable development. There is concern that Article 27. 3(b) of the TRIPS Agreement and its implementation will open the door to an eventual flood of patents on plant varieties and traditional knowledge. The monopolization of private and corporate rights over knowledge and biological materials is likely to expand thus eroding the rights and traditional practices of farmers and local communities.

Since the majority of patents are registered in developed countries, and this trend is likely to continue, the balance of benefits from the use and control of technology will shift even more from developing to developed countries as the IPRS system is applied to biological resources. There is a need for review of various Articles of the CBD and the TRIPS which seem to contradict each other and to bring them in conformity so that the protection of biological biodiversity and in particular the preservation of traditional knowledge without compromising with the right to obtain patents by the genuine applicants.

Also provisions relating to benefit sharing of biological resources and knowledge should be reviewed so that a uniform system is established for equal share of benefits by the knowledge holders and those intending to improve on that knowledge so that a clear balance is attained to prevent bio piracy and traditional knowledge isolation, and encourage improvement of such knowledge.

The world of the life-sciences, and particularly of its parents TRIPS and the CBD, is dominated by controversy and misunderstanding. The ability to fundamentally alter life forms presents threats and hopes that are both more

fundamental and greater than the world has seen before. The developing world desperately needs what the developed world has to offer: money, technology and stability. The developed world also needs what the developing world has to offer: new markets and raw materials. The key is to find a way to advance that avoids the old abuses of the colonial era. The choice really is whether to move forward into a new era or to just cyclically great bio-colonialism as a reincarnation of the old geo-political order.

CHAPTER THREE

THE PRESERVATION AND PROTECTION OF INDIGENOUS KNOWLEDGE AT THE REGIONAL LEVEL: AFRICA'S EXPERIENCE

This chapter examines the protection and preservation of indigenous knowledge at regional (African) level and specifically analyses the OAU Model law and how it relates with the CBD and the TRIPS agreement. Africa's struggle to preserve its indigenous knowledge at international level is reviewed and how it has affected the outcome of some legal regimes and the failure of some talks like the Doha talks.

3.0 Introduction

Africa is endowed with a rich biodiversity with estimated 25 per cent of global biodiversity in terms of ecosystems, species and genetic variety.[1] For example, it is estimated that tropical and sub-tropical Africa have 40,000 – 45,000 higher plant species with South Africa alone having an estimated 20,000 indigenous plant species.[2] Despite its biotic capital, Africa is still the world's poorest region, having experienced rapid economic decline for the past three decades with most countries registering marginal, economic growth and per capita incomes falling considerably.[3] These problems are associated with environmental degradation, particularly loss of biodiversity, habitat destruction, loss of species and genes, and associated disruption of local socio-cultural systems.[4]

Indeed during the World Summit on Sustainable Development (WSSD) 2002 which was held in Johannesburg, South Africa, the second South – South Bio piracy Summit concluded that Africa stands to lose huge benefits from its biodiversity for lack of legal protection against bio piracy.[5] African countries and their traditional peoples have contributed considerably to the global drugs industry. Twenty plant species from the tropics generate about

---

.[1] John Mugabe and Clark N, (1998). *Managing Biodiversity; National Systems of Conservation and innovation in Africa*, Acts Press, Nairobi, at 7.
[2] World Conservation Monitoring (WCMC*) (1992), Global Biodiversity; Status of the Earth's Living Resources*. London: Chapman and Hall, at 66.
[3] Mugabe and Clark (1998), op. cit., at 8.
[4] Ibid.
[5] Integrated Regional Information Networks (IRIN) News (2007), "Focus on bio piracy in Africa" accessed at: www.irinnews. org/report. asp? Report ID = 29628, on 10th April 2007.

US$ 4 billion for the US economy.[6] The search for these plants has been accompanied by appropriation of traditional knowledge. For example in the 1970s the US National Cancer Institute (NCI) invested in extensive collection of *Maytenus buchananii* shrub from Simba Hills of Kenya. NCI was generally led by the knowledge of the Digo communities indigenous of the Simba Hills area who had used the plant treat cancerous conditions for many years[7]. The US NCI collected more than 27.2 tonnes of the shrub from a game reserve in the Simba Hills for testing under a major screening programme. The plant yields *maytansine*, which was considered a potential treatment for pancreatic cancer. All the material collected was traded without the consent of the Digo, neither was there any recognition of their knowledge of the plant and its medicinal properties.[8]

Africa has always maintained, conserved and nurtured its biological resources through generations of local and indigenous communities – particularly through the activities of farmers, hunters, fishermen, women and local healers whose livelihood depends almost exclusively on these resources.[9]

This chapter will examine Africa's efforts to preserve her indigenous knowledge at international and regional level, initiatives undertaken by the continent to promote indigenous knowledge (if any) and the relevant case studies on indigenous knowledge preservation from the member states.

3.1 Africa's Struggle to Preserve Indigenous Knowledge at International Level

The African continent under the auspice of the Organisation of African Unity (OAU) an active participant in the Uruguay Round as well as the Earth Summit in Rio De Janerio (1992) which enunciated the Convention on

---

[6] John Mugabe, Patricia Kameri–Mbote and Daneil Mutta (2001), *Traditional Knowledge,Genetic Resources and Intellectual Property Protection: Towards a New International Regime*. International Environmental Law Research Centre (IELRC) Working Paper 2001 – 5 at 3. Accessed on http // www.ieirc.org/ content/wol05.pdf

[7] Ibid.

[8] Ibid.

[9] Ekpere A John (2000), *TRIPS ,Biodiversity and Traditional Knowledge: OAU Model Law on Community Rights and Access to Genetic Resources*, Discussion paper presented at an ICTSD Multi-Stakeholder Dialogue on Trade, Environment and Sustainable Development, Libreville, July 13 – 14, 2000 at 2.

Biological Diversity which was an important international effort to address major issues essential for the continued survival of local communities as it relates to the conservation of biological diversity.[10] The establishment of the CBD was prompted mainly by developing countries, Africa inclusive amidst growing concern about the rapid worldwide loss of biodiversity, a recognition of the important role of traditional knowledge and the rights of local communities that developed and hold the knowledge, and the need to regulate access to and the sharing of benefits deriving from the conservation and sustainable use of biodiversity.[11]

Issues on the implementing of the Convention and its several protocols, are reflected on the yearly agenda of the session of Council of Ministers and Summit of Heads of States and government of the OAU now AU.[12]

The process of drafting the TRIPS Agreement can hardly be considered to have been a real 'negotiating' process for Africa, for the exercise hardly involved any give and take.[13] Until 1989, developing countries refused to enter into detailed negotiations on standards and in practice, the actual drafting process was confined to a very few countries.[14] Furthermore, in line with general practice within GATT no record of TRIPS discussions was made, and the various proposals have no recognised source and only the participants directly involved know how and why certain provisions were adopted or not as the case may be.[15]

Africa like other developing countries / regions was opposed to most of the provisions of the TRIPS and this was manifested in 1999 during the review of Article 27.3 (b) as mandated by the original negotiations.[16] During the review process, the African group insisted that countries should be allowed to meet their obligations under other international treaties especially the Convention on Biological Diversity.[17] They called for the wording of TRIPS

[10] Ibid., at 2.
[11] Khor (2004) ,op. cit., at 55.
[12] Ekpere (2000), op. cit., at 3.
[13] The TRIPS Agreement: *A guide for the South*. op. cit, at 7.
[14] Ibid.
[15] Ibid.
[16] Helena Paul and Ricarda Steibrecher (2003), *Hungry Corporations: Transnational biotech Companies Colonise the Food Chain.* Zed Books, London and New York, at 35.
[17] Ibid.

to be changed to recognise explicitly the right of countries to 'satisfy their need to protect knowledge and innovations in farming, agriculture and health and medical care of indigenous people and local communities'.[18] Thus on the international arena African countries favour the position of CBD as against the TRIPS' position as far as promotion and protection of indigenous knowledge is concerned.

3.2 The OAU Model Law on Community Rights and Access to Biological Resources

African countries under the auspices of Organisation of African Unity prepared a model law on community rights and access to biological resources which was approved in 1998 at a ministerial meeting of the OAU held in Ouagadougou, Burkina Faso which was adopted as the draft model legislation.[19] The Council of Ministers in adopting the Draft Model legislation decided that government of member states:[20]

(i) Give due attention as a matter of priority to the need for regulating access to biological resources, community knowledge and technologies and their implication for intellectual property rights as entrenched in the international trade regime of the TRIPS Agreement.

(ii) Adopt the OAU Draft Model Legislation on access to biological resources and call on member states to initiate the process at national level involving all stakeholders in accordance with national interest and enacted into law;

(iii) Initiate a process of negotiation among African countries to formulate and adopt an African Convention on Biological Diversity (revised Algiers Convention 1998) with emphasis on conditions for access to biological resources and protection of community rights;

(iv) Develop an African Common Position to safeguard the sovereign rights of member states and the vital interests of their local

[18] Ibid.
[19] Ekpere (2000), op. cit., at 4.
[20] Ibid.

communities and forge alliance with other countries of the South on the revision of TRIPS in 1999.

The model legislation was developed with a view to:[21]

Prevent the disruption of African rural life and food production which could result from the loss of seeds, traditional medicinal plants and natural fibres and colours;

Promote and ensure the sharing of the benefits that biodiversity, knowledge and technologies of Africa's local communities provide to multi-national corporations, mostly from the north;

Safeguard the vital interests of Africans against the consequences of globalization; and

Help OAU member states which are members of WTO to fulfil one of their obligations-that of Article 27.3(b) of the TRIPS Agreement.

The core peculiarities of the OAU Model law with regard to indigenous knowledge are:

Article 5 of the Model law which creates community rights and provides for the implementation of those rights. This is largely based on articles 8 (j), 10 (c), 10 (d) and 15.5 of the CBD.[22] According to Article 5, the communities have rights to give written informed consent prior to any access to biological resources, knowledge and or technology. Any access without prior informed consent and consultation with local community is deemed invalid.[23] The main elements of community rights in the model law, contained in Part IV have been summarized by Tewolde and Edwards (2000).[24] The communities have rights to:

- the protection in perpetuity (for all time) of the biological resources in their areas, their knowledge and technologies.
- grant access only after they have been given full information and weighed it in advance of granting their consent (prior informed consent);

[21] Id., at 5
[22] Khor (2004), op.cit., at 46.
[23] Article 5(2) and (3)
[24] Quoted in Khor(2004), op. cit., at 46.

- refuse access when they want to, and to restrict access when they feel that giving it in full could affect them negatively;
- develop, keep, use, exchange, sell or share biological resources without any interference by governments, or private natural or legal persons who claim IPRS protection; and
- obtain at least a 50 percent share of benefits obtained from any commercial use of the biological resources in their areas, or benefits obtained from their knowledge and / or technologies.

Article 9 states that "patents over life forms and biological processes are not recognised and cannot be applied for"; and that the collector shall not apply for patents over life forms and biological processes under this legislation or any other relevant legislation.

Part V of the model law, on farmers' rights recognises and protects these rights as stemming from the enormous contributions of farmers to conserving, developing and using plant and animal genetic resources. Farmers' varieties are recognised and shall be protected under the rules of customary practices and laws of local farming communities. Farmers' rights include the right to protect their traditional knowledge, to obtain and equitable share of benefits arising from the use of plant and animal genetic resources, to participate in decision-making at national level on policies relating to genetic resources, to save, use, exchange and sell farm-saved seed or propagating material, and to use a new breeders' variety protected under this law to develop farmers' varieties. Farmers however cannot sell farm saved seed of a breeders' protected variety on a commercial scale.[25]

Plant breeders' rights[26] are rights in recognition of efforts and investments by persons / institutions in developing new plant varieties. The plant breeders' rights comprise an exclusive right to sell (or license others to sell) plants or seeds of that variety, and to produce seeds of that variety for sale. These rights are however conditioned: they are subject to conditions on farmers' rights; and there are many exemptions, including the right of others

[25] Khor (2004), op. cit., at 47.
[26] covered in Part VI of the OAU Model Law.

to grow and use the plants for non-commercial purposes, and the right of farmers to save and use seed for subsequent crops.[27]

3.3 The OAU Model legislation – complimentary and conflict with CBD and TRIPS

The OAU model legislation and the CBD compliment each other while there are apparent contradictions with TRIPS.[28] In particular, the OAU Model legislation seeks to regulate access to biological resources and develop community rights. It also seeks to ensure that community rights are protected and given a controlling role in the regulation of access and benefit sharing consistent with the spirit of the CBD.[29]

An important characteristic of the WTO is that its agreements should not undermine agreements made by the same parties in other fora. Yet TRIPS tend to annul the sovereign rights of states over ownership of biological resources through the use of patents to confer individual and corporate ownership of life forms.[30] The Model legislation and the CBD clearly deny patent on living organisms.

The principle of sovereign right of state, authority to determine and regulate access,[31] prior informed consent,[32]and collective rights of local communities[33] assured in CBD and the model laws are not recognised by TRIPS. Whereas the model law in compliance with the CBD, places the public interest and common good over private property and vested interest, the TRIPS does exactly the opposite.

Thus it can safely be argued that the model law and the CBD on the one hand and the TRIPS on the other represent two significantly separate multilateral approaches to the utilization of living biological resources in general and preservation of indigenous knowledge in particular with the former favouring the communal utilization and sharing of indigenous knowledge whereas the latter favours the private use of indigenous

[27] Part VI of the model law;
[28] Ekpere (2000), op.cit., at 7.
[29] Ibid.
[30] Refer to Article 27.3 of the TRIPS.
[31] Article 4.1 of Model law, c.f. Article 15.6 of CBD.
[32] Article 4.2 of Model law, c.f. Article 15.5 and 8(j) of CBD.
[33] Article 5 of the Model Law, c.f. Articles 8(j) , 10 (c) and (d), 15.5 of the CBD.

knowledge as private property to be owned and used by the owner at the exclusion of all others without his/her permission. Indeed this conflict has led to bio piracy of indigenous knowledge as manifested by the *Brazzein case* discussed below.

3.4 The Brazzein Patent Case

Brazzein is a protein five hundred times sweeter than sugar derived from a West African berry.[34] Unlike other non-sugar sweeteners, brazzein is a natural substance and does not lose its sweet taste when heated, making it particularly valuable to the food industry.[35] It came to the attention of industry after a US researcher observed people and animals eating the berries in West Africa.[36] Researchers at the university of Wisconsin have been granted US patents 5,326,580, (July 5 1994), 5,346,998 (September 13, 1994), 5,527,555 (June 18, 1996) and 5,741,537 (April 21, 1998), as well as European Patent 684995 for a protein isolated from the berry of *Pendtadiplandra brazzeana*, the genetic sequence coding for it an the transgenic organisms where it has been added.[37] Subsequent work has focused on making transgenic organisms that produce brazzein in the laboratory, thereby eliminating the need for it to be collected or grown commercially in West Africa.[38] The university of Wisconsin reports that corporate interest in brazzein is strong with the worldwide market for sweeteners reported to be $ 100 billion a year.[39]

The university is quite clear that brazzein is "an invention of a UW – Madison researcher" and there are no plans for benefit- sharing with the West African people that actually discovered and nurtured the plant which is clear example of bio piracy on indigenous knowledge. Currently, Nektar Worldwide and Prodi Gune, a spin-off of pioneer Hi-Bred International, the world's largest seed company, have genetically engineered maize that produces large

[34] Genetic Resources Action International (GRAIN), July 2000*:"Of Patents and Pirates: Patents on Life the Final Assault on the Commons"*. Accessed on www.grain.org / bio – ipr / brazzeine case. Htm on 10th April 2007.
[35] Ibid.
[36] Ibid.
[37] Ibid.
[38] Ibid.
[39] Ibid.

amounts of brazzein.[40] They estimate that future demand will be met with one million tonnes of genetically engineered maize instead of any source from West Africa.

This is a clear example of how the patent system completely disregards indigenous knowledge and innovation of local people by permitting researchers to claim to have invented something they merely isolated and reproduced in a laboratory. By allowing patents on these kinds of 'discoveries', the patent system promotes bio piracy this is because despite being the inspiration and origin for brazzein neither the West African country of Gabon nor its people will share the benefits since the university of Wisconsin scientists won four US patents on the brazzein protein between 1994 – 1998. West Africa has a right to protect and benefit from its indigenous resources and knowledge and so the WTO, UNCTAD, FAO, CBD and NGOs which have all connived by keeping silent have a role to play here. Amidst this confusion Africa has no uniform intellectual property system as member states operate different systems of ARIPO and OAPI as a result of their colonial history.

3.5 The Intellectual Property Systems in Africa

There are two regional intellectual property systems in Africa, one is the African Regional Industrial Property Organisation (ARIPO) for the Anglophone countries and the Organisation Africaine de la Propriete Intellectualle (OAPI) for the Francophone Countries.[41] OAPI countries have a uniform patent law where as ARIPO is made up of a Treaty and a protocol to the Treaty.[42] The treaty basically sets out the administrative organs and financial obligations of its member states and it is constitutional in nature.[43] ARIPO currently has sixteen (16) members and its offices are in Harare, Zimbabwe where the established Patent Documentation and Information Centre (PIDCO) provides members and potential member states with

[40] Ibid.
[41] Mugabe et al (2001), op. Cit., at 7.
[42] Ibid.
[43] Ibid.

technological information available from patent and patent-related documentation.[44]

The ARIPO Protocol regulates industrial property rights and each ARIPO member state is implicitly allowed to operate distinct national patent regimes.[45] The ARIPO regime has three distinct features on patentable subject matter. First, the regime has no concept of non-patentability,[46] second, it adopts the absolute novelty criteria for patentability[47] and third, both the concept and criteria for patentability are conditional upon national patent laws.[48] Consequently, the scope and content of the subject matter of ARIPO Patent protection is determined by the national law of the designated state and the national patent law is the final determinant of the enforceability of patent rights and the effectiveness of the grant of an ARIPO Patent.

The ARIPO Protocol,[49] patents are granted for inventions upon fulfillment of three criteria of novelty, inventive step and industrial applicability and the fact that ARIPO regime applies absolute novelty criteria makes it inappropriate for protecting traditional knowledge and folklore.

The OAPI Patent is a single patent which extends to each member country and there is a single patent law that is applied by courts of each country.[50] The OAPI Patent office is in Yaounde in the Republic of Cameroon and the patent system is a "first to file system" and to be patentable inventions must be novel on an absolute basis, involve an inventive step and be capable of use in industry / agriculture.[51]

It should be noted that despite Africa's active participation in formulation and adoption of different conventions for protection of indigenous knowledge and the existing intellectual property systems, statistics available

---

[44] Kameri –Mbote Patricia (2005), *Intellectual Property Protection in Africa: An Assessment of the Status of Laws, Research and Policy Analysis or Intellectual Property Rights in Kenya*. International Environmental Law Research Centre (IELRC) working paper 2005 – 2, at 18.

[45] Ibid.

[46] The system that ARIPO adopts is that everything is patentable unless the designated state legislation stipulates otherwise.

[47] The regime confers on its member states the power to refuse to acknowledge an ARIPO Patent on the grounds that the invention is not patentable in accordance with the Protocol.

[48] Patent cannot be granted under the national law of that state because of the nature of the invention.

[49] Section 3 (9).

[50] Peter James (2007), *Regional Patent Systems in Africa*, Open Forum Papers paper mc/1.6 – Accessed on www.ficpi.org/library/montecarlo 99/patents on 15th April 2007.

[51] Ibid., at 6.

indicate that most patent applications emanate from North America and Europe while Africa accounts for less than two percent of the total patent applications (see Table 1). This begs the question whether the investment African countries have made in the area of intellectual protection is bearing any fruits.

Table 3.1: Sources of Patent Co-operation Treaty Patent Applications, 1998 and 2000.

Region	Country of Origin	No. patents filed, 1998	No. patents filed, 2000	% of total 1998	% of total 2000
North America	United States	28,356	38,171	42.3	42
	Canada	1,315	1,600	2.0	1.8
Total North America		29,671	39,771	44.3	43.8
Western Europe / EU	Germany	9,112	12,039	13.6	13.2
	United Kingdom	4,383	5,538	6.5	6. 1
	France	3,322	3,601	5.0	4.0
	Sweden	2,554	3,071	3.8	3.4s
	Netherlands	2,065	2,587	3.1	2.8
	Switzerland	1,293	1,701	1.9	1.9
	Finland	1,092	1,437	1.6	1.6
	Italy	925	1,354	1.4	1.5
	Denmark	624	789	0.9	0.9
	Austria	421	476	0.6	0.5
	Norway	394	470	0.6	0.5
	Others	1,101	1,463	1.6	1.6
Total Western Europe / EU		27,286	34,526	40.7	38.0
East Asia and China	Japan	6,098	9,402	9.1	10.3
	Rep. of	485	1,514	0.7	1.7

	Korea				
	China	322	579	0.5	0.6
Total East Asia and China		6,905	11,495	10.3	12.6
Eastern Europe	Russian Federation	429	590	0.6	0.7
	Others	402	627	0.6	0.7
Total Eastern Europe		831	1,217	1.2	1.3
Australasia	Australia	1,048	1,627	1.6	1.8
	New Zealand	178	264	0.3	0.3
Total Australasia		1,226	1,891	1.9	2.1
Total Middle East		707	925	1.1	1.0
Total Rest of Asia		146	473	0.2	0.5
Total Latin America / Caribbean		209	252	0.3	0.3
Total Africa		26	398	<0.1	0.4
Total number of applications		67,007	90,948	100.0	100.0

Source: *International Centre for Trade and Sustainable Development & UNCTAD, Intellectual Property Rights: Implications for Development, Policy Discussion Paper, UNCTAD – ICTSD Project on IPRs and Sustainable Development, Geneva (2003).*

It should be noted that most of the patent application applied for and granted in developed countries originate from Africa and the patent holders claim such patent as their own without compensation to indigenous people getting any benefits from their knowledge. One such example is the Namibian harpago discussed below.

3.6 The Case of Namibian Harpago

Harpago also known as Devil's Claw or Grapple, is a medicinal plant from Namibia, South Africa and Botswana which has been used by indigenous communities to treat a number of ailments, including arthritis.[52] Recent intellectual property rights claims on harpago include choongwae pharmaceutical of South Korea (US 5929038), Finzeberg Nachfolger GMBH (WO 9744051), and Willmar Schwabe, Germany – part owner of Natures Way Company (W 09734565)[53]. Harpago's popularity in northern markets is growing and US consumers pay more than US$ 700 per kilo of harpago extract.[54] Most harpago on the international market comes from Namibia, where collectors are paid between US$ 0.16 and US$ 0.66 per kilo of dried plant material. Harpago leaves Namibia at between US$ 2.30 and $ 3.28 per kilo and based on these figures, more than 99% of the value of Harpago trade is captured by European and US companies.[55] Of the approximately 1% that accrues to Namibia, only about 0.06% typically goes to the farming families that collect the plant. While the African families are agitating for decent prices, being kept in the supply chain and adding more value to the product within the country, herbal medicine companies are busily patenting methods medicine companies to make extracts and pharmaceuticals from harpago, making sure that the farmers' aspirations will not be realised.

This case is a proof of that there is very little to show in new and substantial benefits accrued by Africa new in general or by indigenous people from their knowledge and the original intention of the CBD and the OAU Model law, which talk about benefit sharing are increasingly being hijacked by an exclusively commercial approach and there is doubt whether the world's primary custodians of biodiversity, the indigenous communities are getting a fair deal.

[52] Genetic Resources Action International (GRAIN) (2000), "*Global trade and biodiversity in conflict"* Issue no. 4 at 1.
[53] Ibid.
[54] Ibid.
[55] Ibid.

3.7 Other Initiatives undertaken by Africa to Protect Indigenous Knowledge

3.7.1 The WTO Meeting in Seattle (1999)

At the WTO meeting in Seattle, the African group took the lead in opposing the patenting of life and protecting community rights over their agricultural and biological heritage.[56]

Africa's principal environmental concern in Seattle was to ensure that the TRIPS agreement would not allow the patenting of life forms and biological processes, or interfere with traditional farming practices such as harvesting, exchange and open sale of seeds and produce.[57] The US proposal to extend intellectual property protection to Genetically Modified Organisms (GMOS) was strongly opposed by developing countries and the EU endorsed a Kenyan recommendation to require that any WTO regulations on the issue be consistent with the CBD and the International Undertaking on Plant Genetic Resources, which protect the rights of peoples in developing countries to their indigenous knowledge of genetic resources.[58] African countries also strongly supported proposals to exempt essential medicines from TRIPS rules that restrict wide, cost-effective distribution.[59]

3.7.2 Communique of the African group in the meeting of the 5th conference of the parties of the CBD 15-26 May 2000, Nairobi, Kenya.

This meeting was held by the African group in preparation of WTO Ministerial Conference in Doha, Qatar, where the implementation of the TRIPS Agreement and the review of Article 27.3(b) were to be considered.[60] This communication to the TRIPS Council focused on whether to extend the scope of Article 27.3(b) to include issues such as biodiversity, traditional

[56] IRIN News (2000), op. cit., at 3.
[57] Fleshman Martin (1999), "WTO impasse in Seattle spotlights inequities of global trading system," Africa Recovery, 1999 at 6.
[58] Ibid., at 7
[59] Ibid.
[60] ICTSD (2001), *TRIPS, Biological Resources and Public Health: Documents and discussion papers* presented at the ICTSD-African group roundtable on 12 June 2001, at 2.

knowledge and benefit sharing and whether and how to harmonise the TRIPS Agreement and the CBD.[61]

The African group at the fifth meeting called upon all parties, governments and international organisations to interalia;[62]

Enact national laws, which will put into effect the African Model Legislation, the provisions of which are designed to recognise community rights and farmers' rights over their bio-diversity, knowledge and technologies and to ensure that access to biological resources and the equitable sharing of benefits arising from the use of such resources are in accordance with the fundamental principles and objectives of the CBD;

Protect the rights of the local communities and their wealth of biodiversity, knowledge and technologies from piracy through continuing to fight to have community and farmers' rights internationally recognised[63] and,

For enhancing the effectiveness and fairness of service from the wealth of community, biodiversity, knowledge and technologies, ensure that the benefits derived from the sustainable use of this wealth accrue to the local communities who have generated and conserved that wealth, and who still continue to generate, conserve, manage and sustainably use it.[64]

This communication later became the position of African Group at the Doha Conference where it presented Africa's common position regarding the review of TRIPS Agreement article 27.3(b) and the protection of indigenous knowledge.

3.7.3 The Doha Development Agenda

This is a document which was adopted by the WTO meeting at Doha on November 14, 2001 which supported multilateral trade agreements and suggested rules to improve global marketing especially in fields such as agriculture, services and intellectual property.[65] At the conference, the

[61] Ibid.
[62] Para. 16.
[63] Para. 19.
[64] Para. 18.
[65] Address to the WTO General Council Plenary Session by Shengman Zhang, Managing Director, World Bank, Cancun, Sept.10, 2003.

attending ministers adopted the "Doha Ministerial Declaration" in which they agreed that;

> *Special and differential treatment for developing countries shall be an integral part of all negotiations…to enable developing countries to effectively take account of their development needs including food security and rural development.*[66]

At the council's meeting on 4-5 June, the African group submitted an advance copy of a joint communication titled "Taking forward the review of article 27.3(b) of the TRIPS Agreement" aiming to assist in finalizing the long standing issues relating to the review of provisions of Article 27.3(b) of the TRIPS Agreement.[67]

The African Group expressed concern that the review of Article 27.3(b) has not been finalized having started way back in 1999. The Group further noted that the protection of traditional knowledge particularly those originating from developing countries is an important means of addressing poverty and is rightly a matter of equity and due recognition for the custodians of the genetic resources and the traditional knowledge and that any protection of traditional knowledge will not be effective unless and until international mechanisms are found and established within the frame work of the TRIPS Agreement.[68]

The Group further noted that the TRIPS Agreement has gaps in the sense that it has not provided adequate and equitable means to prevent patents mainly in developed members that have amounted to and resulted in the misappropriation of traditional knowledge mainly from developing members.[69]

The Group pointed out among areas without common understanding the misappropriation of genetic resources and traditional knowledge. It suggested that access contracts can be useful in regulating the activities of researchers and gatherers to curb misappropriation and that databases for patent offices can be used in examining patent claims to determine whether

[66] South Centre (2005), Compilation of the Formal African Proposals to the WTO, at 1
[67] IP/C/W/404 at 1.
[68] Ibid.
[69] Ibid., at 2.

they meet the requirements of novelty, inventiveness and usefulness in minimizing misappropriation of resources.[70]

Though the African delegations were later disappointed at the conference with the drafts produced and the instruments adopted for not satisfactory reflecting their positions including the choice of facilitators, the scheduling and participation in certain meetings which led to the collapse of the negotiations, the African Group among the lessons learnt is that a condition precedent for being heard is a strong and unwavering common resolve on their part to stand by the common positions and to see to it that they are fully reflected in the drafts produced and the instruments finally adopted.

3.7.4 The WTO Ministerial Conference in Cancun

The fifth WTO ministerial conference in Cancun, Mexico from 10 to 14 September 2003 was part of Doha round of negotiations which aimed to avoid and foreclose the pitfalls of the previous Doha conference in November 2001.[71] During this meeting, developing countries especially from Africa expressed concern about their traditional rights over natural resources and traditional knowledge against bio piracy. They noted that many pharmaceutical and biotechnological products are patented by multinational firms without sharing its benefits with the indigenous communities.[72]

Developing countries were of the opinion that the TRIPS Agreement does not prevent members from taking measures to protect public health and that by bringing traditional knowledge under the TRIPS system of intellectual rights, some degree of protection from bio piracy should be provided to the indigenous communities.[73]

The Cancun meeting later collapsed due to lack of consensus between developed countries and developing countries especially on issues like agricultural trade liberalization, but despite failure to reach agreement the September ministerial meeting saw the emergency of a coalition of developing

[70] Ibid., at 4.
[71] Fair Trade Alliance (FTA) (2003), *"Cancun: Defining and Asserting the National Interest*," at 5.
[72] Ketkar Vijay (2003), *Deadlock at Cancun: A New Beginning*. Institute of Peace & Conflict Studies Publication Issue brief no.12, at 2.
[73] Ibid., at 2.

that helped block the adoption of an agreement which they viewed as largely ignoring their interests thus there is hope that in future negotiations developing countries will not be reduced to the role of supporting actors in discussions that affect their future development prospects.

Africa's Science and Technology Consolidated Plan of Action

Africa has developed a consolidated action plan that integrates the programmes and projects of the New Partnership for Africa's development (NEPAD) into the structures of African Union.[74] The overall goals of this consolidated plan are to enable Africa to harness and apply science, technology and related innovations to eradicate poverty and achieve sustainable development; and to ensure that Africa contributes to the global pool of scientific knowledge and technological innovations.[75]

The Programmes of the Plan are organized into clusters which will focus interalia on, biodiversity, biotechnology and indigenous knowledge.[76] Special emphasis will be placed on promoting Africa's indigenous knowledge base, particularly their role in biodiversity conservation and their contribution to food production, health and reducing environmental degradation.

By formulating an action plan, Africa is mapping the way forward to protect and promote indigenous knowledge while at the same time avoiding bio piracy of traditional knowledge by companies and individuals from the developed countries.

3.8 Conclusion

In a world in which developed countries have long been plundering the biodiversity and traditional knowledge of Africa, the OAU model law was seen as a beacon to bring forth justice and equity. Almost a decade after its enactment, most member countries have not adopted the law in their national laws due to lack of logistical and technical support and lack of political will while bio piracy still goes on in many African countries unabated. Despite several initiatives taken by the African continent to promote and protect their

[74] GAIA (2007), "Africa Continent Develops Common Service and Technology Action Plan" at 1 accessed on www.allafrica.com / stories / 200703290331.html on 13th April 2007.
[75] Ibid.
[76] Ibid.

indigenous knowledge, the developed countries have not stopped their quest for indigenous knowledge to be turned into another commodity inequitably traded between the poor and the rich, therefore strong community rights that recognise the collective nature of local innovation and shield biodiversity and indigenous knowledge from privatization, must be developed and implemented while member states need show more political will by adopting and implementing the various conventions they are party to.

CHAPTER FOUR

THE PRESERVATION AND PROTECTION OF INDIGENOUS KNOWLEDGE: ANALYSIS OF LEGAL AND POLICY FRAMEWORK IN UGANDA.

This Chapter examines the status of indigenous knowledge in Uganda, and analyses the legal and policy framework for the preservation and protection of IK. It also looks at case studies from those government bodies and private sector organisations which have incorporated indigenous knowledge into their activities, and specifically these are Uganda National Council for Science and Technology (UNCST), The Natural Chemotherapeutics Research Laboratory (NCRL) and Traditional and Modern Health Practitioners Together Against AIDS and Other Diseases (THETA).

4.0 Introduction

Indigenous knowledge has been used by the people of Uganda from time immemorial. However, that knowledge has not been officially recognised and integrated into the national socio-economic development process.[1] The major constraints facing the comprehensive integration and recognition of indigenous knowledge are lack of documentation, which affects the validation and quantification of its contribution to the national economy and the awareness of policy-decision makers. In other words, there is no national programme on IK.[2] Indeed the process of the recognition and integration of IK did not exist until 1999 when the Ministry of Health inserted it into their policy and strategy development. Around the same time, the Uganda National Council of Science and Technology (UNCST) organized the first workshop which issued the *Kampala Declaration on Indigenous Knowledge for Sustainable Development*, and which was followed by the National Agricultural Research Organisation (NARO) which recognised IK in its

[1] Aluma J R W, Akwang AA and Mwesigwa V T (2001), Report on Integrating Indigenous Knowledge in Agricultural Research Workshop. Compiled from National Agricultural Research Organisation (NARO) workshop held at Uganda International Conference /centre, Kampala, Saturday June 16, at 4.
[2] Ibid.

strategy and medium term plan and the plan for the modernization of Agriculture (PMA).[3]

NARO set up a task force which developed a proposal to integrate IK into the agricultural research development and dissemination process and with the assistance from the World Bank, organized a workshop in June 2001 comprising 103 participants from government ministries, research and education institutions, NGO's/CBO's and IK practitioners to create wider awareness on the importance of IK in Uganda.[4]

Uganda is rich in its biodiversity, both terrestrial and aquatic. Furthermore, the country has a comprehensive system of protected areas under the management of the Forestry Department and the Uganda Wildlife Authority (UWA).[5] Despite this, the 2000 report on the state of Uganda's biodiversity showed that the rate of biodiversity loss was high, estimated at 1 percent per year.[6] As concern about the loss of biodiversity rises in Uganda, so too has the appreciation for the knowledge of the indigenous peoples about the natural resources they have lived with for centuries and to which the majority of the people rely on for either food or medicines.[7]

4.1 Application of Indigenous Knowledge in Uganda

In Uganda indigenous knowledge has been used by local communities for many generations and it is mostly used in agriculture through farming systems incorporating traditional knowledge systems, traditional medicine, environment management, management of HIV/AIDS (treatment of opportunistic diseases using local medicine like diabetes, diohearria, and high fever), agricultural biodiversity and local storage methods.[180]

Activities where indigenous knowledge has been applied include; [181]

[3] Ibid.
[4] Ibid.
[5] Nanyunja K Robinah (2003), The Role of Indigenous Knowledge in Biodiversity Assessment and Monitoring: A Case Study in Uganda. Makerere University Institute of Environment and Natural Resources, Kampala, at 1.
[6] Ibid.
[7] Ibid.

Primary health care using traditional healers, maternal health and traditional medicine under the rescuer project in Iganga district which has been outstanding and as a result has been adopted in some 15 or so other districts of Uganda;

Indigenous knowledge is also integrated in childhood development programme financed by the World Bank as part of 1K mainstreaming policy and upscale of 1K utilisation for sustainable development and poverty eradication;

1K integrated in agricultural research training and production through the civil action for promotion of organic agriculture;

Livestock disease treatment by Mbarara University where the presidents stock is treated using such indigenous products as Phytollaca dodecandra for prevention of worm infestation watering dams.

4.2 Review of the Legal and Regulatory Framework

In selecting the frame work to be reviewed emphasis has placed on the ones that provide for indigenous knowledge specifically and biological resources generally before coming out with the appropriate list.

4.2.1 The Constitution of the Republic of Uganda 1995

Article 2 of the Constitution, provides that the Constitution is the Supreme law of Uganda and shall have binding force on all authorities and persons throughout Uganda. Objective XIII of the national objectives and directive principles of state policy under the Constitution provides that the state shall protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda. This may include protection of indigenous knowledge since it's the knowledge of local/indigenous people concerning interalia plants and their surrounding environment. Objective XVII provides that the state shall promote sustainable development and utilization of natural resources in a sustainable manner. Through sustainable development, indigenous knowledge can be preserved for the present and future generations thus this objective is very relevant.

Under Article 245, parliament is entrusted with powers to protect and preserve the environment, manage the environment for sustainable development and promote environmental awareness. By specifically giving parliament the power to enact laws concerning the environment, parliament is obliged to enact laws for the protection and preservation of indigenous knowledge which is essential to the protection of the environment. However despite the mandate granted to Parliament it is worth to note that more than a decade after the enactment of this provision, Parliament has not taken any step to put in place an Act to protect and promote indigenous knowledge while the bio piracy problem is on the rise. The 1995 Constitution lacks specific provisions on indigenous knowledge which has led to indigenous knowledge issues being given peripheral attention compared to the recent emerging issues like biotechnology and bio safety. Nevertheless, it contains some provisions on the environment which have a direct impact on biodiversity and in turn indigenous knowledge. Thus the Constitution lays a firm foundation for the protection and conservation of biodiversity generally at the national level and thus we need to look at specific Acts of Parliament to establish how indigenous knowledge is accorded protection.

4.2.2 National Environment Act[8]

This is the principal legislation governing the environment in Uganda. The Act specifically deals with the question of protecting biological diversity.[9] The Act deals with the question of In-situ and Ex-situ conservation, and impliedly protects against biodiversity loss, which includes indigenous knowledge as a result of the activities of modern biotechnology.[10]

Under S.42 (b) (vi) the authority shall in consultation with the lead agency (which lead agency is not yet established under the current Ugandan laws and policy) issue guidelines for integrating traditional knowledge for the conservation of biological diversity with mainstream scientific knowledge. This gives the mandate to the National Environment Management Authority to promote and protect indigenous knowledge by issuing guidelines and is the

[8] Cap: 153 Laws of Uganda 2000.
[9] S.41.
[10] Ss.42 & 43.

main and only provision in the Act that directly deals with indigenous knowledge. However the National Environment Act has failed to use its mandate to issue guidelines on indigenous knowledge and the fact that Ik is mentioned once in the whole of NEA is a clear sign that its not a priority requiring promotion and protection in environmental issues and thus it has been left exposed for exploitation with no legal means of protection. Section 41 lays down guidelines for biodiversity conservation. These guidelines include determining the components of biodiversity that are threatened with extinction, the potential threats to biodiversity, and how to remove and mitigate them. This in itself protects indigenous knowledge from the negative effects of modern biotechnology such as bio-piracy. However it should be noted that indigenous knowledge has been neglected in favour of recent issues super imposed on developing countries like Uganda such as promotion of genetically modified organisms and this could be due to the fact that the donors who fund such activities are less interested in promoting indigenous knowledge knowing that its likely to out compete their products while the lack of protection makes it easier for it to be exploited for the benefit of foreign funders.

Under Section 44 (1), the authority is given general powers to issue guidelines on any matter, which it considers necessary for the better management of the country's genetic resources. This section also restates the principle of national sovereignty of Uganda towards her genetic resources. This section can be invoked to protect indigenous knowledge since its one of the genetic resources of Uganda though it would have served a better purpose if IK was mentioned among the country's genetic resources because to many it is still not considered a natural resource to be exploited to the country's advantage.

A review of the National Environment Act reveals that while it generally provides for a comprehensive framework in relation to environment management, indigenous knowledge issues are not given any special consideration but peripheral attention which makes it vulnerable to bio piracy. Therefore there is need to enact a specific law to address the lacuna apparent in the NEA.

4.2.3 The Patents Act[11].

The Patents Act is the premier legislation governing patents and the transfer of technology in Uganda. The Act governs the grant, registration, and protection of patents. The Act establishes a Patent Registry which registry is given powers to register any patent.[12] According to the Act, a Patent relates to an invention and an "invention" means a solution to a specific technological problem and may be or relate to a product or process.[13] An invention does not include discoveries and scientific and mathematical theories,[14] and "plant or animal varieties or essentially biological processes for the production of plants or animals other than biological processes and the products of such processes".[15] The Act also excludes schemes, rules, or methods for doing business, performing purely mental acts or playing games, as well as methods for treating humans and animals. Products for use in the treatment of diseases may, however, be inventions. Mere presentation of information does not amount to an invention.[16] This condition excludes indigenous knowledge from protection under the Act since in most cases it's passed on from generation to the next generation by mouth without any documentation in place. According to Section 8 of the Act, "An invention is patentable if it is new, involves an inventive step and is industrially applicable". The invention is deemed to be new if it is not anticipated by prior art. It is not anticipated by prior art if it has not been discovered before anywhere in the world and has not been disclosed in any manner, unless such disclosure has been made by the applicant or his or her predecessor in title within the twelve months before application.[17]

An "Inventive Step" means an improvement in existing knowledge which would not have been obvious to a person skilled in the art, who is an expert in knowledge, subject matters of the application.[18] The invention is required to be industrially applicable if it can be used in industry

[11] Cap. 216 Laws of Uganda 2000.
[12] S.3.
[13] S. 7 (1).
[14] S.7 (2) (a).
[15] S.7 (2) (b).
[16] S.7 (2), (d) & (e).
[17] S.9.
[18] S.10.

technologically.[19] It should be noted that the requirements for achieving the patentability of an invention are rather onerous. The requirements of novelty, the inventive step, and industrial application before a patent is issued are difficult to achieve as far as indigenous knowledge is concerned, since it is communally held and not attributed to any member and is passed on to the next generation, while requirements of cost and formal documents to be filed are next to impossible to meet by the local communities. It should also be noted that under the Patents Act, plants cannot be patented but only a formulae is supposed to be. This requirement when applied to indigenous knowledge render it unpatentable product because in most if not all instances local communities use traditional knowledge especially traditional medicine in form of concoctions without following a strictly laid down formula so the Act sets the standards too high for them to attain before they can be accorded protection.

The emphasis on active ingredients by the patent system advances not only the western scientific culture but also advocates the "mercantilism" and "exractivism" with which the western science and its intellectual allies have besieged the traditional knowledge systems. This means that the stringent requirements set by the current patent system over look the indigenous knowledge and takes the view that there is no innovation under the indigenous system all of is failure by the western culture to appreciate that the indigenous peoples of former colonies had and still have something special in themselves.

The application of "inventive step" as a condition before patenting to disqualify indigenous knowledge takes a view that it is static and does not improve with time, to the contrary there are new discoveries under the indigenous system and improvement on the already existing system but the since the knowledge is not recorded it would be practically impossible to prove such an improvement thus disqualifying indigenous knowledge not because of lack of innovativeness but lack of proper records.

[19] S.11

4.2.4 The Agricultural Seeds and Plant Act.[20]

The Agricultural Seeds and Plant Act provides for the protection, regulation, and control of plant breeding and variety release, importation of and quality assurance of seeds and other planting material.[21] The Act establishes a National Seeds Industrial Authority, whose function includes,[22] "…advising Government on the administration of the national seed industry and coordination and monitoring of the private and public seed sectors". A variety release committee is established under S.4 (1) to study and approve new varieties of seeds and their release and entry. The Act further provides for the establishment of a national seed certification service whose principal duty is to register and licence seeds either imported or produced locally[23].

Section 7(4) provides that the Authority may grant plant breeder's rights for a variety of seeds on the recommendation of the variety release committee. The Act does not identify plant breeder's rights. In view of the fact that Uganda is not a party to any of the conventions relating to plant breeder's rights, it is difficult to determine the content of those rights in Ugandan law.

4.2.5 The National Drug Policy and Authority Act[24]

This Act provides for the establishment of a national drug policy and a National Drug Authority to ensure the availability, at all times, of essential, efficacious and cost-effective drugs to the entire population of Uganda, as a means of providing satisfactory health care and safeguarding the appropriate use of drugs. Section 2(1) of the Act provides for the national drug policy which, inter alia, is intended to improve the registration of drugs and to intensify research on all types of drugs, including traditional medicines. The Act[25] establishes the National Drug Authority whose functions under Section 5 include dealing with the development and regulation of the pharmacies and drugs, to approve the national list of essential drugs and to encourage research and development of herbal medicines. Under Section 41 (1) of the

[20] Cap. 28, Laws of Uganda 2000.
[21] John Ntambirweki (1996), Evaluation of the Implications of Ratifying the Convention on Biological Diversity in Uganda. FAO, Dar es Salaam, at 77.
[22] S.3 (a) & (d) of the Act.
[23] Ss. 6 & 7.
[24] Cap. 206, Laws of Uganda 2000.
[25] Section 3(1).

Act, the National Drug Authority shall encourage research by persons carrying on research and development in herbal and other medicines and where appropriate take such medicines into production as a component of the drug supply.

This Act is relevant to the promotion and protection of indigenous knowledge since most of this knowledge concerns the use of traditional drugs and persons to administer those drugs although the Act pays lip service to issues of traditional medicines and in practice registration of herbal medicines has not been achieved.

More to that, the Act puts the staff of National Drug Authority in a conflict of interest position, the fact that pharmacists are supposed to approve herbal medicine while at the same time they are supposed to carry out research and develop new drugs as professionals means that there is a likelihood of rejecting herbal medicine on frivolous grounds and turn around to improve on the concoction and present it as theirs. This in essence makes a business rival market and approves a colleague's product at the expense of his products which tantamount to disclosure of trade secrets which may be used to out compete the knowledge holders and is likely to scare away those who intend to register their herbal medicine.

There is also a contradiction as far as traditional knowledge application and regulation is concerned, while the Ministry of Health appreciates that 80% of Ugandans use or have used traditional medicine,[26]the NDA states that there is no professional place where traditional practitioners can register and there is no policy in place to regulate proper use of traditional medicine. However in total disregard of the said short comings the NDA advises traditional healers to first contact NCRL for coordination and improving their packaging before taking their medicines to NDA for registration.[27] The act of making traditional healers move to different offices before getting approval discourages them from formalizing their activities, makes them look like they are seeking favours and down plays the role they play in the health sector.

[26] Press Statement by Apollo Muhairwe, Corporation Secretary NDA, New Vision. Tuesday, March 4, 2008 at 27.
[27] Ibid.

The NDA, which is charged with development of herbal medicines and providing cost effective drugs to the entire population of Uganda, has done little to put their mandate into practice. To begin with, Makerere University Medical School, the oldest teaching school for doctors and pharmacists has no course unit of indigenous knowledge at an undergraduate level[28] and yet this would be the foundation of traditional medicine research and promotion while the policy on indigenous knowledge has not been suggested and proposed by the NDA the purported god father of indigenous medicine.

4.2.6 The Uganda National Council for Science and Technology Act.[29]

Under this Act, a National Council of Science and Technology is established whose functions[30] include advising government on and coordinating the formulation an explicit national policy on all fields of science and technology; carrying out scientific and technology research and development establishment of pilot plants and other testing grounds and a standardization and quality control centre, and to cooperate with and coordinate all scientific and technological activities of persons, institutions and organisations.[31]

This Act would be an effective tool in the promotion and protection of indigenous knowledge and guarding against bio piracy using its mandate of carrying out scientific research and development. However, it suffices to say here that apparently the Act remains much more of a paper Act than reflecting what is on the ground.[32] Interview with the staff of the council reveal that lack of adequate funding by the government and understaffing have outstretched the activities of the council and it cannot effect its mandate as provided by the Act and as such it has remained a paper tiger with no proper implementation.

---

[28] Information obtained from THETA in an interview with Executive Director Dorothy Baraba on 17th Sept. 2007.
[29] Cap. 209 Laws of Uganda 2000.
[30] S. 3.
[31] Ibid.
[32] Kamugisha Jepherson (2004), Legal Aspects Relating to Damage arising from Biotechnology activities with reference to Genetically Engineered Seeds/Plants: Options for Uganda. LLM Thesis (MUK) 2004.

4.2.7 The Uganda National Council of Science and Technology Draft National Bio Safety Regulations - 2002.

The draft regulations apply to the importation, contained use, release or placement on the market of any Genetically Modified Organisms (GMOs), or a product of GMOs. The purpose of these regulations is to protect individuals, the community and the environment by minimizing potential hazards associated with new applications of DNA and by facilitating the beneficial utilization of biotechnology.[33] However the fact that there is no policy or national law to deal with indigenous knowledge means that the UNCST rushed by establishing the regulations for the new developments before cleaning its backyard where by issues of indigenous knowledge should have been protected by the law before. This means that by facilitating the utilization of biotechnology, indigenous knowledge may be exploited without the full benefits occurring to the intended beneficiaries like adequate compensation to knowledge holders by those bio prospecting the local knowledge like in traditional medicine.

More to that, there is a feeling from the general public that has not been able to determine its destiny in line with its needs and aspirations and that the country should not just "move by the stream" because some countries have done this and Uganda must do it.[34] This in fact appears to be a reality when you consider that some draft laws have been lying in shelves pending enactment for years while the come lately issues like sharing of biological resources have about to be enacted even before a policy is put in place.

The passing of these draft regulations into law has delayed due to lack of consistent funding and in the mean time without any policy in place, there is no set mechanisms for sharing of biological resources meaning that those entitled to benefits are likely to lose out while the resources are being exploited free of charge.

[33] Nsubuga-Muyonjo J (2002), Prevailing Legal and Policy Framework for Biotechnology and Genetic Resources R & D in Uganda. UNCST, at 9.
[34] Opiyo Oloya, *Dr. Kisamba Mugerwa,Whats your job about.* New Vision, January 21st 2004.

4.2.8 The Draft Access to Biological Resources Regulations

These regulations provide for arrangements and procedures for access to biological and genetic resources of Uganda, their products, by-products derivatives for scientific research and commercial purposes. They also provide for the sharing of benefits derived from biological and genetic resources originating from Uganda, and the promotion of sustainable management and the utilization of biological and genetic resources. This document recognises the role indigenous knowledge can play in the advancement of biotechnology. That, all indigenous and traditional knowledge associated with biological resources, and their derivative products form an intangible component of such resources is thus subject to sovereignty and regulation. These draft regulations would be very useful if they are passed into law soon because they provide for the procedure of how Ugandans will benefit from use of their indigenous knowledge.

4.2.9 The National Environment (Access to Genetic Resources and Benefit Sharing) Regulations, 2005.[35]

These regulations were made on the 1st day of December 2004 by the Minister under the authority of sections 44 and 107 of the National Environment Act, and upon the recommendation of the Policy Committee on the Environment and the Board.

The objects of the Regulations under regulation 3 are;

(a) to prescribe the procedure for access to genetic resources for scientific research, commercial purposes, bio-prospecting, conservation or industrial application;
(b) to provide for the sharing of benefits derived from generic resources; and
(c) to promote the sustainable management and utilization of genetic resources, thereby contributing to the conservation of the biological resources of Uganda.

[35] S.1 No. 30 of 2005.

The right to determine, control and regulate access to genetic resources found in Uganda is vested in the Government for the benefit of the people of Uganda and shall be exercised in accordance with the Regulations.[36] Under regulation 10, no person shall access genetic resources from any part of Uganda unless that person has interalia obtained written prior informed consent from, and entered into an accessory agreement with the lead agency, local community or owner.

Part IV of the Regulations provide for Materials Transfer Agreement (MTA) and Benefit sharing that is, the requirements, contents, and use of MTA and the penalties for non-observance of the regulations, how benefits are to be shared, access permits and its revocation and the requirements for movement of genetic resources in transit through Uganda. The making of these regulations is a break through in Uganda insofar as the protection and promotion of indigenous knowledge is concerned, since they provide for the management of genetic resources, the sharing of benefits from genetic resources and access to information concerning genetic resources. It is therefore a timely intervention in a key strategic area of Indigenous knowledge.

More to that, Uganda's initiative to put in place regulations governing access to genetic resources which almost took a decade reveal challenges associated technical capacity as well as bureaucracy procedures. The interchanging office procedures and technical personnel challenge translation of the concept of genetic resource for policy framework that promotes benefit sharing and sustainable development, usually from the multi-sector departments and ministries. Therefore it remains to be seen how these regulations will be given effective implementation especially considering the fact that capacity building, human resources and financing are still a big problem in the delivery of services in Uganda.

[36] Reg. 9.

4.3 Uganda National Council for Science and Technology National Biotechnology and Bio Safety Policy 2003.

The recognition that there are potential risks to human health and the environment that may be incurred by careless or unscrupulous practices in the application and use or trade in some biotechnology products of agriculture, health, waste management and other purposes, led the Uganda National Council for Science and Technology to came up with the National Biotechnology and Bio Safety Policy. The goal of the policy is to contribute to the national goals of the PEAP focusing on poverty eradication, improved health care, food security and the protection of the environment through the application of biotechnology.[37]

The policy principles under this policy include,[38]

(a) National resources in Uganda belong to the people of Uganda, therefore Uganda has the authority to control activities which exploit/may have detrimental impacts on such resources.

(b) Uganda should regulate biotechnology activities without submerging the socio-economic benefits arising from biotechnology.

(c) The formal regulation of biotechnology should be handled by a competent authority (UNCST) advised by a technical body with representation from government, research, academic institutions and the private sector.

(d) Biotechnology applications based on or inspired by the knowledge, innovations or practices of communities/individuals in Uganda shall be subject to national legislation related to community or individual property rights and shall incorporate contractual agreements to share the financial or other benefits arising from such applications with these communities or individuals.

The objectives of this policy are to:

1. build and strengthen national capacity in biotechnology through research and development;

[37] Kamugisha (2004), op. cit., at 140.
[38] Nsubuga Muyonjo (2002) op. cit., at 9

2. promote the utilization of biotech living products and processes as tools for national development;
3. provide a regulatory and institutional framework for biotechnology development and applications;
4. ensure public and environmental safety in biotechnology development and application; and
5. determine measures for risk assessment and management for all biotechnological applications.

This policy will enable Uganda to engage in and safely use this revolutionary technology for national development. The policy interalia covers biotechnology acquisition and commercialization, research and development, capacity building, bio-resources conservation and development, and also takes cognizance of the relevant protocols and international agreements to which Uganda is signatory.

The policy provides for biotechnology applications based on knowledge to be subject to national legislation related to community property rights. It also provides for contractual agreements to share the financial or other benefits arising from such applications with these communities. The formulation of this policy is therefore an immediate intervention in the protection and promotion of indigenous knowledge in Uganda. However the Regulations have not stood the test of test of time since they are new and are supposed to be implemented by bodies like UNCST which has failed to implement the roles already entrusted to them due to poor funding and lack of manpower.

4.4 Key Institutions involved in the promotion and protection of indigenous knowledge in Uganda.

4.4.1 Uganda National Council for Science and Technology (UNCST)

The Uganda National Council for Science and Technology is a semi-autonomous government agency established in 1990 by Act of Parliament[39] under the Ministry of Finance, Planning and Economic Development. The

[39] Cap 209 Laws of Uganda 2000.

UNCST develops and implements strategies for integrating science and technology into the national socio-economic development process.[40] UNCST advises the government of Uganda on policy matters necessary for advancing science and technology and coordinates research and development activities in Uganda.[41] It is charged with the following duties;

(a) policy guidance/advice to the government of Uganda;
(b) Financing science projects in Uganda;
(c) Overseeing the conduct of research to ensure safe environment, safety of people and no exploitation of people by those engaged in science related activities.

The Supreme Policy making organ of the UNCST is the Council (Board), which is comprised of 32 eminent scientists appointed by the minister responsible for science, and technology (S & T) matters.[42] The Executive Committee supports the council in following up council's resolution through regular interfacing among the board, specialized committees and the Secretariat. The specialized committees include various S & T disciplines, that is; agricultural, industrial and engineering, natural, physical, health, information and communication technologies, socio sciences, and humanity.[43] Other standing committee like the HIV/AIDS Research Committee and the National Biosafety Committee have been set up by the council to undertake specialized work. These committees advise the council on S & T policy matters in their respective sectors.

With funding from World Bank, UNCST embarked on the process of formulating an indigenous knowledge policy in 1999 where consultation was made with different stakeholders like community groups and a proposal national framework was formulated.[44] However, the World Bank funding was short lived and the IK policy was never concluded.[45] UNCST then embarked

[40] Information obtained from the UNCST in an interview conducted with the Assistant Executive Secretary, Research and Policy, Julius Ecuru on 13th September, 2007.
[41] Ibid.
[42] Ibid.
[43] Ibid.
[44] Ibid.
[45] Ibid.

on the National Bio safety and Biotechnology Policy which was concluded in 2003.[46] At the moment, UNCST is in the process of formulating the National Bio-prospecting Policy with the help of funding from United States Agency for international Development (USAID) which will address issues of doing research in Uganda and how the local communities can benefit from their resources.[47] UNCST is also credited with the formulation of the National Environment (Access to Genetic Resources and Benefit Sharing) Regulations 2005, which were passed as a result of joint efforts with NEMA in the formulation of these regulations before they were passed into law.

However, UNCST activities are hampered by the secretive nature of local communities who are not willing to disclose their indigenous knowledge for protection,[48] a lack of infrastructure to enable UNCST subject the submitted indigenous knowledge formula to tests in order to qualify for patenting, and the lack of a clear legal and policy set up to help local communities protect their indigenous knowledge.

4.4.2 The Natural Chemotherapeutics Research Laboratory (NCRL)

The Natural chemotherapeutics Research Laboratory is a department of the ministry of Health established in 1963 due to the urge to look independent after Uganda's Independence of 1962.[49] Its main mission is to verify claims of efficacy and safety of herbal medicines, promote the use of herbal medicines and conservation of medicinal plants and natural resources.[50] Its main activities are the documentation of ethno botaical and botanical information at the herbarium (holding information on 80 plant families, 150 genera and 2,000 species), with a plan to catalogue electronically all existing research; research on herbal drugs for local industrial production; and participatory neral appraisal of claims of herbal medicine effectives for HIV/AIDS.[51] This institution is important in the promotion and protection of IK since it deals with traditional medicines, which

[46] Ibid.
[47] Ibid.
[48] Ibid.
[49] Information obtained from the NCRL in an interview conducted with the Senior Research Officer, Ms Sophia Kerwegi on 4th Sept. 2007.
[50] Ibid.
[51] Ibid.

are a major component of IK. Furthermore, the institution is performing the role of developing an information baseline for National Policy on Tradition and Complimentary Medicine to help streamline research and development in traditional medicine.[52] There are three sections to the laboratory-botany, chemistry and pharmacology. Prior consent of the informant or community for collection and investigation of a plant or plant part is included in the research practice of the laboratory.[53]

Under project headed by NCRL with Makerere University and Kawanda Agricultural Research Institute and funded by the International Development Research Centre (IDRC), fifteen rare and endangered plant species used in traditional medicine were investigated to understand local perceptions of these plants and their uses by working with the local communities, traditional healers and health practitioners.[54] In 1999 and 2000, the team assessed the extent to which medicine plants were used to treat common ailments in four districts of Uganda and it was found that with exception of a few regional particularities, people in all districts consulted herbalists for roughly the same complaints.

The NCRL helps traditional herbalists to improve performance of their medicines, quality and effectiveness of the medicines by carrying out tests to confirm their effectiveness and in so doing counters the lack of understanding of IK.[55]

The NCRL in collaboration with other institutions like Uganda Industrial Research Institute, National Drug Authority, UNCST, Uganda National Bureau of Standards, Uganda Export Promotion Board, Uganda Investment Authority and a number of academic research institutions will strengthen research and development of herbal medicines in the country and currently with collaboration with National Drug Authority, some of the herbal formulae are to

[52] Ibid.
[53] Ibid.
[54] Ibid.
[55] Ibid.

be registered and these products will be able to be sold in pharmacies and drug shops around the country.[56]

NCRL in carrying out its activities is hampered by lack of coordination with traditional healers and ministry of health, lack of funding, lack of incentives/rewards for innovations by traditional herbalists and lack of legal and policy framework to protect traditional herbalists and medicines.

4.4.3 Traditional and Modern Health Practitioners Together Against AIDS and Other Diseases (THETA).

THETA was born in 1990 out of the initiatives of three (3) individuals, Dr Sam Kalibala, Rachael King and Dr. Jaco Homsy, who all shared the vision of actively involving traditional healers in the fight against AIDS.[57] The three individuals' rationale was that these healers had already played a prominent role as care providers, educators and counsellors for the majority of Ugandans. THETA's first clinical study (1992-94) was to evaluate the effectiveness of herbal medicine for AIDS-related chronic wasting, chronic diarrhoea and herpes zoster as alternatives to unavailable biomedical treatments.[58] The study, which involved over 500 patients monitored at the traditional healers' clinics and at Mulago National Hospital, showed significant clinical improvement in some patients on herbal treatments, comparable to, and in some instances better than those on available modern medicines.[59]

THETA's first clinical study generated a mutual interest among traditional healers and THETA, and out of this THETA's second project called THEWA (Traditional Healers (TH's) Women and AIDS Prevention) was born and it focused on women who constitute the majority of the TH's clients and are particularly vulnerable to HIV given their lower social position and reduced access to information, education, jobs, resources and services.[60] In 1995 registered as a national NGO and is today operating in 10 districts of Uganda

[56] Press statement by Dr. Grace Nambatya Kyeyune Director of Research NVRL on the 5th African Traditional Medicine Day, 31st August 2007. Published in the New Vision, Friday August 31, 2007 at 49.
[57] Information obtained from THETA in an interview conducted with the Executive Director, Ms Dorothy Baraba on 17th Sept 2007.
[58] Ibid.
[59] Ibid.
[60] Ibid.

with a number of collaborative activities involving TH's and biomedical health practitioners.[61]

THETA's vision is to have a leading role in Uganda in:[62]

- Promoting collaboration between traditional healers and biomedical health practitioners;
- Facilitating improvement in traditional medical practices;
- Advocating for national and international regulatory systems for the recognition and practice of traditional medicine in Africa and
- Collecting and disseminating information about traditional medicine and AIDS in Uganda and Africa.

THETA is involved in research in traditional medicine where a memorandum of understanding is normally entered into with knowledge holders who provide information about the treatment powers of plants. The details of how benefits are to be shared in case of a successful research all depend on the agreement between the parties.[63] THETA encourages traditional healers to document their knowledge or trust their knowledge with a family member to avoid a situation where the holder would die without passing on such knowledge to other people though this is still limited since healers are secretive about their knowledge.[64]

THETA is faced with challenges of lack of the specific law to protect traditional knowledge holders, lack of policy on indigenous knowledge, non-disclosure/secretive nature of knowledge holders, and negative attitude of the public which takes indigenous knowledge as practice of witch craft all of which complicates THETA's work.

4.4.4 Conclusion

It has been established in this chapter that Uganda has no piece of legislation, regulations or policy on indigenous knowledge and worse still the UNCST, a regulatory authority mandated to deal with biotechnological issues has been hampered by funding in drafting the indigenous knowledge policy

[61] Ibid.
[62] Ibid.
[63] Ibid.
[64] Ibid.

which has resulted in the draft policy to remain shelved thus rendering indigenous knowledge vulnerable to bio piracy.

In addition to that, indigenous knowledge protection is indirectly provided for in various laws and policies with no detailed methods for such protection. As such indigenous knowledge is lagging behind in the biotechnology issues recently introduced into Uganda thus leaving the country's biological resources open to exploitation without any benefit deriving to the knowledge holders.

Also key institutions like NCRL, UNCST and THETA who would do a lot in promotion and protection of indigenous knowledge are under funded and receive little or no support from government and external funding since indigenous knowledge issues are given lip service by the government and foreign funders.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.0 Overview and Approach

In formulating the conclusions and recommendations in this chapter, the researcher has had regard to the major constraints to promotion and protection of indigenous knowledge highlighted in Chapter Four. The findings obtained from stakeholder interviews have also been taken into account by the researcher in the formulation of the conclusions and recommendations set out in this chapter. The conclusions resolve around the major objective the major objective of the study which has been to investigate the impact of the international biotechnology laws in the preservation of indigenous knowledge in Uganda. The recommendations relate to the suitability of Uganda's legal, regulatory, policy and institutional framework in the protection and preservation of indigenous knowledge.

5.1 Conclusions

The major finding of the study is that the international legal regime governing the preservation of indigenous knowledge is unclear and contradicting. Where as the CBD tries to protect IK from outside exploitation and is in favour of knowledge holders being in full control of their biological resources, the TRIPS is in favour of full exploitation of biological resources and protection of the patent holders and does not confer protection to the knowledge which is not registered as a patent.

The study finds that Uganda stands to derive a number of benefits by preserving and promoting its indigenous knowledge, such benefits include technology transfer, benefit sharing and compensation in case of an outsider using the country's biological resources and advancement of indigenous knowledge.

The major impediments to IK preservation in Uganda are;

i) Uganda lacks a comprehensive policy framework for tackling IK. The available relevant policy is scattered over various policy

instruments and does not address the most critical relevant indigenous knowledge issues;

ii) Lack of a legal and regulatory framework to tackle indigenous knowledge protection and preservation issues to facilitate its development. Uganda does not have a defined and specific legislation aimed at IK which constitutes a major bottleneck to the full realization of opportunities emerging from the CBD;

iii) Lack of an institutional framework to facilitate IK protection and to generally promote the preservation of biological resources. In this respect, it is important to note that IK issues are currently coordinated by NCRL, NDA and UNCST which is generally responsible for science and technology development;

The study also found out that the UNCST is inadequately funded and facilitated and cannot effectively carry out its mandate while there is a potential conflict of interest by the NDA while regulating the activities of traditional healers;

iv) Lack of capacity to promote indigenous knowledge, although there have been some government efforts towards building capacity to preserve IK like the *1999 Kampala Declaration on Indigenous Knowledge*, the view of the study is that these efforts have not had the desired impact. The researcher was shocked to discover that the draft policy on indigenous knowledge by UNCST was never finalized because of lack of funding and has thus become a forgotten case while lack manpower by the UNCST has greatly hindered its activities. Information that the researcher obtained from NCRL, a government body under Ministry of health charged with coordinating research in traditional medicine shows that IK issues are not given adequate attention by the relevant government bodies while indigenous knowledge holders are susceptible about disclosing their knowledge for further research since there is no protection to prevent pirating such knowledge while still in the process of being approved.

v) The study also found that whereas Uganda has enacted regulations to deal with access to biological resources and benefit sharing, her

ability to realize benefits arising from the implementation of the Regulations and in particular the promotion of IK will be adversely affected by the lack of policy and substantive law on IK, therefore investing in strong IPR regimes in the absence of these pre-conditions would be responding to international politics rather than promoting a conscious national technological capability policy.

5.2 Recommendations

The researcher wishes to make the following recommendations in order to enhance the promotion and protection of indigenous knowledge in Uganda as well as reconciliation of indigenous knowledge exploitation position at the international level.

i) The government should consider the introduction of a comprehensive policy instrument specifically aimed at the preservation and protection of indigenous knowledge. Currently there is no policy to deal with IK issues and they been given lip service attention and due to limited funding the draft policy was never concluded. It is the researcher's opinion that the draft policy should be funded, stakeholders consulted to make a concrete policy to deal with IK issues.

ii) The Government should seriously consider the introduction of specific legislation aimed at the protection and promotion of indigenous knowledge. Uganda at the moment has no legislation that regulate the use of indigenous knowledge and the few statutes that provide for IK like the National Environment Act do not provide for it in a detailed way leaving it at the mercy of exploiters. Countries like South Africa and Kenya have taken further steps to ensure codification of IK issues and Uganda should follow suit in order to protect her biological resources.

iii) Review of Article 27.3(b) of the TRIPS Agreement which provides for the States to provide for the protection of plant varieties either by patents by an effective *sui generis* or by a combination of both. The Article should be amended to;

a) prohibit the patenting of natural processes involving the use of plants, animals and other living organisms and their parts and processes used in producing variations of plants, animals and micro-organisms;

b) ensure that the protection offered to the indigenous and traditional practices, innovation and knowledge is consistent with the CBD Article 8(j) which imposes a duty on each contracting party to preserve and respect indigenous knowledge;

c) allow for the right of indigenous peoples and farmers to continue their traditional practices of saving, sharing and exchanging seeds, and harvesting, cultivating, and using medicinal plants; and

d) integrate the principle and practice of prior informed consent, which means that the consent of indigenous people as communities should be obtained before any research or collection of plants is undertaken. The right of indigenous peoples to veto any bio prospecting activity should be guaranteed and mechanisms to enforce prior informed consent should be installed.

iv) Digital database and community registers for indigenous knowledge. Documentation of traditional knowledge can be done at the community level and made available to the patent office so that they can protect the knowledge from being patented while information on previous and existing uses of biological resources can be compiled and published at the national level to counter bio piracy. India has several projects by NGO's and research centres to compile community biodiversity registers at the village level and is preparing an easily navigable computerized database of documented traditional knowledge relating to the use of medicinal and other plants and Uganda should follow this example. Digital databases would enable patent offices all over the world to search and examine any prevalent use of prior art, and

thereby prevent the grant of patents over knowledge while community registers and national registers can be used not only as a defensive mechanism against inappropriate patenting, but also as a basis for promoting the conservation, use and transfer of indigenous knowledge.

v) The government should set up capacity building efforts in all the government bodies that are involved in preservation of indigenous knowledge like NCRL and UNCST should be facilitated by providing funding and human resources to enable them carry out their mandates as provided for by promoting research on indigenous knowledge and proper recording and improvement of such knowledge.

BIBLIOGRAPHY

(a) BOOKS

Elenita, C. (2007); *Unmasking the new green revolution in Africa: Motives, Players and Dynamics.* Penang, Malaysia, Third World Network, 2007.

Ha-Joon, C. (2003); *Globalisation, Economic Development and the role of the state.* Penag, Third World Network and Zed Books, 2003.

Helena, P and Ricarda, S. (2003); *Hungry Corporations: Transnational* 2003.

Khor, M. (2002); *Intellectual property, biodiversity and sustainable development: Resolving the difficult issues.* London, Zed Books. 2002.

Khor, M. (2006); *The WTO's Doha negotiations and impasse: A Development perspective.* Penang, Third World Network. 2006.

Khor, M. (2007); *The 'Singapore Issues' in the WTO: Evolution and implications for developing countries.* Penang, Third World Network, 2007.

Mugabe, J. (2004); *Intellectual Property protection and traditional knowledge: An exploration in international policy discourse.* Nairobi, ACTS, 2004.

Namanya, B. (2004); *The Climate Change Convention and its Kyoto Protocol: A legal analysis of its relevance to Uganda with specific emphasis on the Clean Development Mechanisms*. (Unpublished) LLM Dissertation, Makerere University Kampala, 2004.

Nanyunia, R K. (2001); *The role of indigenous knowledge in biodiversity assessment and monitoring. A case study in Uganda.* Makerere University Institute of Environment and Natural Resources, Kampala, Uganda.

Querol, D. (2003); *Genetic Resources: Our forgotten treasure. Penang,* Third World Network, 2003.

Vandana, S. (2004); *Monocultures of Mind*. Penang, Third World Network, 2004.

(b) Official Documents / Publications

Aluma, J R W, Akwang, A & Mwesiga, V. (2001); *Report on Intergrating Indigenous Knowledge Agriculture.* Research Workshop, NARO, Kampala, June 16, 2001.

Convention on Biological Diversity. United Nations, 1992.

Daes, E. (1998); *Protection of Intellectual Property of Indigenous Peoples: Some observations and current development on the protection of the intellectual property of indigenous people.* WIPO Roundtable on Intellectual Property and Indigenous Peoples, Geneva, July 23 & 24, 1998.

Goriestani, N. (2000); *Indigenous Knowledge for Development: Opportunities and Challenges.* UNCTAD Conference on Traditional Knowledge. Geneva, November 1, 2000.

Indigenous Peoples Statement on TRIPS 273, (1999). *No patenting of life.* Geneva 25 July 1999.

Kameri- Mbote, P. (2005); *Intellectual Property Protection in Africa: An assessment of the status of laws, research and policy analysis/ intellectual property rights in Kenya*. IELRC 2,2005.

Max, M. (1998); *How to sell a wonder herb. Down to Earth.* Centre for Science and Environment, Vol. 7 No. 12. New Delhi, 1998.

Mugabe, J. & Clark, N. (1998); *Managing Biodiversity: National systems of conservation and innovation in Africa.* ACTS Press, Nairobi, 1998.

Naluwairo, R. & Musiime, E. (2004); *Parliamentary Public hearing on genetically modified organisms in Uganda, a new approach to soliciting peoples views on emerging issues in society.* ACODE Public Policy Dialogue Series No.6, 2004.

Naluwairo, R. (2006); *From Concept to Action: The protection and promotion of farmers' rights in East Africa.* ACODE Policy Research Series No. 15, 2006. ACODE, Kampala.

National Environment Management Authority. *State of environment report for Uganda.* 2002.

Ntambirweki, J. (1996). *Evaluation of the implications of ratifying the Convention on Biological Diversity in Uganda*. Consultancy Report, FAO, Dar es salaam. May, 1996.

Organisation of African Unity, (1999); *African Model law for the protection of the rights of Local Communities, Farmers and Breeders and for the Regulation of Access to Biological Resources.* OAU Addis Ababa, 1999.

RAFI, (1997). Conserving Indigenous Knowledge: Intergrating two systems of innovation. New York: RAFI and UNDP, 1997.

Tebtebba Foundation, (1999). *'No patenting of life' Indigenous Peoples Statement on the TRIPS Agreements on the WTO.*

The Kampala Declaration on Indigenous Knowledge for Sustainable Development. Kampala, 8-9 December 1999.

TRIPS Agreement: *A guide for the South, The Uruguay Round Agreement on TRIPS.* South Centre 2000.

Tumushabe, W. (2001); *The Precautionary Principle, Biotechnology and Environmental Litigation: Complexities in Litigating new and emerging environmental problems.* ACODE Policy Research Series No. 3, 2002.

WHO, (1996); *Biodiversity, Biotechnology and Sustainable Development in Health and Agriculture: Emerging Issues*. Scientific Publication No. 6560, Pan American Health Organisation, World Health Organisation, USA.

WIPO, (1999); *Indigenous Peoples' Caucus Statement.* Presented at the Roundtable on Intellectual Property and Traditional Knowledge, WIPO, Geneva, 2 November 1999.

World Commission on Environment and Development, (1987); *Our Common Future*. Oxford University Press. Oxford. 1987.

World Conservation Monitoring, (1992); *Global Biodiversity: Status of the Earth's Living Resources.* London, Chapman and Hall, 1992.

(c) ARTICLES

ActionAid, 1999; Crops and Robbers: Biopiracy and the patenting of staple food crops. London, ActionAid, 1999.

Adair, J.R. (1997); The Bioprospecting Question: Should the United States charge Biotechnology Companies for the commercial use of public wild genetic resources. 24 Ecology Law Quarterly 131.

Correa, C; (1999); Technology transfer in the WTO Agreements. Biotechnology and Development Review, October, 1999.

Ekpere, J. (2000); TRIPS, Biodiversity and Traditional Knowledge: OAU model law on community rights and access to genetic resources. ICTSD Multi-stakeholder Dialogue on Trade, Environment and Sustainable Development. Libreville, Gabon. July 13-14, 2000.

Fleshman, M. (1999); WTO impasse in Settle: Spotlights inequities of global trading system. Africa Recovery, 1999.

Gibson, J. (2004); Traditional Knowledge and the International Context for protection. Vol. 1 Issue 1, March 2004.

Goriestani, N. (2001); Indigenous Knowledge for Development: Opportunities and challenges. UNCTAD Conference on traditional knowledge, Geneva. November 1 2000.

GRAIN. (2000); Global Trade and Biodiversity in Conflict. Issue No. 4, April 2000.

GRAIN. (2000); Of Patents and Pirates: Patents on life the final assault on the commons. July 2000.

ICTSD, UNCTAD. (2003); Intellectual Property Rights: Implications for development. Policy Discussion Paper. August 2003.

Indigenous people demand more over medicinal plants (2006, April 16). The Sunday Monitor.

IRIN News, (2007); Focus on biopiracy in Africa. 10th April 2007.

Land mark victory in world's first case against biopiracy. European patent office upholds decision to revoke neem patent. 27th March 2007.

Mc Marnis, R. (2003); Intellectual property, genetic resources and traditional knowledge protection: Thinking globally, acting locally. Lecture Occasional Papers No. 1, 2003.

Micheal, D. (1998); Biological Diversity and Indigenous Knowledge. Research Australian Parliamentary Library. Research Paper 17, 1997-1998.

Mugabe, John., Kameri-Mbote,P.,& Mutta, D. (2001); Traditional Knowledge, Genetic Resources and Intellectual Property Protection. Towards a new International regime. Environmental Law Research Centre, 2001.

Nsubuga-Muyonjo, J. (2002); Prevailing Legal and Policy Framework for Biotechnology and Genetic Resources Research and Development in Uganda. UNCST 2002.

Raghavan, C. (199); Protecting Intellectual Property Rights of local and indigenous communities. South-North Development Monitor (SUNS), No. 4529, 14 October 1999.

Sidartha, P. (1998); Country Study: India-local species (tumeric, neem and basmati). World Bank, 27 March 2007.

Sutherland, J. (1995); Intellectual and Cultural Property Rights and Bio-prospecting. 34 Development Bulletin 36, 1995.

Tewolde, E. (2001); The Inappropriateness of the patent systems for lifew forms and processes. Biodiversity, Knowledge and Rights Series. No. 1, Penang, TWN.

Tove, I. (2006); Disclosure of origin a hot topic in WIPO Patent Harmonisation Debate. Intellectual Property Watch. 11 April 2006.

World Bank, (2000), Indigenous Knowledge and Intellectual Property Rights. Africa Region's Knowledge and Learning Center, No. 19 April 2000.