

**TRADITIONAL INTELLECTUAL PROPERTY PROTECTION IN
TANZANIA: THE CASE OF TRADITIONAL MEDICINAL KNOWLEDGE**

BY

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**A THESIS SUBMITTED IN PARTIAL FULFILMENT FOR THE
REQUIREMENT OF THE DEGREE OF DOCTOR OF PHILOSOPHY OF
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CERTIFICATION

The undersigned acknowledges to have read and recommends for acceptance a PhD Thesis titled “Traditional Intellectual Property Protection in Tanzania: The case of traditional medicinal knowledge” in fulfillment of the requirement for a Degree of Doctor of Philosophy in Laws of The Open University of Tanzania.

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DECLARATION

I, **PAUL FAUSTIN KIHWELO**, do hereby declare that, this Thesis is my own original work, and has not been presented to any University for a similar or any other degree award.

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Date:

DEDICATION

To the late Hans Hassan Kihaga, Bulchand Lal Bullu, Shauritanga Hamisi Kihaga and Rashard Mohamed Marjeby for they were more than my relatives. I will miss their companion and love forever ever.

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ABSTRACT

This study addresses the global issues that relates to protection of indigenous traditional knowledge with special emphasis to traditional medicinal knowledge. The core issue of TK protection and in particular traditional medicinal knowledge lies at the centre of the current global IP protection mechanisms.

The problem that this study has addressed is the failure of the existing conventional intellectual property regime to afford protection to traditional indigenous intellectual property, in particular traditional knowledge systems. Of particular importance is the traditional medicinal knowledge in Tanzania.

The study found that a tremendous amount of knowledge in the world cannot easily be protected under the two branches of intellectual property, that is to say, patent law which is selective as to the type of invention that can be protected as most patents are not for significant technological breakthroughs but for small incremental improvements on the state of art. The other branch is copyright protection, which is restricted to individuals and a small number of people. Nor can traditional knowledge be protected under any other branch such as trade secrets or geographical indications for the simple reason that western IP protection mechanisms focus on private ownership and for a specific period of time whereas TK centers on communal ownership and perpetually protected.

The study has found out that commercial interests, for example in the pharmaceuticals business, very often violate indigenous intellectual property rights in

particular in the area of traditional medicinal knowledge. Such violations at present do not constitute a formal breach of written legal standards, as neither national legislation nor international standards acknowledge the rights of indigenous people. However the study has observed that these enterprises should somehow still be made accountable to indigenous customary law. This fact cannot any longer be ignored by Governments, the UN-system and business entities.

The study has addressed various theories for the protection of traditional knowledge. Among these theories is the solution to seek to protect intellectual property under the intellectual property in the form of “positive protection” or “defensive protection”. Positive protection refers to the acquisition by the TK holders themselves of an IPR, such as a patent or an alternative right provided by *sui generis* system. Defensive protection refers to the provisions adopted in the law or by the regulatory authorities to prevent IPR claims to knowledge, to cultural expressions, or to a given product being granted to authorized persons or organizations.

The study has revealed that traditionally intellectual property has always been protected in its various forms, be it traditional medicinal knowledge, blacksmith and traditional songs and dances. Different societies have always adopted different ways of protecting traditional intellectual property. In the area of traditional medicine informal IP regimes are used and the most popular one in Tanzania is the secrecy regime. The secret regimes operate independently of governmental regulation or even community support. The secrecy regime rests on innovator’s ability to prevent the public disclosure of his or her innovation. Under a secrecy regime, innovative

traditional healers employ their inventions only themselves, and benefits arise for the traditional healer only as long as the medicinal knowledge remains. On the other hand traditional medicine is protected through the complex system of rituals, magical and spiritual powers that surround indigenous medicine.

This study has revealed further that obtaining international consensus on a binding instrument has proved to be quite a challenge. While some countries have not simply been convinced about the need to protect traditional knowledge internationally, other states which see such a need prefer that the matter be addressed in a non binding declaration rather than a binding treaty.

After assessing the various international and regional initiatives for protection of TK the study has revealed that despite such efforts that the international community has taken so far and despite the fact that the international community underscores the contribution of traditional knowledge to sustainable development, little efforts have been taken to secure adequate and effective binding instrument for the protection of traditional knowledge. This seems to be the outcome of the perceived prejudices of the developed world regarding indigenous knowledge as being primitive, barbaric, heathenism and in some occasions associated directly with witchcraft.

The study after assessing the various forms of biopiracy in Tanzania and the attempts to protect traditional medicine, it proceeds to conclude that the nub of the arguments for protecting TK presented thus far has been that the existing intellectual property laws have been the product of Western capitalism, which has glorified the virtues of individual efforts in furthering the knowledge systems. Thus, the patent and

copyright laws were designed to safeguard the interests of the individual inventor or the authors and creators of artistic works. The temporary monopoly that was provided to both the inventors and authors and other creators of artistic works, through the grant of IPRs, was aimed at providing them with the incentive to further hone their skills. By nature, therefore, IPRs, as we understand them now, are designed to prevent anyone other than the inventor or the creator from using these products of human intellect without express authorization from the author under prior agreed arrangement.

Finally the study recommends that given the fact that TRIPs does not prevent the protection of traditional knowledge, Tanzania should enact a specific law on protection of their rich traditional knowledge which remains unprotected despite the rich diversity spots available in Tanzania. This can take into account the current model law on TK approved by ARIPO member states and similar legislation such as the Forest Act and the Forest Regulations. Protection of TK at national level will be a step further while awaiting for the plans to have a legally binding treaty for the protection of TK at global level, which seems to be taking decades due to lack of consensus.

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LIST OF ABBREVIATIONS

ABS	- Access and Benefit Sharing
ABSA	- Access and Benefit Sharing Agreement
AIDS	- Acquired Immune Deficiency Syndrome.
ACTS	- Africa Centre for Technological Studies
AU	- African Union
ARIPO	- African Regional Intellectual Property Organization
BRELA	- Business Registration and Licensing Authority
CAM	- Complimentary and Alternative Medicine
Cap.	- Chapter
CBD	- Conventional on Biological Diversity
COP	- Conference of the Parties
COSTECH	- Commission for Science and Technology
CLR	- Compensatory Liability Regime
CA	- California
CSIR	- Council of Scientific and Industrial Research
CITIES	- Convention of International Trade on Endangered Species of Wild Fauna and Flora
CIPR	- Commission for Intellectual Property Right
DCs	- Developing Countries
Doc	- Document
DC	- District of Columbia

EU	- European Union
EC	- European Commission
EPO	- European Patent Office
EAC	- East African Community
Eds	- Editors
FAO	- Food and Agriculture Organization
FFMs	- Fact- Finding Missions
GATT	- General Agreement on Tariffs and Trade
GMO	- Genetic Modified Organisms
GA	- General Assembly
GRTKF	- Genetic Resources Traditional Knowledge and Folklore
GBS	- Global Bio-collecting Society
GDP	- Gross Domestic Product
GR	- Genetic Resources
HAG	- Heads of Governments
HIV	- Human Immune Virus
Ibid	- <i>ibidem</i> (in the same place or as cited in the preceding citation)
ICT	- Information and Communication Technology
IDRC	- International Development and Research Centre
IGC	- Intergovernmental Committee
IIPP	- Indigenous Intellectual Property Protection.
IK	- Indigenous Knowledge
IP	- Intellectual Property
IPP	- Intellectual Property Protection

IPRS	- Intellectual Property Rights
ILO	- International Labour Organization
ITC	- Indigenous Technological Capabilities
ITM	- Institute of Traditional Medicine
ITPGRFA	- International Treaty on Plant Genetic Resources for Food and Agriculture
IT	- Information Technology
ITO	- International Trade Organization
IPGRI	- Intellectual Property and Genetic Resources Institute
IU	- International Undertaking on Plant Genetic Resources
Kgs	- Kilograms
LDCs	- Least Developed Countries
Ltd	- Limited
MTNs	- Multinational Trade Negotiations
MAS	- Market Assisted Selection
MP	- Member of Parliament
MS	- Multinational System
MTAs	- Material Transfer Agreements
MUCHS	- Muhimbili University of College of Health Science.
NEMA	- National Environmental Management Act
NCI	- National Cancer Institute
NIH	- National Institutes of Health
No	- Number
OAU	- Organization of African Union

OUT	- Open University of Tanzania
OECD	- Organization for Economic Cooperation and Development
Op.cit	- <i>Opere citato</i> (as cited earlier in the work)
p.	- Page
P	- Patent
pp.	- Pages
PBRs	- Plant Breeders Rights
PGRs	- Plant Genetic Resources
PIC	- Prior Informed Consent
PTO	- Patent and Trademark Office
PTA	- Preferential Trade Area
PPA	- Plant Protection Act
PVP	- Plant Variety Protection
PVPA	- Plant Variety Protection Act
RSA	- Republic of South Africa
R&D	- Research and Development
RAF	- The Rural Advancement Foundation International
SADC	- Southern Africa Development Community
<i>Supra</i>	- As prior mentioned
TRIPS	- Trade Related Aspects of Intellectual Property Rights
Tz	- Tanzania
TBA	- Traditional Birth Attendants
TNCs	- Transnational Corporations
TCM	- Traditional Chinese Medicine

Tshs	- Tanzania Shillings
TK	- Traditional Knowledge
TEK	- Traditional Ecological Knowledge
TKDL	- Traditional Knowledge Digital Library
UN	- United Nations
USA	- United States of America
US	- United States
UNISA	- University of South Africa
UDSM	- University of Dar es Salaam
UNEP	- United Nations Environmental Programme
UNESCO	- United Nation Education Science Conference
UNDP	- United Nations Development Programme
UPOV	- <i>Union Internationale pour la Protection des Obtentions Végétales</i> (International Union for the Protection of New Varieties of Plants)
USPTO	- United States Patent and Trademarks Office
UK	- United Kingdom
UNCED	- United Nations Conference on Environmental and Development
UNCTAD	- United Nation Conference on Trade and Development
UAE	- United Arab Emirates
Vol	- Volume
CHAWATA	- Chama Cha Waganga wa Jadi Tanzania
WIPO	- World Intellectual Property Organization
WWW	- World Wide Web
WGOP	- Working Group on Indigenous Population

TABLE OF STATUTES

Local Statutes

Environmental Management Act, 2004 Act No 20
 Forest Act, Act No. 14 of 2002
 Forest Regulations, Government Notice No. 153 of 2004
 Patents Act, Act No 1of 1987
 Plant Protection Act, Act No. 3 of 1997
 Protection of New Plant Varieties (Plant Breeders' Rights) Act, Act No. 22of 2002.
 Seeds Act, Act No. 18 of 2003.
 Traditional and Alternative Medicine Act, Act No 23 of 2004.
 The Constitution of the United Republic of Tanzania of 1977 as amended from time to time.

Foreign Statutes

The Constitutional of Philippines of 1987
 The Constitution of Ecuador of 1998
 The Constitution of the Federal Republic of Brazil of 1989
 The Constitution of Republic of Venezuela of 1999
 The Costa Rica Biodiversity Law
 Thailand's Constitution of 1997

TABLE OF INTERNATIONAL INSTRUMENTS

ARIPO Legal Instrument on the Protection of Traditional Knowledge and Expression
of Folklore

Berne Convention for the Protection of Literally and Artistic Works, 1886

Cartergana Protocol on Bio safety 2000

Convention on Biological Diversity adopted in Nairobi in May, 1992

Convention Establishing WIPO of 1970

United Nations, Chapter 26 of Agenda 21. Report of the United Nations Conference
on Environment and Development.

Convention Concerning the Protection of the World Cultural and National Heritage,
1972

Convention on means of Prohibiting and Preventing the Illicit Import Export and
Transfer of Cultural Property 1970

Declaration on the Principles on International Cultural Cooperation 1966

ILO Convention 169 Concerning Indigenous and Tribal People in Independent
Countries 27th June 1989

International Undertaking on Plant Genetic Resources of 1983

OAU Model Law for the Protection of the Rights of Local Communities Farmers and
Breeders and the regulation of Access to Biological Resources

Paris Convention for the Protection of Industrial Property 1883.

TRIPS Agreement-Annex 1C

UN Declaration on the rights of indigenous people Draft

UNESCO model provisions for National Laws on the protection of Expressions of Folklore against Elicit Exploitation and the prejudicial actions 1982

UN Commission on Human Rights Protection of the Heritage of the Indigenous People E/ CN.4/ sub .2 1995/26

UNESCO Recommendations on the safeguarding of Traditional Culture and Folklore 1989

United Nations Economic and Social Council, Commission on Human Rights, Sub commission on Prevention of Discrimination and Protection of Minorities, Principles and Guidelines for the Protections of the Heritage of Indigenous People UN.Doc. No.E/ Sub 2/ 1995/26.

WHO Traditional Medicine Strategy 2002-2005

WIPO Draft Report on Fact- Finding Mission on Intellectual Property and Traditional Knowledge 1998-1999

World Intellectual Property Organization (2000) Matters Concerning Intellectual Property and Genetic Resources Traditional knowledge and Folklore (WO/GA/26/6)
World Trade Organization Agreement 1994

CHAPTER ONE

1.0 GENERAL INTRODUCTION AND BACKGROUND

1.1 Introduction

Traditional Knowledge is defined to mean a body of knowledge built up by a group of people through generations of living close to nature. It includes a system of classification, a set of empirical observations about the local environment and a system of self-management that governs use.¹ The International Convention on Biological Diversity (CBD) in Article 8(j) defines traditional knowledge as the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity.

The World Intellectual Property Organization (WIPO) refers to traditional knowledge as the tradition-based literary, artistic or scientific works: performances, inventions, scientific discoveries, designs, marks, and name symbols, undisclosed information: and all other tradition-based innovations and creation which result from intellectual activity in the industrial, scientific or artistic fields.²

¹ This definition was given by Dene Cultural Institute, See Johnson, M. (Ed) 1992. Lore: *Capturing Traditional Environmental*: Ottawa: Dene Cultural Institute and International Development Research Centre. The World Intellectual Property Organization (WIPO) defines TK as “ideals developed by traditional communities and indigenous people, in a traditional and informal way, as a response to the needs imposed by their physical and cultural environments” and “[t]hose ideas contrast with the respective expressions, such as folk tales, poetry, and riddles, folk songs and instrumental music, dances, plays, etc. For more information on this see WIPO Secretariat, *Consolidated Survey of Intellectual Property Protection of Traditional Knowledge and Folklore, delivered to the Intergovernmental Committee on Intellectual Property and Generic Resources*, WIPO/GRTKF/IC/IC/5/7 (July 7-15, 2003)

² Traditional Knowledge has been defined by the Fact-Finding Missions carried out by the World Intellectual Property Organization (WIPO) in 1998-1999, where the WIPO Secretariat stated that: “.....‘traditional knowledge’ refer[s] to traditional-based literary, artistic or scientific works; performances; invention; scientific discoveries; designs; marks, names and symbols; undisclosed information; and all other tradition-

Indigenous knowledge, on the other hand, is understood by the WIPO to be the traditional knowledge of indigenous people. Taken this way: Indigenous Knowledge is therefore part of the traditional knowledge category.³

In brief, indigenous knowledge is the sum total of the knowledge and skills which people in a particular geographical area posses, and which enable them to get the most out of their natural environment. Most of this knowledge and these skills have been passed down from earlier generations, but individual men and women in each new generation adapt and add to this body of knowledge in a constant adjustment to changing circumstances and environmental conditions. They in turn pass on the body of knowledge intact to the next generation, in an effort to provide them with survival strategies.

based innovations and creation resulting from intellectual activity in the industrial, scientific, literary or artistic fields. ‘Tradition-based’ refers to knowledge systems, creations, innovations and cultural expressions which: have generally been transmitted from generation to generation; are generally regarded as pertaining to a particular people or its territory; and are constantly evolving in response to a changing environment. Categories of traditional knowledge could include: agricultural knowledge; scientific knowledge; technical knowledge; ecological knowledge; medical knowledge, including related medicines and remedies; biodiversity-related knowledge; ‘traditional cultural expressions’ (‘expression of folklore’) in the form of music, dance, song, handicrafts, designs, stories and artwork; elements of languages, such as names, geographical indications and symbols; and, movable cultural properties. Excluded from this description of TK would be items not resulting from intellectual activity in the industrial, scientific, literary or artistic fields, such as human remains, languages in general, and other similar elements of ‘heritage’ in the broad sense. In 2002, the International Council for Science (ICSU) defined traditional knowledge as “a cumulative body of knowledge, know-how, practices and representations maintained and developed by peoples with extended histories of interactions with the natural environment. These sophisticated sets of understandings, interpretations and meanings are part and parcel of a cultural complex that encompasses language, naming and classification systems, resource use practices, ritual, spirituality and worldview.”

³ Johnson M *op cit* at 23. The notions of traditional knowledge, indigenous knowledge and indigenous peoples have acquired wise usage in international debates on sustainable development as well as those on intellectual property protection. However, their usage is often subject to confusion. There have been various efforts to define the concepts of traditional knowledge, indigenous knowledge and indigenous peoples, but there are so far no universally adopted definitions. Different persons define them differently depending on their intellectual persuasion and professional interest. And many often use the concept of traditional knowledge interchangeably with that of indigenous knowledge.

Traditional knowledge or indigenous knowledge is also defined as the ‘.....unique traditional, local knowledge existing within and developed around the specific conditions of women and men in a particular geographical area.⁴

The words Traditional Knowledge and Indigenous Knowledge are used synonymously to differentiate knowledge developed by a given community from the international knowledge system as generated through universities, Government research centers and industrial sectors.⁵

Traditional Knowledge is also often used to denote indigenous medicinal knowledge which is defined as ‘....a coherent system linking social behavior, supernatural beings, human physiology, and botanical observations.⁶

The term indigenous knowledge widely used in recent decades signifies a realization that technology is not the exclusive property of the industrialized countries, but that indigenous communities are also inventors and custodians of technology. There is therefore a movement towards indigenous knowledge as a base for development.⁷

⁴ Louis Grenier, *Working with Traditional Knowledge: A Guide for Researchers*, International Development Research Centre, Ottawa, Canada, 1998 at 1.

⁵ Michael Warren, *Indigenous Knowledge and Development Monitor*, Volume 6, Issue 3, December 1998 at 13.

⁶ W.V. Reid, “Sorcerers and Healing Spirits”, 1983, cited in Michael J. Huft. *Indigenous Peoples and Drug Discovery Research: A Question of IPRs*, 89(4) Northwestern University Law Review 1678,1995 at 25

⁷ See comments by Lars Anders Baer, Vice President, SAAMI Council, Sweden during the Roundtable on Intellectual Property and Indigenous Peoples, Geneva, July 23 and 24, 1998. Indigenous knowledge has been more important and controversial economically and politically than it is today. They involve diverse and important topics such as the questions of ownership, exploitation, benefit sharing and protection formalities. The architecture of the global IPR regime has become increasingly complex and includes diverse sets of multilateral agreements, international organizations, regional conventions and instruments, and bilateral arrangements. The complications have become more serious in particular due to the fact that none of these have come up with a systemic and binding agreement for the protection of TK.

Lack of proper legal and policy frameworks for the protection of indigenous knowledge in the developing countries in general and Tanzania in particular provides a vacuum for industrialized nations to exploit indigenous knowledge and resources of the indigenous people in developing countries. Indigenous people often consider indigenous knowledge as incapable of being owned and therefore it is to be shared freely.⁸

Most of the international conventions and agreements relating to the protection of Indigenous Knowledge are complex and multifaceted.⁹ So far there have been two significant meetings held to deliberate on matters that impact on indigenous knowledge: the World Trade Organization (WTO) Summit and the Rio Summit on Biodiversity. The former, which is concerned with globalization and trade liberalization, sees knowledge as belonging to the public domain. It views indigenous knowledge in terms of Intellectual Property which should be respected and protected within the intellectual property rights regime, based on the western notions of individual ownership.¹⁰

The Rio Declaration, on the other hand, focuses on communal ownership. Accordingly, knowledge is viewed as being owned by the local community in whose

⁸ Ibid.

⁹ This includes The Convention on Biological Diversity which was adopted in Nairobi in May 1992, ratified by 157 governments during the Earth Summit in Rio de Janeiro in 1992 and entered into force in December 1993 as well as the Trade Related Aspects of Intellectual Property Rights Agreement which is an annex to the World Trade Agreement that was signed in Marrakesh the year 1994 and came in force in 1st January, 1995.

¹⁰ The TRIPS Agreement 1994 constitutes Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization (hereinafter referred to as the 'WTO Agreement' which in Article 27 covers Patentable Subject Matter that encompasses traditional knowledge when read together with Article 1. However Article 27 has proved to be more controversial than any other part of the TRIPS Agreement for various reasons.

customs, practices and traditions it is embedded. Such knowledge is often, however, spread across political boundaries because of colonial historical background in most of the developing countries.¹¹

This study therefore endeavors to explore the existing global instruments for the protection of indigenous intellectual property. In particular, the work focuses on traditional knowledge in the narrow context of traditional medicine which for so long has been marginalized steadily from the entire realm of intellectual property simply because traditional knowledge has something to do with collective rights i.e. rights owned jointly by a group of persons or a community and hence has no author or creator.¹²

1.2 Background to the Problem

When talking about the needs and rights of indigenous people, we are talking about the rights of at least 300 million indigenous people around the world. These are often among the poorest and most disadvantaged in their countries. The majority of these people are found in developing countries.¹³ It would not be correct to say that indigenous people oppose changes and new developments for the sake of opposing. We believe that most people of the developing countries welcome changes and

¹¹ Articles 8(j), 10(C), 18(4) make reference to the rights of indigenous and local people. Article 8(j) is perhaps the most authoritative provision dealing with traditional knowledge. For more details see John Mugabe “Intellectual Property Protection and Traditional Knowledge”: *An Exploration in International Policy Discourse, Biopolicy International*, African Centre for Technology Studies, Nairobi, Kenya, 1999 at 22.

¹² Initiatives for the protection of holders of traditional knowledge, indigenous peoples and local communities, documents prepared by Mr. Antencio Lopez, in the Roundtable Discussion for Intellectual Property and Indigenous Peoples in Geneva 23 and 24 July 1998.

¹³ See Document prepared by Mr. Lars Anders Baer op.cit.

developments, but on the clear condition that such development takes place in accordance to their needs and desires, and is not imposed upon them.¹⁴

Neither are the developing countries against business and trade per-se, because they also see trade as an important element in an interdependent world. Trade links between countries and nations are crucial components in the maintenance of peace and security in the world. Trade in most cases enhances development which is necessary for peace and order. Unfortunately, traditional indigenous legal concepts, including in the field of intellectual property, are often seen by developed countries as a threat to business interests, development and national prosperity especially if they are likely to compete with the western legal concepts in the field of intellectual property rights.¹⁸

Since the establishment of what we now know as intellectual property system just over a century ago, indigenous knowledge which is rich in medicine, art, crafts, music, literature, etc has been steadily marginalized simply because it has to do with collective rights of people and because it does not have a known author or creator. This legal vacuum could be looked upon as the continuation of an unending genocide inflicted on indigenous people from time immemorial. The provisions of most of the IPR laws and Conventions are replete with biases and are generally focused on ensuring improved commercial exploitation by large multinational companies at the

¹⁴ *Ibid.* It must be made clear that TK has, for centuries, played an important role in the lives of indigenous peoples worldwide. Such knowledge constitutes a vital part of their cultural heritage, contributes to the sustainable use and preservation of biodiversity, and is fundamental to their sustainable development. However, there has been a growing recognition of the problems associated with the misappropriation and use of traditional knowledge for commercial (and other) purposes.

¹⁸ *Ibid*

expense of the indigenous communities.¹⁹ One might think that developing countries' culture had been intended solely to give mankind its folklore image, to the extent of being catalogued as the heritage of that same mankind, with no recognition of its true origin.²⁰

We are living through a period of wholesale plundering or pirating²¹ of indigenous knowledge and products without any related benefits for indigenous people and community. For instance, until quite recently the involvement of indigenous botanists and medicine men was considered retrograde in medicine, while today many of medicine's transnational pharmaceutical companies are investing large amounts of money to gain control of traditional indigenous medicine and even registering sacred plants as if they have been developed in a laboratory. At the same time indigenous designs are gradually gaining a foothold in a fashion and on the runways, but with alien Labels or Marks that have nothing to do with indigenous people and local communities.²²

It is against this background that this study examines the current protection of the entire realm of intellectual property by scrutinizing the existing treaties like ILO

¹⁹ The intellectual property system for patents and copyright has served to enable the taking and use of traditional knowledge by trans-national corporations, with little recourse or remedies available to indigenous and other local communities. Indigenous and other local communities are not the only ones concerned about misappropriation, however. With the emergence of a global market place, the commercial value derived from traditional knowledge also has the potential to create economic growth opportunities for developing and least-developed countries.

²⁰ Dr. Mongane Wally Serote (MP) Chairman of Parliamentary Committee on Arts, Culture, Languages, Science & Technology, Cape Town, South Africa. Geneva 23 and 24, 1998.

²¹ Although the label bio-piracy is applied whenever there has been an allegation of misappropriation of genetic resources and TK, there is no concise definition of bio-piracy or misappropriation and the cases show much diversity than what the label indicates.

²² See generally Mr. Atencio op. Cit

Convention 169 concerning Indigenous and Tribal People in Independent Countries, Draft UN Declaration on the Rights of Indigenous People, Convention on Biological Diversity (CBD), UNESCO, TRIPS and OAU Model Law just to mention some of them. The study goes further by suggesting appropriate mechanisms of protecting rights of holders of traditional medicine and indigenous people.

1.3 Literature Review²³

Not many scholars in Tanzania have attempted to discuss the law and global protection of traditional knowledge, leave alone traditional medicinal knowledge. While local literature on this subject is scanty, a great amount of literature has been generated elsewhere, which deals with various issues that are relevant to this study. The literature review in this study is, therefore, essentially foreign based. The identification of gaps in the domestic framework and the consequent construction of the hypotheses guiding the research has immensely benefited from reviewing this literature. However, as a word of caution, the review of literature in this part of the thesis does not in any way purport to be exhaustive of existing literature. The issue of TK protection continues to be the subject of ongoing discussion by governments at international, regional and national forums. The amount of literature on this subject is therefore growing rapidly; resulting in the challenge of new literature coming out when the thesis is being submitted or just after it has been submitted.

²³ The review of literature examines issues raised by related studies on the concept of intellectual property rights, protection of traditional knowledge and related issues. It specifically addresses the concepts, origins and protection of intellectual property rights and traditional knowledge at large. In the process it is necessary to examine how much has been written on the research area, the objective being to understand what others have covered so far, what are their findings, successes or failures and determine to what extent we could come up with a resolution on the leftovers. In the final analysis, the findings in terms of problems and proposed strategies as revealed by several studies form some key issues for investigation in this study.

However, the literature that we have been able to come across have been a useful pointer towards understanding the main concepts relating to intellectual property rights and traditional knowledge. They have also assisted a great deal to know how much has been done so far and what is left. Basing upon the findings we have been able to formulate key issues in the area of study.

Yusufu A.A in his article, “*Developing Countries and Trade – Related Aspects of Intellectual Property Rights*”¹⁷; emphasizes that least-developed countries (LDCs) perceive as ironic that the relatively loose international IPR system, which has been in existence for more than one hundred and fifty years and which has served as the basis for technology transfer, copying, learning and adaptation that permitted the current industrialized countries (not least Japan, but also, at an earlier stage, the USA, France, Germany etc.) to catch up with the technological leaders and to achieve technological parity, is now being made more restrictive in order to make it more costly and difficult for newcomers to enter the field.²⁴

The study by Yusufu did not specifically address issues of Indigenous and/or Traditional Knowledge, which is the realm of this study, However, its relevance to this study lies in the fact that it has focused on international intellectual property right protection system, traditional knowledge being one of them.

It is worth noting that although Yusufu pointed out that the trend towards restrictive international intellectual property system acts as barrier to new comers, he did not suggest any solution. This study examines the global IPR protection specifically in

¹⁷ In UNCTAD, *Technology, Trade Policy and the Uruguay Round* 1990 pp. 185-201.

²⁴ Ibid

relation to traditional knowledge and suggests better ways to improve international intellectual property protection for the sake of owners of traditional knowledge in developing countries.

Kesan, J.P, in his article “*Seeds of Change: A Link among the legal, Economic and Agricultural Biotechnology Communities*”²⁵ points out that there is among developed countries a deep suspicion about intellectual property protection (IPP). They simply view it as colonialism by developed countries whose researchers frequently rely on Traditional Knowledge of indigenous people to isolate promising biota, which becomes the basis for patent protection in industrialized world.²⁶

Kesan proceeds to argue that more often than not, developing countries are not compensated for maintaining the Traditional Knowledge and the relevant plant species for the benefit of the rest of the world.²⁷ Kesan views this as the side effect of commercialization, ‘a process whereby an object..... (in this case) medicinal traditional knowledge, becomes a commodity of economic worth that can be sold and bought’.²⁸ This side effect, which is sometimes referred to as biopiracy, has led to chronic North-South divisions over the appropriate scope of patent protection and of IPP in general.²⁹ Biopiracy has been linked to concerns over food security as well as to the destruction of Traditional Knowledge.³⁰

²⁵ In Jay Kesan, *Agricultural Biotechnology and Intellectual Property: Seeds of change*, CABI international, Oxfordshire, UK, 2007.

²⁶ McManis, C.R, *Re-engineering patent law: the challenge of new technologies*, Washington University Journal of Law and Policy 2, 2000 at 1-22.

²⁷ Carvalho N.P, “Requiring disclosure of the origin of genetic resources and prior informed consent in the patent applications without infringing the TRIPS Agreement: the problem and the solution.” Washington University Journal of Law and Policy 2, 2000 at 371-401. For similar position see also Mcmanis op cit.

²⁸ Gepts, P. *Who owns biodiversity, and how should the owners be compensated?* Plant Physiology 134, 2004, 1295-1307.

²⁹ McManis op cit.

³⁰ Grain, Freedom from IPR:Towards a convergence of movements, Seedling October, 1-4, 2004 available at <http://www.grain.org>

Furthermore, Kesan stresses that, developing countries have explicitly demanded a system of IPRs that conforms to the TK held by the indigenous people in those countries. For instance, many governments of developing countries continued to push for such a system in the context of the Intergovernmental Committee on IP and Genetic Resources, Traditional Knowledge and Folklore within the WIPO from 2001.³¹

This article by Kesan is very relevant to the current research as it sheds light on the tension between the rich North and the poor South as far as traditional knowledge ownership, exploitation and protection is concerned. However, the author has failed to appreciate the fact that so far the current WIPO initiatives have failed to provide and/or to come up with a tangible result in the form of a binding instrument for protection of TK which leaves room for exploring an alternative mechanism for protection of the existing body of TK which is the focus of this study.

Ngulumu, A.T, in “*The Role of Law in the Development of Science and Technology, Related Policies and Strategies in Post Independence Tanzania*”³² examines strategy at domestic and international levels for the acquisition and development of science and technology and its legal reflection.

Ngulumu views indigenous technological capabilities (ITC) as the ability by nationals to invent a technological device from scratch; innovate existing technological invention, select from available technologies; and/or master imported technology to meet domestic socio-economic needs.

³¹ Grain, *Commodity or Community: What future for traditional knowledge?* Seedling July, 1-3, 2004. Available at <http://www.grain.org>

³² Phd Thesis, University of Dar es Salaam. 1994 (Mimeo)

In his opinion the technological gap in developing countries, implies that breaking through the developed countries' market is not simply a question of sophistication of industrial goods. It raises a number of other questions, e.g. capacity of industries in DCs; export market demands, price competition with TNCs, international legal restrictions relating to patent rights, copyrights, the GATT within the WTO rules and the level of division of labour. Ngulumu's study however, does not directly address matters of traditional knowledge but much as it focuses on indigenous technological capabilities which have direct bearing to traditional knowledge as such it will be relevant to this present study.

Ngulumu does not concentrate on traditional knowledge and the global protection as it is and hence this study goes further than his by examining the role of law in the development of sciences and technology in the light of traditional knowledge and in particular traditional medicine.

Kabudi³³ has examined the policy and legislative environment on conservation of biological resources in the light of the current trends of bio-prospecting. The researcher highlights the relevant provisions in the different laws concerning access to genetic resources, as well as the mandates of the various government agencies and institutions charged with responsibility for protecting and controlling natural resources use, including research and issuing of research permits. The researcher also discusses the legal challenges associated with the lack of legislation on bio-prospecting activities but does not detail the pitfalls of the lack of legislation and binding international instruments on TK protection.

³³ P.J.Kabudi, "Legal Challenges of Bio-prospecting in Tanzania: Redressing the Lack of A Regulatory Framework", *Eastern Africa Law Review*, Vol.28-30, 2003: 96-117.

Ringo Frederick Shadrack, in his article “*The Creation of an Enabling Legal Climate for the Transfer of Technology in the Preferential Trade Area for Eastern and Southern Africa (PTA)*”³⁴ examines intellectual property laws and transfer of technology in PTA Countries. He points out that issues relating to biotechnology transfer represent the single most important development that can greatly influence agricultural and health development and raise the standard of living of PTA populations. He proceeds to point out that the significance of these provisions in relation to the transfer of technology to PTA countries lies in their recognition of the need to protect appropriate and environmental friendly technology. The study by Ringo is relevant to the current research as it addresses matters of biotechnology which are very controversial when it comes to their protection and have direct bearing on the protection of traditional medicinal knowledge, which is the centre of this study.

Although Ringo examined matters relating to IPR laws and transfer of technology in PTA countries he did not specifically address in great detail the issues of indigenous intellectual property protection in particular traditional knowledge which is the core part of this research. However the article has been a stimulant towards the course of this study as it raised some pertinent issues for consideration, in particular, the need to consider protection of IP in all its forms.

Ringo Frederick Shadrack, in his article, “*The Trade- Related Aspects of Intellectual Property Rights Agreement in the GATT and Legal Implications for Sub-Saharan*

³⁴ PhD Thesis, Hartung-Gore Verlag Konstanz (Mimeo)

*Africa-Prospective Policy Issues for the World Trade Organization*³⁵ examines the importance of intellectual property law and rights in the Sub-Saharan counties of Africa. He observes that IP laws and rights have not had the importance in the Sub-Saharan Africa that is attached to them in industrialized countries.³⁶

Ringo goes further by pointing out that challenges facing the WTO in the implementation of the TRIPS Agreement in Sub-Saharan African countries, are formidable. For the Governments of these countries, the enactment of such laws is the easier part, but the institutional capacities to implement them fail. These include, *inter alia*, lack of strong indigenous technological bases.³⁷

The article by Ringo has concentrated on the importance of intellectual property laws and rights in the Sub-Saharan Africa countries, whereas this study examines indigenous intellectual property protection with emphasis on the protection of traditional knowledge and in particular traditional medicine with special focus to Tanzania. However, the current study will gain much from the previous study.

It is worth noting that this study goes further by making a critical analysis of the indigenous intellectual property rights protection in Tanzania, with special emphasis on traditional medicine. The study proposes the best mechanisms for the protection and promotion of traditional medicine to suit the interests of rights holders.

³⁵ Journal of World Intellectual Property, Volume 28 No. 6 Geneva, December, 1994.

³⁶ Ibid at p. 121

³⁷ Ibid at page 139

Paul Kuruk, in his article titled “*Bridging the Gap between Traditional Knowledge and Intellectual Property Rights: Is Reciprocity an Answer?*”³⁸ Argues that about 73 per cent of WTO Members are developing countries and they are therefore required to abide by the terms of the TRIPS Agreement³⁹ of protection for traditional knowledge, and this is a major defect of the WTO arrangement that must be remedied. Consequently, they have demanded the inclusion of traditional knowledge as part of discussions regarding a revision of the TRIPS Agreement. This has set the stage for the use of the WTO, a trade organization, as a credible forum for matters relating to traditional knowledge.⁴⁰

Kuruk proceeds to argue that the possibility of engaging in talks at the WTO with its process of give and take makes it more likely that a mutually satisfactory compromise formula could be worked out there for protecting traditional knowledge in return for trade concession from traditional source countries. The author does not specifically suggest the best mechanism upon which the same could be worked out. This research proposes a framework for the better protection of traditional knowledge, which currently is not in place.

³⁸ Protecting Folklore under Modern Intellectual Property Regimes- A Reappraisal of Tensions between Individual and Communal Rights in Africa and the United States, 48 American Law Review.769, 1999.

³⁹ See also Constantine Michalopoulos, *Developing Countries in the WTO*, 154, Palgrave, Haundmills, Basinstoke, Hampshire, New York, 2001.

⁴⁰ Ibid. By placing IPRs under the jurisdiction of the WTO some advocates of IPRs are equipped to encourage non-compliant WTO members to implement and enforce IP legislation or face trade sanctions in areas where they fail to obey WTO Rules. For similar view see Carvalho, N.P supra note 24. However it is not possible for the WTO members seek compliance in TK protection as thus is not at the best interest of the rich north that seem to have a stronghold in WTO negotiations.

Possey Darrell, in his article “*International Agreements for Protecting Indigenous Knowledge*,”⁴¹ points out that one of the areas of IPR research that is most lacking is that of non-western intellectual property regimes. Up to now, the debate has centered on United Nations and Western concepts of intellectual and genetic property. There are of course, ancient systems of property utilized by Muslims, Hindu, Chinese and many other civilizations, but what about the property regimes of indigenous people themselves? A synthesis and analysis of non-western systems would be very helpful in finding creative solutions for the “new IPR category”. However, the author did not go further to suggest the mechanism of implementing this non-western system.

This research goes beyond by examining the best mechanism upon which the non-western system can be employed to enhance protection of traditional knowledge within the current WTO regime with special reference to Tanzania traditional medicines.

Graham Dutfield in his article “*Intellectual Property, Trade and Sustainable Development: Mounting Controversy*”⁴² points out that a tremendous amount of knowledge in the world cannot easily be protected under the two branches of intellectual property, that is to say, patent law which is selective as to the type of invention that can be protected as most patents are not for significant technological breakthroughs but for small incremental improvements on the state of art. The other

⁴¹ See Darrell Posey, “International Agreements for the protecting indigenous knowledge” in Vicente Sanchez and Calestous Juma in *Biodiplomacy Genetic Resources and International Relations*, African Centre for Technology Studies Nairobi, Kenya.

⁴² In C. Bellmann, G. Dutfield and R. Melendez-Ortiz (Eds), “Trading in Knowledge: Development Perspectives on TRIPS, Trade and Sustainability”, *International Centre for Trade and Sustainable Development*, Earthscan Publications Ltd, London, 2003.

branch is copyright protection, which is restricted to individuals and a small number of people.

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Furthermore, such expressions must be recorded in a tangible form, such as book or sound recording. Dutfield proceeds further to point out that traditional knowledge is rarely protected even though a great deal of such knowledge is useful, not only in its narrow IPR sense (i.e. capable of industrial application), but in its application to the maintenance and sustainable use of biological diversity.⁴³ Despite pointing out the fact that the existing intellectual property laws can not protect traditional knowledge the author did not suggest the best mechanism upon which traditional knowledge can be protected. As such, this study has gone to the extent of suggesting the best models upon which traditional knowledge, in particular traditional medicine, can be protected.

According to Adede A.O⁴⁴, African Group of States affirm that the local and farming communities have developed (traditional) knowledge system for conservation and sustainable use of biological diversity, ensuring their food security and sustenance. Accordingly, they argue that such knowledge systems should be recognized both at regional and international level. Moreover, they point out, in this connection, that the TRIPS Agreement is based on the western concept of individual ownership of rights and therefore does not recognize the communal ownership of rights including the development of indigenous knowledge, which a number of experts have tried to

⁴³ Graham Dutfield, *Can the TRIPs Agreement Protect Biological Cultural Diversity?* Biopolicy International, African Centre for Technology Studies, Nairobi, Kenya, 1997.

⁴⁴ Adede A.O, “The Political Economy of TRIPS Agreement. Origins and History of Negotiations” in *Biopolicy International*: African Centre for Technology Studies, Nairobi, Kenya, 2001.

explain. New models will probably be needed to protect such traditional knowledge, and these will not be easy to create more in particular due to very little interest that is attached to it by the western countries which see little benefit of having these new models which are likely to protect developing and least developed countries.⁴⁵

To some, such initiatives smack of political correctness; others see them as fair reward. Their introduction would help to turn the rising tide against TRIPS by showing even the poorest developing countries that intellectual property rights can be an opportunity, not just a threat.⁴⁶ The author has pointed out the need for new models for protection of traditional knowledge, but does not go further to suggest those models. This study suggests the best mechanism upon which traditional knowledge will be protected both at national and international levels.

John Mugabe in his article “*Intellectual Property Protection and Traditional Knowledge: An Exploration and International Policy Discourse*”⁴⁷ clearly asserts that looking at the TRIPS Agreement as it currently exists, we consider that it is not possible to protect traditional knowledge under the current patent law. The author proceeds to point out that some limited protection of traditional knowledge would be possible using regimes of copyright, trade secrets and geographical indications. Protection of traditional knowledge and traditional medicine using the current regimes do, however, have their own limitations as the intellectual property of

⁴⁵ Ibid

⁴⁶ The Right to Good Ideas, The Economist, 25 at 30 June 23rd to 29th 2001 cited also in Adede A.O *Biopolicy International: “The Political Economy of TRIPS Agreement. Origins and History of Negotiations”*. African Centre for Technology Studies, Nairobi, Kenya, 2001.

⁴⁷ See Biopolicy International, African Centre for Technology Studies, Nairobi, Kenya, 1999 at page 13 note number 33.

traditional knowledge and local peoples does not squarely fall in the criteria stipulated in these western intellectual property regimes such as novelty, duration of protection and industrial applicability.⁴⁸

The present study examines the current regimes of IPR of Tanzania so as to see to what extent, if at all, can they afford protection of traditional knowledge with special focus on traditional medicine. This focuses on copyrights, patents, trade secrets, plant varieties and geographical indications where they do exist.

Biswajit Dhar and R.V. Anuradha in their article “*Access, Benefit-Sharing and Intellectual Property Rights*”⁴⁹ examine the benefit sharing arrangements and possible mechanism for protection of traditional knowledge, one of which is the use of intellectual property rights.

They proceed to review a number of key issues that have emerged in the proposal to protect traditional knowledge through the conventional forms of IPRs and they argue that the proponents of the view that conventional forms of IPRs should be used for protecting traditional knowledge have argued that the concepts of traditional knowledge is not a static, but a dynamic one.

The authors however, point out that the inappropriateness of the existing intellectual property laws for protecting traditional knowledge has been discussed quite extensively in the past couple of decades. The nub of the arguments presented thus far has been that the existing intellectual property laws have been the products of

⁴⁸ Ibid

⁴⁹ In The Journal of World Intellectual Property, Volume 7 No. 5 September 2004.

western capitalism, which has glorified the virtues of individual efforts in furthering the knowledge systems. Thus, the patent and copyright laws were designed to safeguard the interests of individual inventors or the authors and creators of artistic works.

They proceed further to argue that these monopolistic and exclusionary characteristics of intellectual property rights are not suited for the protection of traditional knowledge because the existing intellectual property laws have not been applied to knowledge that is mostly collectively held. Traditional knowledge has come to be collectively held primarily because of the fact that it has generally been freely flowing, unbound by the limits of time and space. It is this nature of traditional knowledge that has given the system the strength not only to survive the millennia but also to establish the point that it could play an important role in ensuring the sustainability of human civilization.

The authors do not adequately address the best approach for protecting traditional knowledge outside the realm of the conventional intellectual property law. As such, this study is going to address the best mechanism for protecting traditional knowledge.

Professor Coenraad Visser in his manual “*Legal Aspects of Traditional Knowledge and Biodiversity*”⁵⁰ notes that existing intellectual property protection mechanisms do not cover informal sets of non-systematic, undocumented knowledge and customary norms do not apply to the behaviour of individuals and corporations

⁵⁰ A study manual for University of South Africa-World Intellectual Property Organization Centre for Business Law – WIPO Worldwide Academy for a Diploma in Intellectual Property offered jointly by UNISA and WIPO through the WIPO Worldwide Academy.

outside the traditional communities. A major task, then, will be to find a common denominator to balance the interests of industries and holders of traditional knowledge.

Since the author does not proceed further to recommend the best mechanism to bring about this denominator, the present study, *inter alia*, seeks to address how this common denominator could be arrived at.

Patricia Kameri-Mbote in her report prepared for the African Centre for Technology Studies (ACTS),⁵¹ observed that there are issues of exclusion from the purview of intellectual property some forms of knowledge such as indigenous or traditional knowledge and the impact of intellectual property rights on access to medicine and food. The political economic context within which discussion on issues relating to traditional knowledge and the impact of IPR on access to medicine and food occurs reflect an imbalance in the technological capacities between technology rich countries and technology poor ones. However, the author did not come up with a clear solution on which mechanism would best create a fair play ground between the rich North and the poor South with two thirds of the world's biodiversity.

However, the study by the present author lays a good ground upon which a workable solution could be recommended for a better mechanism of protecting the existing body of traditional knowledge which the current western intellectual property rights regime has failed to protect.

⁵¹ This was a Consultancy on “Intellectual Property Protection in Africa: An assessment of the Status of Law, Research and Policy Analysis on Intellectual Property Rights in Kenya”, April, 2004.

Mwaipopo⁵² has examined the legal aspects of IPRs, as well as access to genetic resources and benefits sharing in Mainland Tanzania. The researcher has considered, in particular, the national policy, legislation and administrative procedures for the regulation of access to and use of genetic resources. The researcher also discussed the contractual aspects related to research on biodiversity in particular terms and conditions of the contracts regarding the collection of genetic resources, the transfer of samples abroad and the arrangements for benefit sharing. The researcher has done a commendable extensive research. However, the research is limited in scope in the sense that it did not address specifically issues pertaining to TK.

The Crucible Group⁵³ on the other hand, has expressed that current intellectual property conventions are not designed to acknowledge the intellectual “stock” of these peoples and of developing countries. The absence of such acknowledgement has led to the unquestioned and unchallenged appropriation of the innovations of rural communities.

This present study is grounded upon findings and it comes up with a workable solution in the form of a legal protection mechanism for intellectual contribution of informal innovators who own traditional knowledge.

⁵² See Rita A. Mwaipopo in Intellectual Property Rights and the regulation of Access and Benefits Sharing of Genetic Resources in Tanzania, A PhD Thesis submitted in fulfillment of the requirements for the Degree of Doctor of Philosophy of the University of Dar es Salaam, November, 2008 (mimeo) available in the University of Dar es Salaam Library, East Africana Section.

⁵³ The Crucible Group, *People, Plants, and Patents: the impact of intellectual property on biodiversity, conservation, trade, and rural society*. Ottawa, ON, IDRC, 1994 at pp 54-55.

The Crucible Group further observes⁵⁴ that the current IP systems do not provide incentives to innovations generated at the community level. This leads to both inequity and distortion. The IP system can be distorted to allow others to acquire indigenous technologies without appropriate acknowledgement or compensation. National innovation policies – and international conventions – should address this unacceptable inequity.⁵⁵

The above study is very useful as it has raised very pertinent points on the need for national policies and international conventions to address the problem of the current IP system being distorted. This present study goes further by coming up with a clear mechanism upon which the above recommendations can be worked out to become a reality.

According to WIPO⁵⁶, protection to traditional knowledge has not yet been debated in legal circles in many countries; hence the lack of an articulate legal response to the issues arises. Despite the criticisms leveled at the IP system there is in principle a potential for using some elements of the current IP system for the protection of traditional knowledge.

The report by WIPO was based upon what the delegation gathered from various countries. As such, it was very general. The present study goes further by thoroughly

⁵⁴ See page 48 Ibid

⁵⁵ Ibid

⁵⁶ WIPO Fact-Finding Missions on Intellectual Property Needs and Expectations of Traditional Knowledge Holder (1998-1999) Geneva.

examining and testing the applicability of current regime of IP for protection of traditional knowledge in Tanzania.

Graham Dutfield in one of his articles “*Legal and Economic Aspects of Traditional Knowledge*”⁵⁷ points out that the solution to the protection of traditional knowledge under intellectual property law may be sought in the form of “Positive Protection” or “Defensive Protection”. Positive protection refers to the acquisition by the traditional knowledge holders themselves of the intellectual property rights, such as a patent or an alternative right provided by a sui-generis system. Defensive protection refers to provisions adopted in the law or by the regulatory authorities to cultural expression, or to a given product being granted to unauthorized persons or organizations. The distinction is somewhat artificial in actual practice, but is nonetheless useful conceptually and is adopted in this chapter.⁵⁸

The above is a very useful starting point upon which this study is grounded and seeks to test the above two approaches of protecting traditional knowledge in the context of Tanzania’s social economic situation. The observation made by Dutfield is a very important point as it sets a milestone for the present study which examines the existing customary based intellectual property systems in Tanzania and its efficacy in the protection of traditional knowledge in its diversity, hence its place in the global sphere.

⁵⁷ See K.E. Maskus and J.H. Reichman (Eds) in *International Public Goods and Transfer of Technology under a Globalized Intellectual Property Regime*, Cambridge University Press, Cambridge, 2005 at 495

⁵⁸ Ibid at 496

Graham Dutfield⁵⁹ proceeds to argue that many traditional societies have their own custom based “intellectual property” systems, which are sometimes complex. Customary rules governing access to and use of knowledge do not necessarily differ all that widely from western intellectual property formulations, but in the vast majority of cases they almost certainly do. They also differ widely from each other. Therefore, to assume either that there is a generic form of collective/community IPRs or some generic form of sharing would be misleading since it would ignore the tremendous diversity of traditions. Over the past decade or so, biological technologies⁶⁰, pharmaceutical, and human health care industries have increased their interest in natural products as sources of new biochemical compounds for drug, chemical and agro-products development.⁶¹ The decade has also witnessed a resurgence of interest in traditional knowledge and medicine. This interest has been stimulated by the importance of traditional knowledge as a lead in new product development. Of the 119 drugs developed from higher plants and on the world market today, it is estimated that 74% were discovered from a pool of traditional herbal medicine.⁶² It has been estimated that the annual world market for medicines derived from medicinal plants discovered from indigenous peoples amounted to US\$

⁵⁹ Ibid at pp 501 and 502

⁶⁰ Aggregately known as biotechnology that includes in-vitro tissue culture, fermentation and rhizobium technology and advanced techniques known as genetic engineering, which involves the manipulation of information in the DNA of an organism to alter the characteristics of the organism or to produce desirable and new traits.

⁶¹ Reid, W *et al.* "Biodiversity Prospecting Using Genetic Resources for Sustainable Development". Washington DC: World Resources Centre Institute (WRI), 1993 cited also in Mugabe J, Intellectual Property protection and Traditional Knowledge *op cit* at 6. Increased interest in natural products as sources of new biochemical compounds for drugs and agro-products have made “bio-prospecting” a boom industry. Bio-prospecting has even interested international financial and monetary institutions such as the World Bank and the International Finance Corporation, which see it as “a potentially lucrative green investment” worth being extended to venture capital support.

⁶² Laird, “Natural Products and the Commercialization of Traditional Knowledge” In *Intellectual Property Rights for Indigenous Peoples*: A sourcebook, edited by T. Greaves. Oklahoma City, OK, USA: Society for Applied Anthropology, 1994, pp. 145- 149.

43 billion in 1985.⁶³ 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 billion annually.⁶⁴

Developing countries and their traditional peoples have contributed considerably to the global drugs industry. Okoth-Owiwo and Juma have estimated that plant-derived prescription drugs in the U.S originate from 40 species of which 50% are from the tropics. The 20 species generate about US\$ 4 billion for the US economy.⁶⁵ The search for these plants has been accompanied by appropriation of indigenous technology which has no legal protection so far.⁶⁶

Although trade in medicinal plants from developing countries has increased in the past few decades with more drugs developed, few if any benefits accrue to the source countries and the traditional communities.⁶⁷ Total trade in herbal remedies and botanicals in 1995 yielded over US\$ 56 billion and the only payments to the communities were for the manual labour involved.⁶⁸

⁶³ Possey and Dutfield, *Beyond Intellectual Property*, Ottawa: International Development Research Centre, 1996.

⁶⁴ RAFI, *Conserving Indigenous Knowledge: Integrating Two Systems of Innovation*. A study prepared for United Nations Development Programme (UNDP), New York, 1994.

⁶⁵ Okoth- Owiwo with Juma, 1996, pp.282- 283.

⁶⁶ There are about 35-43 million patents published worldwide. Out of this, 99.99% of patents are filed in developing countries. Of the total stock of patents filed, about 5 million (11%) are always in force at any point in time. In India, there are approximately 0.17 million patents issued, of which approximately 0.3% are in force at any point in time. There is an overwhelming dominance of developed countries in this sphere when filing of the patent application is taken as an indicator of the R&D and the level of invention and innovation. Most patent applications are limited to the US, Japan and Germany, which together share around 64% of the total. This is according to the WIPO statistics filling of the PCT International Applications, Fillings by Country of Origin, as on 22nd September, 2004. A disproportionately large quantity of patents is being granted in relation to the number of related commercial products. The number of patents granted in the USA has increased by 159% from 71,000 to more than 184,000 between 1981 and 2001. In the 1990s, US R&D expenditures increased in real terms by nearly 41%, while patents granted rose by more than 72%.

⁶⁷ See Mugabe J *op cit* at 7

⁶⁸ Ibid. According to Posey less than 0.001% of profits from drugs developed from natural products and traditional knowledge accrue to traditional people who provided technical leads for the research. There are, however, a few exceptions. These include Sharman Pharmaceuticals and Body Shop. The two are

On the whole, a significant part of the global economy is based on the appropriation and use of traditional knowledge. Indeed, traditional knowledge is increasingly contributing to production in modern economies where property rights are inimical to community intellectual property. Modern economic policies and laws (particularly modern property laws) undervalue this knowledge: at best they ignore it and at worst they contribute to its destruction.⁶⁹

Records, songs, tales and the like are being written, recorded by persons who have no connection with indigenous people in developing countries for commercial purposes with no concern for the copyright of the people affected. This is massive plundering which goes without being legally stopped as there is no legally binding instrument to stop it.⁷⁰

It was not until recently that the subject of protecting traditional knowledge such as traditional songs, tales, paintings and traditional medicinal knowledge began to be discussed and became a matter of concern. Only in very recent years has it been

pharmaceutical companies whose product development activities are largely based on traditional knowledge. They have established systems to recognize the value of traditional knowledge and to provide a certain measure of compensation to local people for the knowledge. Shaman develops new therapeutics by working with indigenous peoples of tropical forests. The Body Shop is bioprospecting in the Kayapo area of Brazil, extensively drawing on traditional knowledge of the Kayapo Indians. It has invested in ethnobotanical research for the development of new ingredients for its body-care products. In 1991, the Body Shop had at least 300 products with annual sales of US\$ 90 million. By 1995, its annual sales stood at least at US\$ 200 million. Both Shaman and the Body Shop have developed mechanisms for returning some of the benefits from commercialization of medicinal plants and traditional knowledge to the traditional people. The Body Shop also sponsors projects to assist local people to establish enterprises for processing crude products.

⁶⁹ Traditional knowledge plays a significant role in industry R & D programs. "...But traditional knowledge has been and continues to be an element in the commercialization of natural products, it is currently supplied to commercial interests through databases, academic publications or filed collections and it should be paid for in some form. This form will to some extent be dictated by market, but should also be established in light of the fact that ..., the market will not reflect the true commercial value of traditional knowledge.

⁷⁰ As a first step it is urgently necessary to put an end to this misappropriation, which is virtually legalized in many countries and for the governing body of the intellectual property and national governments to introduce legal standards for the preservation of indigenous knowledge.

subjected to analysis in various fora and institutions. This in turn has led to a situation where indigenous people do not agree on concepts, and it has been difficult to conform to the already firmly established perceptions of WIPO, owing to the fact that their collective rights are denied or are a subject still unknown to them.⁷¹

The United Nations system has in recent years given special attention to the subject in such areas as the United Nations Development Program {Conserving Indigenous Knowledge; Integrating two systems of Innovation}⁷², the UN Commission on Human Rights {Protection of the Heritage of Indigenous people}⁷³, UNESCO {Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and the Prejudicial Actions}⁷⁴ and finally WIPO and the World Trade Organization {WTO} but all in all these UN attentions have not really addressed the current problem of protecting traditional knowledge which is a serious concern for most developing countries who own the vast part of traditional knowledge in the world.

To the view of most indigenous knowledge activists all the above UN efforts appear still to have their own agenda. That is why we are not likely to move forward or to help indigenous communities until the approach is changed.⁷⁵

⁷¹ Dr. Mongane Wally Serote (MP) Chairman of Parliamentary Committee on Arts, Culture, Languages, Science & Technology, Cape Town, South Africa. Geneva 23rd and 24th, 1998.

⁷² Study conducted by Rular Advancement Foundation International (RAFI) for the UNDP, 1994

⁷³ Report by Erica- Irene Daes, E/CN.4/Sub.2 1995/26

⁷⁴ The implementation of Article 8 (j) and related articles of the Convention on Biological Diversity (CBD)

⁷⁵ Mr. Atencio Loc. Cit

It is also interesting to point out at the outset that patent laws do not recognize traditional knowledge. Bio-prospectors often use the knowledge of indigenous communities to develop profitable medicines as seen above but fail to share profits with them. Even when bio-prospectors do share profits, the royalty share can be as low as 0.1 to 4 per cent in a country like Tanzania. However, the situation is different in developed countries where the percentage of royalty is big. For instance, the US Parks Services by contrast, negotiated a 10 per cent royalty when the company wanted to bio-prospect the Yellowstone National Park.⁷⁶

In addition to the above assertion patent regimes and TRIPS in particular consider TK to be within the public domain of material that can be freely used because it does not meet the criteria of an IPR. However this is substantially in conflict with the CBD, which recognizes TK not only as a source that must be protected, but also a resource from which equitable sharing of benefits should arise if the TK is used.⁷⁷

1.4 Statement of the Problem

The problem that this study seeks to address is the absence in Tanzania of a legal regime to protect or to afford protection to traditional indigenous intellectual property, in particular traditional knowledge systems.⁷⁸ Of particular importance is the traditional medicinal knowledge.

⁷⁶ See UNDP's Human Development report in African Recovery, September, 1999 at page 3

⁷⁷ Convention on Biological Diversity 1992, Article 8(j).

⁷⁸ Traditional Knowledge system in this study is used to refer to the localized knowledge that is unique to a particular society or ethnic group in contrast to the international knowledge created through the global channels of institutions and research centers. Until very recently, little has been recorded on the various aspects and features of indigenous knowledge systems to make them more protected.

The second problem that this study seeks to address is the inadequacy of the international conventions to protect traditional knowledge which leads to further marginalization of developing countries which are rich in traditional knowledge.⁷⁹

The third problem is that there is lack of clear mechanism for the protection of traditional knowledge and equitable sharing of the benefits arising from utilization of such knowledge and practices.

1.5 Hypothesis

This study was guided by the following assumptions.

The first is that the existing intellectual property regime is not very appropriate for the protection of indigenous traditional knowledge.

The second is that the existing international and regional conventions and agreements related to traditional knowledge are complex and multi-faceted and do not offer protection to the vast body of traditional knowledge.

⁷⁹ Developing countries only account for approximately 21% of global R&D expenditure despite their efforts to increase investments in R&D. In 2000, developing countries spent 0.9% of their gross domestic product (GDP) on R&D. Nevertheless, there is considerable variation across countries. The newly industrialized south-east economies and China reached the 1% R&D intensity goal and are playing important roles in global R&D now. These countries are responsible for bringing up the ‘developing country average’ close to the 1% benchmark. On the other hand, India, the third largest Asian economy, has been struggling over the last 10 years at around 0.8%.

1.6 Research Methodology and Sources

In carrying out this study, a variety of research methods and sources were employed.

Data and information for this study were gathered by using four research techniques, namely documentary review, interviews, case studies and personal observation.

The analysis in this study was primarily qualitative, based mainly on documentary research.⁸⁰ The methods used included archival and library research, interviews and personal observations. A background appraisal of the forms, practices and perceptions of global indigenous intellectual property protection was accomplished through library research on empirical and other scholarly writings on intellectual property protection.

Through interviews and personal observations we were able to grasp the essence of intellectual property rights in the protection of traditional knowledge and how effective has been the international conventions and treaties in the protection of traditional knowledge. Archival research was undertaken on policy statements and legislative materials such as Bills, Records of major UN Organizations like FAO, UNESCO and UNDP so as to ascertain to what extent have they addressed global protection of traditional knowledge. In addition, valuable evidence illuminating the internal working of the LDC's governments in protecting IK and how indigenous people of Tanzania are alienated of their TK was elucidated too.

⁸⁰ Documentary Research means that I did not conduct practical field research. This limitation was dictated by the paucity of funds to conduct such research. This approach, however, did not dismiss the necessity of field research. On the contrary it took into consideration the existence of comprehensive and meaningful analysis of field research reports and studies undertaken by authorities on the subject under study, while at the same time taking note of the pitfalls and dangers of relying entirely on documents.

Library research and archival work was conducted in libraries of the University of Dar es Salaam (particularly the East Africana Section and Law Collection of the University of Dar es Salaam Library), The Open University of Tanzania Library, and the African Centre for Technology Studies (ACTS) in Nairobi Kenya and the UN Information Centre in Dar es Salaam. The researcher also relied on information that was obtained from the Max Plank Library of Germany and the Queen's Marry Intellectual Property Institute of UK which are legal depositories of Intellectual Property law.

Relevant documents were reviewed from the UN Information Centre; further library research work was conducted in the Attorney General's Chambers, the Ministry of Industries and Trade, Ministry of Agriculture and Commission for Science and Technology (COSTECH), National Institute of Medical Research (NIMR) and the Institute for Traditional Medicine (ITM).

Initially the author intended to visit and use offices of WIPO at Geneva and the South Centre to secure the relevant information on traditional knowledge and the proceedings of the Intergovernmental Committee on Intellectual Property and Generic Resources, Traditional Knowledge and Folklore (IGC). However, resources and time constraints did not allow this. But all the same, thanks to technology, all this was possible through the use of World Wide Web.

As regards secondary sources, the intention was to use several books, journals, newspapers and magazines. Collection of data and information was achieved by using open-ended questions of target individuals within government, local

governments, industries and UN Organizations, more particularly FAO, UNESCO and UNDP. Interviews were mostly face to face with occasional questionnaires.

I used open-ended questions in the interviews to stimulate free thought, probe the respondents' memories, solicit suggestions and clarify positions. I adopted face-to-face interviews because the method typically gives high assurance of obtaining representative sample of the target group and response rates and cooperation were often higher in face to face surveys. In addition, more complex questions were asked since such face-to-face interviews afford room for clarification and elaboration of questions and responses.

1.7 Objective of the Study

The overall objective of this study is to investigate strategies and the best mechanisms upon which global intellectual property rights can operate and be put in place so as to enhance protection of traditional knowledge for the benefit sharing of the resources by poor farmers, craftsmen, musicians, authors, inventors and indigenous communities in developing countries at large.⁸¹

The study intended to achieve the following particular objectives;

1. To examine the existing international and regional conventions and mechanisms for the protection of intellectual property with emphasis on traditional knowledge focusing on Tanzania as a case study.

⁸¹ There is a strong perception among researchers and academics that most of the existing means of protection of information are not very appropriate for the protection of traditional knowledge. In the event that traditional knowledge becomes difficult to access, then piracy may increase and resource poor indigenous communities will not benefit from the access of their traditional knowledge.

2. To analyze the feasibility and/or efficacy of the role of international, regional and national initiatives in the protection of traditional knowledge.
3. To propose suitable mechanism upon which traditional knowledge will be adequately protected for beneficial sharing by indigenous communities.

Based on the findings of this study it is possible to propose an appropriate mechanism for the global protection of traditional knowledge, including having in place a parallel mechanism for protection of indigenous traditional knowledge.

1.8 Significance of the Study

This study is expected to contribute substantial information to the existing body of knowledge and this is substantiated by the fact that very little has been done so far in the realm of global protection of indigenous knowledge.

It is worth noting that the international law relating to intellectual property rights and more particularly traditional knowledge is still very much in its infancy. This branch of international law will rely on this study, which intends to come up with some recommendations that will be useful to researchers, academics and institutions responsible for formulating policies and guidelines relating to global trading arrangements, as the same will give a highlight on the suitable mechanisms for the protection of traditional knowledge.

As it was pointed out by some indigenous knowledge activists⁸² it is hard to see how indigenous intellectual property rights can be promoted and protected within the

⁸² See Darrell Posey, “International Agreements for the protecting indigenous knowledge” in Vicente Sanchez and Calestous Juma in *Biodiplomacy Genetic Resources and International Relations*, African Centre for Technology Studies Nairobi, Kenya. See also Louis Grenier, *Working with Traditional*

existing mechanisms, and without first making a thorough research in the area of study. A study on the concepts and scope of indigenous intellectual property rights is so important that the main United Nations agencies, national governments, Universities and research institutions endure to have sufficient institutional knowledge and understanding of indigenous intellectual property rights.

This study is therefore very crucial for any standard setting development in the field. It serves as a useful pointer for future researches in the area of indigenous intellectual property rights.

Knowledge: A Guide for Researchers, International Development Research Centre, Ottawa, Canada, 1998 at 1. . For more details see John Mugabe Intellectual Property Protection and Traditional Knowledge: An Exploration in International Policy Discourse, Biopolicy International, and African Centre for Technology Studies, Nairobi, Kenya, 1999 at 22.

CHAPTER TWO

2.0 CONCEPTUAL AND THEORETICAL FRAMEWORK

2.1 Introduction

For a long time in the past, the contribution of indigenous people to the accumulation of world knowledge was plainly ignored. In the obsessive concern with the marvels of modern science and technology, it was altogether over-looked. Few recognized that modern science and technology did not build on empty foundations. Much before the Age of Science, people in all parts of the world had been searching for new ways of doing things. In the process, they built up an impressive storehouse of useful knowledge.⁸³ Indeed, up to the 18th century, the West had borrowed both science and technology from other parts of the world, particularly from Asia.⁸⁴

And yet, the existing intellectual property rights system wholly ignores these contributions and legalizes only the rights of inventors and innovators of modern technology.

The current intellectual property rights system has, due to its inequitable nature, accentuated the existing inequalities among countries and people.⁸⁵

⁸³ Since the very arrival of human beings on the world stage, they have relentlessly engaged themselves in the search for more effective tools and instruments to assist their struggle for survival. This search led to inventions, innovations, and the step-by-step buildup of usable technologies. Their technological development preceded the development of science, as was also the case up to the mid 19th century. At the same time, they also had been occupied in the search for general principles governing the surrounding environment. This started to the beginning of scientific understanding.

⁸⁴ S.J Patel, "Can the Intellectual Property Rights System Serve the Interests of Indigenous Knowledge?" in Stephen B. Brush and Doreen Stabinsky, *Valuing Local Knowledge, Indigenous People and Intellectual Property Rights*, Island Press, Washington DC, 1996.

⁸⁵ The inequitable nature of the intellectual property system has been further strengthened by the Trade Related Aspects of Intellectual Property Rights (TRIPS) provisions of the Uruguay Round of Multilateral Trade Negotiations (MTNs) in GATT (Geneva). These provisions runs counter to the hopes enshrined in the

Such an asymmetrical and inequitable structure of rights raises important multiple questions.⁸⁶ What can be done to recognize the contributions of past generations to building foundation of modern advances? Can such recognition be part of the existing intellectual property system? If so, how can this be done? These questions and several others have on various occasions been brought to the forefront of world international fora.⁸⁷

Various theories for the protection of traditional knowledge have been developed. Among these theories is the solution to seek to protect intellectual property under the intellectual property in the form of “positive protection” or “defensive protection”. Positive protection refers to the acquisition by the TK holders themselves of an IPR, such as a patent or an alternative right provided by *sui generis* system. Defensive protection refers to the provisions adopted in the law or by the regulatory authorities to prevent IPR claims to knowledge, to cultural expressions, or to a given product being granted to authorized persons or organizations. According to Dutfield, the distinction is somewhat artificial in actual practice, but is nonetheless useful conceptually.⁸⁸ I will endeavor to express in more detail these two theories and others in the preceding part of this work.

⁸⁶ Convention on Biological Diversity, adopted at the 1992 United Nations Conference on Environment and Development (UNCED), Rio de Janeiro.

⁸⁷ The developing countries have for a long time questioned the benefits to them of the IPR system through the United Nations. The first publication on it was United Nations 1964. The second study (United Nations 1975) was substantively even more far-reaching in its examination and analysis. For a detailed bibliography on the subject, see the United Nations 1975 study, p.32 fn.121.

⁸⁸ One such forum is the United Nations Conference on Environment and Development held in Brazil in 1992.

⁸⁸ See generally G.Dutfield, “Legal and Economic Aspects of Traditional Knowledge” in Keith E. Maskus and Jeremy H. Reichman (Eds) in *International Public Goods and Transfer of Technology under the Globalized Intellectual Property op cit* at 496.

2.2 Defensive Protection Theory

Defensive protection does not entail the assertion of IP rights, but rather aims at preventing third parties from claiming rights in misappropriated subject matter.⁸⁹

The defensive protection came out of the two important proposals which have emerged from international negotiations. The first proposal is to require patent applicants to disclose the origin of genetic resources and associated TK relevant to the invention and, according to one variant of the proposal, to provide proof that regulations governing the transfer of the resources and associated TK were complied with. The second is to compile databases of published information on TK to enable patent examiners to identify potentially novelty-destroying prior art. In addition, a promising alternative approach may be to develop a misappropriation regime.⁹⁰ In other words, defensive protection can be ensured by making use of the existing legislation.

The motivation for ensuring defensive protection is in principle consented to by all States.⁹¹ The crucial question is whether States are obliged to do more than just prevent the misappropriation of subject matter. It is said that human rights can contribute to the protection of traditional knowledge.⁹²

⁸⁹ Elements of *Sui Generis* System for the Protection of Traditional Knowledge, document prepared by the Secretariat, WIPO Doc. WIPO/GRTKF/IC/4/8, 30 September, 2002, para 13.

⁹⁰ Ibid

⁹¹ See United States, Article 27.3(b), Relationships between the TRIPS Agreement and the CBD and the Protection of Traditional Knowledge and Folklore, WTO Doc. IP/C/W/434, 26 November, 2004 para. 5, where the CBD's principle of "prior informed consent" (CBD Article 15.5) and equitable sharing of benefits (CBD Article 15.7), as well as "preventing the issuance of erroneously issued patents" (see also paras. 28-32, which clearly point towards traditional knowledge) are identified by the United States as "shared objectives".

⁹² See generally H. M Haugen, "Traditional Knowledge and Human Rights", The Journal World Intellectual Property, Vol. 8 No. 5 September 2005.

2.2.1 Disclosure of origin proposal

The compulsory disclosure of genetic resources and associated TK in patent applications was originally mooted by civil society organizations. The proposal is intended to help realize fair and equitable benefit sharing as required by the CBD.⁹³ This aim is supposedly achieved by ensuring that the resources and TK were acquired in accordance with biodiversity access and benefit sharing regulations in the source countries.⁹⁴

Proposals relating to disclosure have weak, medium and strong forms. The weak form posits that disclosure should be encouraged or even expected but not required, and its omission would not prevent the patent from being granted. The medium form would make disclosure of origin mandatory.⁹⁵

The strong form goes beyond disclosure in the patent specification to require that patent applicants comply with the CBD access and benefit sharing (ABS) provisions.⁹⁶ One way to implement this goal is to establish certification of origin system, according to which applicants would have to submit official documentation from provider countries providing those genetic resources and where appropriate associated TK were acquired in accordance with ABS regulations, including conformity with such obligations as prior informed consent and benefit sharing.

⁹³ See Convention on Biological Diversity supra, Article 1

⁹⁴ G.Dutfiled above n. 179 at 506

⁹⁵ Ibid

⁹⁶ Articles 1, 8(j), 15 and 16 of the CBD but also Articles 17-21.

Applicants unaccompanied by such documentation would automatically be returned to the senders for re-submission with the relevant information.⁹⁷

The above, including certification of origin system, have their own practical complications, one of which is the fact that many countries have not adopted the ABS regulations in compliance with the CBD.

In sum, mandatory disclosure and certification of origin rules are promising ideals that could help enhance compatibility between the CBD and the worldwide patent system. The practicalities still need to be thought out carefully, however.⁹⁸

2.2.2 Compiling databases of traditional knowledge to serve as prior art

Demand for searchable databases of already documented information concerning traditional knowledge is one of the components in the defensive protection theory. India has been a particularly strong demander of TK databases, and it has already begun to develop a Traditional Knowledge Digital Library (TKDL) which is a database of information concerning traditional health knowledge spawned by the Ayurvedic system and medicinal plants used by practitioners. The government of India wants to make the TKDL available to patent examiners in India and elsewhere.⁹⁹

⁹⁷ The certification of origin idea was devised by Brendan Tobin. See B. Tobin, Certificates of Origin: A Role for IPR Regimes in Securing Prior Informed Consent, in ACCESS TO GENETIC RESOURCES: STRATEGIES FOR SHARING BENEFITS 329 (J.Mugabe et al.eds,ACTS Press 1997)

⁹⁸ For similar view see G.Dutfiled op cit.

⁹⁹ Clearly the question of TRIPS incompatibility does not arise here because such databases would simply help to improve the efficiency of prior art searches.

Multiple questions come into mind such as whether the TK databases would be useful and certainly stop patents like the one in the United States that was granted for the use of turmeric powder for wound healing, a remedy that was known to millions of people in India.¹⁰⁰

There is another challenge that goes along with the compilation of databases and this is the fact that national and regional laws still vary with respect to how information or material in the public domain should be presented or described in order that they constitute novelty-defeating prior art. For example, the European Patent Convention considers an invention “to be new if it does not form part of public knowledge/domain by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.”¹⁰¹ This indicates that publicly available items may form the state of the art whether or not they have been described in writing or even orally.

This analysis of how European Patent Convention defines and assesses novelty-defeating prior art suggests that many so-called biopiracy cases could not be legally challenged there. If so, the existence of TK databases will make little difference.¹⁰²

2.2.3 A misappropriation regime

Proposals for development of a misappropriation regime have been given by various scholars. One such scholar is Carlos Correa who has proposed as follows:

¹⁰⁰ The Turmeric traditionally has been used in India for its wound healing and other properties. Two U.S.-based Indian nationals were granted U.S Patent 5,401,504 on 28th March 1995 on the “Use of Turmeric in Wound Healing”, which was assigned to the University of Mississippi Medical Centre U.S.A. Based upon the evidence that the prior use of Turmeric in India some of which were more than one hundred years old, the United States Patent and Trademarks Office (USPTO) examiners rejected the claims as being obvious and anticipated, and concluded that the use of turmeric in powder form was an old art of healing wounds.

¹⁰¹ Convention on the Grant of European Patents, 5 October 1973, 1065 U.N.T.S.255; 13 I.L.M 270 [hereinafter EPC], art.54

¹⁰² G. Dutfield op cit at 511.

National laws would be free to determine the means to prevent it, including criminal and civil remedies (such as an obligation to stop using the relevant knowledge or to pay compensation for such use) as well as how to empower communities for the exercise and enforcement of their rights.¹⁰³

A step-by-step approach is suggested in developing such a regime. This is owing to the fact that there is lack of experience so far. Correa, while proposing for such regime, referred to two United Nations documents that implicitly support his proposal. The first of these is Decision V/16 of the CBD's Conference of the Parties which states:

Request[ed] Parties to support the development of registers of traditional knowledge, innovations practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity through participatory programs and consultations with indigenous and local communities, taking into account strengthening legislation, customary practices and traditional systems of resource management, such as the protection of traditional knowledge against unauthorized use.¹⁰⁴

The second is the “Principles and Guidelines for the Protection of the Heritage of the Indigenous Peoples” which were elaborated in 1995 by Erica-Irene Daes, then

¹⁰³ C.M. Correa, Traditional Knowledge and Intellectual Property: Issues and Options Surrounding the Protection of Traditional Knowledge, Quaker United Nations Office Discussion Paper 18 (2001) cites also in Dutfield *ibid.*

¹⁰⁴ Convention on Biological Diversity-Conference of the Parties, Decision V/16 (2000) available at <http://www.biodiv.org/convention/cops.asp>

Special Rapporteur of the UN Sub Commission on the Prevention of Discrimination and Protection of Minorities.¹⁰⁵ Paragraphs 26 and 27 state the following:

National laws should deny to any person or corporation the right to obtain patent, copyright or any other legal protection for any element of indigenous peoples' heritage without documentation of the free and informed consent of the traditional owners to an arrangement for the sharing of ownership, control, use and benefits.

National laws should ensure the labeling and correct attribution of indigenous peoples' artistic, literary and cultural works whenever they are offered for public display or sale. Attribution should be in the form of a trademark or an appellation of origin, authorized by the peoples or communities concerned.¹⁰⁶

Arguably, such a misappropriation regime could and probably should incorporate: (1) the concept of unfair competition; (2) moral rights; and (3) cultural rights. Unfair competition would deal with the situations in which TK holders engage in commercial activities pertaining, for example, to know-how, medicinal plants, artworks or handcrafts, had their trade affected by certain unfair commercial practices committed by others¹⁰⁷. According to Article 10bis of the Paris Convention for the Protection of Industrial Property¹⁰⁸, Certain acts are prohibited on grounds of constituting unfair competition by virtue of Article 10bis (3).¹⁰⁹

¹⁰⁵ United Nations Economic and Social Council, Commission on Human Rights, Sub-Commission on Prevention of Discrimination and Protection of Minorities, Principles and Guidelines for the Protection of the Heritage of Indigenous Peoples, U.N.Doc.No.E/CN.4/Sub.2/1995/26,annex 1 (21 June 1995). For the general account of this, see G.Dutfield, op cit.

¹⁰⁶ Ibid 26-27.

¹⁰⁷ G. Dutfield *ibid*.

¹⁰⁸ The Paris Convention for the Protection of Industrial Property was signed in 1883 and revised at Stockholm in 1967.

¹⁰⁹ These acts include:

The TRIPS Agreement incorporates the substantive provisions of the Paris Convention by reference and explicitly mentions Article 10bis in the sections dealing with geographical indications and undisclosed information.¹¹⁰

Moral rights are provided in Article 6bis of the Berne Convention for the Protection of Literary and Artistic Works.¹¹¹ Moral rights usually consist of the right of authors to be identified as such (sometimes referred to as the right of paternity), and to object to having their works altered in ways that would prejudice their honour or reputation (the right of integrity).

2.3 Positive Protection Theory

Positive protection entails the active assertion of IP rights in protected subject matter, with a view to excluding others from making specific forms of use of the protected material. Though positive protection can imply the adoption of new laws, existing categories of intellectual property can be used for protecting traditional knowledge, as will be seen in the preceding part of this study.¹¹²

Entitlement theory and experience to date both suggest that extant legal systems for protecting knowledge and intellectual works tend to operate as either property regimes, liability regimes, or as combined systems containing elements of both.¹¹³ A brief consideration of these two will be appropriate at this juncture.

¹¹⁰ TRIPS Agreement Articles 22.2(b), 39.1.

¹¹¹ Berne Convention for the Protection of Literary and Artistic Works, 1886 revised at Paris in 1971, See Treaty Doc.No.99-27,1161 U.N.T.S. 3.

¹¹² H. M. Haugen op cit at 665.

¹¹³ See Richard Epstein, Steady the Course: *Property Rights in Genetic Material*, In Perspectives On Properties Of The Human Genome Project 153 (F.Scott Kieff ed. 2003 (advocating total reliance on exclusive IP rights); J H Reichman, Saving the Patent Law from Itself, In Perspectives On The Genome

2.3.1 Sui *generis* IP regimes

What is the difference between property and liability regimes? A property regime vests exclusive rights in owners, of which the right to refuse, authorize and determine conditions for access to the property in question are the most fundamental. For these rights to mean anything, it must be possible for holders to enforce them.¹¹⁴

A liability regime is a “use now pay later” system, according to which use is allowed without the authorization of the rights holders. But it is not free access because *ex post* compensation is still required.¹¹⁵ A *sui generis* system based on such a principle has certain advantages in countries where much of the TK is already in wide circulation but may still be subject to the claims of the original holders. Asserting property right over knowledge is insufficient to prevent abuses when so much traditional knowledge has fallen into the public domain and can no longer be controlled by the original TK holders. A pragmatic response is to allow the use of such knowledge but to require that its original producers or providers be compensated.¹¹⁶

There are different ways the compensation payments could be handled. The government could determine the rights by law. Alternatively, a private collective management institution could be established, which would monitor use of TK, issue licenses to users, and distribute fees to rights holders in proportion to the extent to

¹¹⁴ Project, above, at 289 (advocating expanded role for reliability rules to alleviate tensions between exclusive IPRs and public domain)

¹¹⁵ For a general account of these see G. Dutfield op cit at 514.

¹¹⁵ See e. g J.H Reichman, Of Green Tulips and Legal Kudzu: Repackaging Rights in Sub patentable Innovation, 53 VAND.L.REV. 1753 (2000). See generally J. H. Reichman, Legal Hybrids between Patent and Copyright Paradigms, 94 COLUM.L.REV. 2432 (1994) cited also in G. Dutfield, Legal and Economic Aspects of Traditional Knowledge, (supra).

¹¹⁶ See generally Jerome H. Reichman & Tracy Lewis, Using Liability Rules to Stimulate Local Innovation in Developing Countries: Application to Traditional Knowledge in Keith E. Maskus and Jerome H. Reichman (eds) op cit.

which their knowledge was used by others. They could also collect and distribute royalties where commercial applications are developed by users and the licenses require such benefits to go back to the holders.¹¹⁷ Alternatively, in jurisdictions where TK holders are prepared to place their trust in a state or government-created competent authority to perform the same function, a public institution could be created instead.¹¹⁸

Whichever approach is selected, and a combination of both is probably essential,¹¹⁹ the question arises of whether rights must be claimed through registration, or whether the rights should exist in law irrespective of whether they are filed with a government agency. It seems only fair that the rights should exist regardless of whether or not they are declared to the government, and that these rights should not be exhausted by publication unless the holders have agreed to renounce their claims. Yet, protection and enforcement would probably become more effective with registration, and knowledge transactions would become much easier to conduct if claims over TK were registered.¹²⁰ Consequently, the *sui generis* system should encourage the registration of right claims but not make this a legal requirement for protection.¹²¹

¹¹⁷ G Dutfield op cit at 514 and 515. Collective Management Societies does exist in many countries for the benefit of musicians, performers and artists in Tanzania. The Copyright Society of Tanzania (COSOTA) is such an example while SISAC is the global copyright society organization.

¹¹⁸ Graham Dutfield emphasizes that those who oppose liability regime may object on the ground that we should not have to pay for public domain knowledge. One may counter this view by observing that “the public domain” is an alien concept to many indigenous groups. Just because an anthropologist described a community’s use of medicinal plant in an academic journal without asking permissions, this does not mean that the community has abandoned its property rights in that knowledge or its interest in ensuring that the knowledge be used in a culturally appropriate manner. Seen this way, a liability regime should not be considered an alternative to a property regime but as a means to ensure that TK holders and communities can exercise their property rights more effectively.

¹¹⁹ See e. g., Thomas Cottier & Marion Panizzon, Legal Perspectives on Traditional Knowledge: The case for Intellectual Property in Keith E. Maskus and Jerome H. Reichman (eds) op cit.

¹²⁰ G. Dutfield op cit.

¹²¹ See also Cottier & Panizzon above note 210 discussing these issues.

2.3.2 Database rights

Nuno Carvalho of WIPO has suggested that TK databases should be protected under a special database right.¹²² Nowadays there is great interest in documenting TK and placing it in databases. However, as Carvalho points out, traditional communities and TK holders are the ones responsible for compiling or holding the databases. One presumes that they would wish to control access to and use information held in databases, which is not necessarily true under current practices. For these reasons, copyright law does not provide an adequate solution. As Carvalho explains: “it is necessary to establish a mechanism of industrial property protection that ensures the exclusivity as to the use of the contents of the databases, rather than to their reproduction (copyright),¹²³ disregarding weighty questions about eligibility and scope of protection for factual matters under the copyright law.¹²⁴

The basis for Carvalho’s proposal may be found in Article 39.3 of the TRIPS, which deals with test, or other data that must be submitted to government authorities as a condition of approving the marketing of pharmaceutical or agrochemical products, where the origination of the data involves considerable effort.¹²⁵ The article requires governments to protect such data against unfair commercial use. It also requires them to protect data against disclosure except where necessary to protect the public. This provision allows for the possibility that certain information will have to be protected

¹²² N. P. Carvalho, From the Sharman’s Hut to the Patent Office: How Long and Winding is the Road?, 41 Revista Da Associacao Brasileira De Propriedade Intellectual 3 (July- Aug. 1999)

¹²³ Ibid at 28 cited.

¹²⁴ See TRIPS Agreement, Paris Convention for the Protection of Industrial Property 1883 as revised in 1967, Article 10.2.

¹²⁵ See TRIPS Agreement Article 39.3.

against unfair commercial use even when that information has been disclosed to the public.¹²⁶

To Carvalho, such additional protection could be extended to TK in the form of a legal framework for a TK database system. Such a system would retain the following three features derived from Article 39.3 of TRIPS: (a) the establishment of rights in data; (b) the enforceability of the rights in the data against their use by unauthorized third parties; and (c) the absence of predetermined term of protection.¹²⁷

Carvalho suggests that such databases should be registered with national patent offices and that, to avoid the appropriation of public domain knowledge, enforcement rights should be confined to knowledge that complies with a certain definition of novelty. Novelty need not be defined in any absolute sense but as commercial novelty (as with the TRIPS provisions on layout-designs of integrated circuits¹²⁸ and the UPOV Convention).¹²⁹ In other words, knowledge disclosed in the past could be treated as “novel” if the innovation based upon it had not yet reached the market.

2.3.3 Global bio-collecting Society

There has been some suggestion for the creation of a Global Bio-collecting Society (GBS).¹³⁰ This is a property right-based institution that would reduce transaction costs while improving the international enforcement of rights over traditional

¹²⁶ See G. Dutfield op cit at 516.

¹²⁷ Carvalho, above note 213 at 30 cited also in G. Dutfield at 516 -517.

¹²⁸ See TRIPS Agreement Article 42.

¹²⁹ See International Convention for the Protection of New Varieties of Plants, 2 Dec. 1961.

¹³⁰ For a general account of this see P. Drahos, Indigenous Knowledge, Intellectual Property and Biopiracy: Is a Global Bio-collecting Society the Answer?, 6 EURO.INTELL.PROP.REV.245 (2000)

knowledge associated with biodiversity. It would also generate trust in the market between holders and commercial users of TK.¹³¹

The GBS would operate a kind of private collective management organization, as is common in the area of domestic copyrights and related rights. One key difference is that the GBS would be an international institution. Another is that its mandate would be to implement the objectives of the CBD, particularly those relating to traditional knowledge¹³². Membership of the GBS would be open to traditional groups and communities, and to companies anywhere in the world.

The traditional GBS would constitute a repository of community knowledge registers voluntarily submitted by member groups and communities. These would be confidential except that the identities of the groups or communities submitting registers would be made known. In doing so, it would trigger a dialogue between a community known to have submitted a register and a company interested in gaining access to information in this register. The result would be an arrangement to access TK in exchange for certain benefits.¹³³

To improve the chances for successful transactions of benefit to traditional communities, the GBS could provide a range of services in addition to serving as a repository of TK registers. It could, for example, assist in contractual negotiations and maintain a register of independent legal advisory willing to assist traditional

¹³¹ The suggestion to have such an institution was mooted by Peter Drahos of Australia National University.

¹³² P. Drahos *op cit*.

¹³³ See G. Dutfield *op cit* at 517.

communities. It could monitor the commercial use of traditional knowledge, including the checking of patent applications.¹³⁴

The GBS could also have an impartial and independent dispute settlement function. Its recommendations would not be legally binding, but there would still be incentives to adhere to them. For example, failure to do so could result in expulsion from GBS, in which case the excluded party, if a company, might face negative publicity that would be well worth avoiding.¹³⁵

2.3.4 Compensatory Liability Regime

The compensatory liability regime idea proposed by Professor Jerome Reichmann of Duke University differs from the previous proposals in that it is, as its name indicates, a liability regime rather than a property based system.¹³⁶ It adopts a conception of TK as know-how, or at least it aims to protect certain TK that may be characterized as know-how. Know-how is taken to refer to information that has practical applications but is insufficiently inventive to be patentable.

For such knowledge, a property regime is considered likely to afford excessively strong protection in the sense that it will create barriers for follow-on innovators. Such a regime will also intrude on the public domain. However, know-how holders face the problem of shortening lead-time as reverse engineering becomes ever-more sophisticated.¹³⁷

¹³⁴ Ibid

¹³⁵ Ibid at 518.

¹³⁶ See Jerome H. Reichman above note 207.

¹³⁷ See Reichman, Saving the Patent Law from Itself, above note 204; Reichman, Tulips, above 205 cited also in G. Dutfield at 518.

So what is to be done? In order to strike the right balance between the reasonable interests of creators of sub-patentable innovations and follow-on innovators, a liability regime could ensure that, for a specific period of time, users should be required to compensate the holders of know-how they wish to acquire. Compensation need not be paid directly but through a collecting society. The CLR would require know-how to be registered and in so doing would provide legal protection for a period of time during which most uses by second comers should be compensated. Royalty rates would be low and could be based on standard form agreements. The CLR would apply to new knowledge, particularly to new applications of old knowledge, while a misappropriation regime could apply to old knowledge that was not voluntarily made available to the public.¹³⁸

2.4 Utilitarianism Theory

According to utilitarianism,¹³⁹ the prevailing school of thought in intellectual property jurisprudence, the nature of information and its usefulness (actual or potential) is the key criterion to decide who ought to hold/exercise the right. The function of a right is to grant appropriate incentives for the production and/or dissemination of the kind of information desired. Both these aspects translate into interesting propositions when applied to traditional knowledge.¹⁴⁰ First, it implies that if we agree that there ought to be an intellectual property right on traditional

¹³⁸ For details and specific model, see Reichman & Lewis, above note 207.

¹³⁹ Many decisive doctrinal differences flow from the adoption of utilitarian approach to IP. A purely utilitarian model places great emphasis on legal formalities: ‘the stringent requirements for patent protection seek to ensure that ideals in the public domain remain there for the use of the public’. In order to avoid ‘monopolies which stifle competition without any concomitant advance’ in ‘scientific progress’, patents demand immediate disclosure of an invention as ‘the *quid pro quo* of the right to exclude. It however needs to be stressed that expiration of the IPRs brings new designs and technologies into the public domain through disclosure.

¹⁴⁰ See P. G. Sampath, ‘Intellectual Property Rights on Traditional Medicinal Knowledge: A Process-Oriented Perspective’, *The Journal of World Intellectual Property*, Vol. 7 No. 5 at 716.

knowledge, then this right has to be based on the potential contribution that it could have to the process of innovation in the biotechnological drug R & D. This is the best clue to the question: which form of information are we trying to protect? The answer to this question will amount to a limitation on the right as well as the set of beneficiaries who should exercise the right. Secondly, the “incentive” criteria of conventional intellectual property jurisprudence can give us a basis on which to differentiate between the different forms of information that constitute traditional knowledge, and which out of these ought to be protected and what forms of institutional mechanisms are best suited for its production and dissemination.¹⁴¹

A utilitarian attitude towards IP dictates a very simple but complicated answer: ‘From an economic perspective, the more people who can use information, the better’.¹⁴² However, the fact that more people can use knowledge does not prohibit sharing fair remuneration to the holders of TK.

2.5 The Right-Based Theories and Goal-Based Theories

Contemporary explanations for the grant of rights in general, and intellectual property rights in particular including traditional knowledge, can be broadly classified into two main schools of thought right-based theories, and goal based theories.¹⁴³ The right-based theories are also known as “natural rights” theories and the goal-based arguments go commonly under the name of “consequentialist arguments”. Of the two, the goal-based theory/consequentialist argumentation is the

¹⁴¹ Ibid at pp 716 - 717.

¹⁴² Lemley, M..A, Place and Cyberspace, California Law Review 91, 521-542, 2003.

¹⁴³ See M.D.A Freedman, Lloyd Introduction to Jurisprudence, sixth edition, Sweet and Maxwell, London, 1994, 383.

more widely accepted basis for the grant of intellectual property rights. The juxtaposition of the individual's needs against the society's needs and making it the basis of granting rights, forms the core of goal-based theories for the grant of rights.¹⁴⁴ The meaning of "goal-based" here is whether rights for something ought to be granted or not, and to whom they are to be granted, and this is decided on the basis of what needs to be furthered in the interests of the society.¹⁴⁵ Utilitarianism is the main paradigm on which such a goal-based/consequentiality argumentation is based.

2.6 The Right-Based Theories versus the Utilitarian Paradigm

In contrast to the utilitarian justification, right-based claims for intellectual property in general are based upon arguments of labour or the instrumentalist justification¹⁴⁶ self-development,¹⁴⁷ the idea of sovereignty,¹⁴⁸ or even moral individualism.¹⁴⁹ Of these, the strongest are discussed briefly below.

The instrumentalist justification is based on John Locke's labour theory that people are entitled to the fruits of their labour.¹⁵⁰ Because it assumes that individuals create 99 per cent of the value of the resource, it is believed that Locke's justification for property rights is probably more applicable to intellectual property than any kind of

¹⁴⁴ For detailed explanation of rights' jurisprudence, see Freedman, *ibid*, 380.

¹⁴⁵ *Ibid.*

¹⁴⁶ See H. L. A. Hart, Are there any Natural Rights? 64 *Philosophical Review* 175, 1955, discussed extensively in Freedman, *supra*.

¹⁴⁷ The self-development justification draws on the work of Hegel, as spelled out in the *Philosophy of Rights* (1967: 1821) and else where, discussed extensively in May, *supra* cited also in P.G. Sampath at 719 footnote 28.

¹⁴⁸ See the discussion on Austin's notion of sovereignty, in Freedman *supra* at 216-221.

¹⁴⁹ This is one of the intellectual underpinnings of the law of contract, more popularly known as the "will theory": in Freedman, *ibid.* at 388.

¹⁵⁰ Edwin C. Hettinger, Justifying Intellectual Property, 18 *Philosophy and Public Affairs* 31, 1989, in Peter F. Drachos, *Intellectual Property*, Dartmouth Publishing, Aldershot, U.K., and Ashgate Publishing Company, Vermont, U.S.A, 1999, 117-139, at 122.

physical property.¹⁵¹ This remains one of the most popular right-based justifications for intellectual property.¹⁵²

Another popular natural right-based argument is the self-development justification. The self-development justification is based on Hegel's idea that the legitimacy of property is inextricably linked to the existence of the free individual and the recognition of the free individual by the rest of the society.¹⁵³ According to this argument, the recognition of property rights is an integral part of the freedom of individuals, "since the respect others show of his property by not trespassing on it reflect their acceptance of him as a person".¹⁵⁴

2.7 The Reciprocity Theory

The term "reciprocity" has been defined as "a mutual exchange of privileges".¹⁵⁵ As a concept, it is rooted in fundamental moral values. According to Lawrence C. Becker, "reciprocity is a moral virtue" and, therefore, "we ought to be disposed, as a matter of moral obligation, to return good in proportion to the good we receive, and to make reparation for the harm we have done."¹⁵⁶ Underpinning the concept of reciprocity are several arguments: first, that good received should be returned with good; second, that restitution be made for wrongs committed; third, that returns and reparations should be fitting and proportional; and finally, that the returns be made

¹⁵¹ Taken from the criticism on Nozick, in Hettinger, *ibid.* at 123.

¹⁵² May, *supra* at 49.

¹⁵³ *Ibid.* at 26.

¹⁵⁴ Avineri, 1972, cited in May, *ibid.*

¹⁵⁵ Websters Ninth New Collegiate Dictionary, 1987.

¹⁵⁶ Lawrence C. Becker, *Reciprocity* 3, Routleg & Kegan Paul, London, Boston, 1986.

by the one who has received the good or done the evil.¹⁵⁷ For the purposes of this study, the core moral arguments of reciprocity may be summarized as requiring that good be returned in proportion to good received and that reparations be due for harms caused. These arguments are referred to collectively as the “reciprocity argument”.

Significantly, reciprocity has now been accepted by economists as an important motive for social conduct that ought not to be excluded from the economic analyses.

As they point out:

“Most economic models are based on the self-interest hypothesis that assumes that all people are exclusively motivated by their material self-interest. In recent years, experimental economists have gathered overwhelming evidence that systematically refutes the self-interest hypothesis. The evidence suggests that many people are strongly motivated by others regarding preferences and that *concerns for fairness and reciprocity can not be ignored*” (emphasis supplied).¹⁵⁸

Therefore, to the extent that arguments for the protection of traditional knowledge are based on fairness and reciprocity,¹⁵⁹ they ought not to be dismissed as being out of touch with reality or subject to refutation on the ground that they are not based on sound economics.

¹⁵⁷ Ibid, at 89-103 cited also in P. Kuruk, “Building the Gap between Traditional Knowledge and Intellectual Property Rights: Is Reciprocity an Answer?” Journal of World Intellectual Property, Vol 7 No.3 at 430 footnotes 9-10

¹⁵⁸ Ernst Fehr and Klaus Schmidt, *Theories of Fairness and Reciprocity: Evidence and Economic Applications*, Discussion Paper prepared for the Centre for Economic Policy Research, 2001, available at: www.cepr.org/pubs/DP2703, as cited also in P. Kuruk op cit at 431.

¹⁵⁹ See *infra*, footnotes 73 to 85, and accompanying text.

As an implicit endorsement of the reciprocity argument in the context of traditional knowledge, one of the early model intellectual property instruments advocated by both WIPO and United Nations Educational, Scientific and Cultural Organization (UNESCO) emphasized the need to protect folklore on the basis of reciprocity. Specifically, the Model Provisions for National Laws on the Protection of Expressions of Folklore against Illicit Exploitation and Other Prejudicial Actions (Model Provisions) required that “expressions of folklore developed and maintained in a foreign country [be] protected subject to reciprocity.”¹⁶⁰

Indeed, prior to the adoption of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) the reciprocity argument was used successfully by the United States to tackle problems in its balance of trade.¹⁶¹

2.7.1 The Reciprocity Argument and the Protection of Traditional Knowledge

The lessons regarding U.S experience with the reciprocity argument are relevant to the current debate concerning the protection of traditional knowledge.¹⁶² Similar to

¹⁶⁰ See *Committee of Governmental Experts on the Intellectual Property Aspects of the Protection of Expressions of Folklore, Model Provisions for National Laws on the Protection of Expressions of Folklore against Illicit Exploitation and other Prejudicial Actions* (1982) reprinted in 16 Copyright Bulletin No. 12, 62, 1982, at Article 14.

¹⁶¹ See generally, Thomas O. Bayard and Kimberly Ann Elliot, *Reciprocity and Retaliation in U.S. Trade Policy*, 1994.

¹⁶² In 1985 the United States adopted a controversial trade tactic termed “aggressive unilateralism” pursuant to which it demanded that its trading partners reduce real or imagined barriers to U.S exports and investment. The new trade stance was aggressive because U.S demands were often backed by highly publicized threats of retaliation. It was also unilateral because the United States frequently made its own decision whether a foreign trade practice was unfair, and also often required that its partners unilaterally liberalize without it making any corresponding concessions. Perceived inequities in the terms of market access have compelled the U. S Administration to insist on reciprocal arrangements in its trade relations. Several reasons accounted for this change in the U.S. attitude to trade. Traditionally, the post- War U.S. approach to opening foreign markets had been to encourage multilateral negotiations in which many countries exchanged reciprocal commitments to lower trade barriers under the auspices of the General Agreement on Tariffs and Trade (GATT). However, notwithstanding significant tariff liberalization under GATT, there was a concern in the United States that past trade negotiations had not resulted in a fair and balanced outcome. Many foreign markets were seen substantially more protected than the U.S. markets, with foreign governments relying relatively more heavily on subsidies, administrative practices, and other non-tariff

the arguments once made by the United States with respect to intellectual property, the developing countries' submissions to the TRIPS Council regarding a review of the TRIPS Agreement could be seen as insistence on a reform of the existing international intellectual property framework to incorporate traditional knowledge on the basis of reciprocity. In keeping with the contours of the principle of reciprocity identified earlier,¹⁶³ the developing countries have argued, essentially, those developed countries members protect traditional knowledge on grounds of fairness. The African Proposal echoes this concern by calling for the protection of genetic resources and traditional knowledge as a matter of "equity and due recognition for the custodians of the genetic resources and traditional knowledge."¹⁶⁴

The position of the developing countries bears strong overtones of the reciprocity principle that goods are returned in proportion to goods received. To a degree, the good received by the developed countries under the TRIPS Agreement has included a commitment by the developing countries to an intellectual property regime premised on the disclosure of the relevant material facts in any patent application.

2.8 Conclusion

The protection of traditional knowledge raises a number of policy issues, namely the goals and methods of protection, and its implications for indigenous people.

barriers. Critics of the U.S. trade policy alleged that foreign producers and investors enjoyed easy access to the relatively open U.S market while U.S. firms were denied equivalent opportunities abroad. Supporters of aggressive unilateralism demanded the elimination of foreign trade barriers because they contributed to the trade deficit, undermined American competitiveness, and cost Americans their jobs. They also pointed out that the GATT rules-by ignoring foreign investment and services-failed to cover an increasing share of world trade that was especially important to American firms.

¹⁶³ The Relationship Between the TRIPS Agreement and the Convention on Biological Diversity and the Protection of Traditional Knowledge (TRIPS and the CBD), WTO Doc. IP/C/W/403, June 2003, at para 1

¹⁶⁴ Ibid.

Obtaining international consensus on a binding instrument has so far proved to be quite a challenge. While some countries have simply not been convinced about the need to protect traditional knowledge internationally, other states which see such a need prefer that the matter be addressed in a non-binding declaration rather than a binding treaty.

A number of theories have been proposed so far for the protection of traditional knowledge but none of the theories proposed have been worked out since no international treaty has been in place to date. It is only when an agreed international treaty comes into force when the right theory among all of the above could be identified.

All in all this study subscribes to a Defensive Protection Theory in a short run with a view of coming up with a specific legislation at the national level on protection of traditional knowledge in Tanzania while formulation of an international binding instrument is being awaited.

CHAPTER THREE

3.0 TRADITIONAL KNOWLEDGE: QUESTIONS, ISSUES AND CHALLENGES

3.1 Introduction

Over the past fifteen years or so, the subject of indigenous knowledge, more often referred to as traditional indigenous knowledge or traditional knowledge,¹⁶⁵ has attracted growing interest. As indigenous peoples have emerged as major players and partners on the national and international scene, this knowledge has come to represent a new sphere of cultural and political affirmation for them. Throughout North America, hundreds of documents, produced by the scientific community and by the indigenous and government organizations, have broached the subject from various angles.¹⁶⁶

The number of conference and discussion workshop on indigenous or traditional knowledge is continuing to grow every year, and the legitimacy of this knowledge as relevant source of information to help protect ecosystems, increase our understanding of environmental phenomena, and manage natural resources has been recognized on countless occasions by the governments of many countries. This recognition has also been manifested in the special provisions targeting the

¹⁶⁵ The expression Traditional Ecological Knowledge (TEK) is fairly common in English-Language Literature on this topic. However, my use of the expression indigenous knowledge is equivalent to the typical use of the notion of traditional knowledge although the expression indigenous knowledge is sometimes associated with a far more comprehensive notion, one that consists of systems of knowledge but also the historical and social conditions associated with the emergence and dissemination of this knowledge.

¹⁶⁶ See Chabot Marcele and Carole Levesque, *Indigenous knowledge, Contribution to a Review of the Literature*, Montreal, Institute national de la recherché scientific, urbanization, culture et societe 2001, a translation by Evelyn Lindhorst at p1.

protection of this knowledge in numerous international conventions and several regional and national initiatives, such as policies and programs.¹⁶⁷

3.2 Traditional Knowledge and Formal Intellectual Property Rights System

Traditional knowledge (TK) and its relationship to the formal intellectual property system have emerged in the international negotiations on the conservation of biological diversity,¹⁶⁸ international trade, and intellectual property rights. In the past few years, high-level discussions on the subject have been taking place at the WTO, the Conference of the Parties (COP) to the CBD, and WIPO, which has established an Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC). Several developing countries' governments in these fora have adopted the view that traditional knowledge needs to be legally protected, and have criticized the formal IPR system in its present form for not only failing to provide adequate protection for traditional knowledge, but also for legitimating its misappropriation.¹⁶⁹

¹⁶⁷ We can cite as an example commitments made in this regard at the 1992 Rio Summit (or Earth Summit) that were duly included in the text of the International Convention on Biological Diversity (CBD, 1992), the World Intellectual Property Organization in its initiatives to seek protection of traditional knowledge formed the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC), the OAU Model Law for the Protection of the Rights of Local Communities, Farmers and Breeders and the Regulation of Access to Biological Resources, ARIPO Legal Instrument on the Protection of Traditional Knowledge and Expressions of Folklore, Canadian Environmental Assessment Act, Environmental Management Act, 2004 of Tanzania. I will return to discuss these instruments in more detail later in this study.

¹⁶⁸ There is no doubt that interest in traditional knowledge has in part been triggered and reinforced by the growing environmental awareness that has emerged in the West since the mid 1970s. A number of observers have viewed this knowledge, which expresses a different type of relationship with the natural world, as an alternative to the exploitative and disorganized practices of governments and large corporations; practices that are leading to the destruction of plant and animal resources, and thus imperiling the biodiversity of ecosystems and even the very survival of the planet.

¹⁶⁹ See generally Thomas Cottier & Marion Panizzon, *Legal Perspectives on Traditional Knowledge. The Case for Intellectual Property Protection* in Keith E. Maskus and Jerome H. Reichman (Eds) *International Public Goods and Transfer of Technology under a Globalized Intellectual Property Regime*, Cambridge University Press, Cambridge, 2005.

Solution to the protection of traditional knowledge under intellectual property law may be sought in the form of “positive protection” or “defensive protection.” Positive protection refers to the acquisition by the traditional knowledge holders themselves of an IPR, such as a patent or an alternative right provided by *sui generis* system. Defensive protection refer to provisions adopted in the law or by the regulatory authorities to prevent IPR claims to knowledge, to cultural expression, or to a given product being granted to unauthorized persons or organizations. The distinction is somewhat artificial in actual practice, but is nonetheless conceptually useful.¹⁷⁰

3.3 Broader and Narrower Definitions of Traditional Knowledge

As we have seen earlier the term traditional knowledge per se does not refer to any product eligible for intellectual property protection. However, various terms have been proposed in order to recognize the rights which could be derived from traditional knowledge. “Traditional intellectual property rights” is a term introduced by recognized authors,¹⁷¹ whilst others prefer the term “community intellectual property rights”¹⁷² or “traditional group knowledge and practice”,¹⁷³ while the

¹⁷⁰ See generally Graham Dutfield, Legal and Economic Aspects of Traditional Knowledge in Keith E. Maskus and Jerome H. Reichman (Eds) *ibid*.

¹⁷¹ T. Cottier and M. Panizzon, Legal Perspectives on Traditional Knowledge: The Case of Intellectual Property Protection, 7 *Journal of International Economic Law*, 2004, p. 371 at p. 387

¹⁷² See A. K Gupta, Study on the Role of Intellectual Property Rights in the Sharing of Benefits Arising from the Use of Biological Resources and Associated Traditional Knowledge, WIPO Publication No 769 (E), WIPO-UNEP, 2005; available at: www.wipo.org/tk/en/publications/769e_unep_tk.pdf. See also Crucible Group, People, Plants and Patents, International Development Resource Centre, Ottawa; Dag Hammarskjöld Foundation, Stockholm; International Plant Genetic Resource Centre, Rome, 1994.

¹⁷³ See P. Drahos, “Towards An International Framework For the Protection of Traditional Group Knowledge and Practice,” paper presented at Elements of National *Sui Generis* Systems for the Preservation, Protection and Promotion of Traditional Knowledge, Innovations and Practices and Options for an International Framework UNCTAD- Commonwealth Secretariat Workshop, 4-6 February 2004; available at<r0.unctad.org/trade_env/test1/meetings/tk2.htm=agenda>

Organization of African Unity [(OAU) currently Africa Union (AU)] Model Law simply applies the term “community rights”.¹⁷⁴

Despite the growing interest and popularity of traditional knowledge in many spheres, it is extremely difficult to describe this knowledge at a theoretical or methodological level, which leads to numerous or multitude of meanings and views when attempts are made to define traditional knowledge.

Despite these different views, the term “traditional knowledge” most commonly refers to knowledge associated with the environment rather than knowledge related to, for example, artworks, handicrafts and other cultural works and expressions (which are usually assimilated to folklore)¹⁷⁵. According to one expert, traditional knowledge (or what she calls “Traditional Environmental Knowledge”) is a body of knowledge built by a group of people through generations living in close contact with nature. It includes a system of classification, a set of empirical observation about the local environment, and a system of self-management that governs resource use.¹⁷⁶

From the above definitions of traditional knowledge, one encounters a definitional question of TK. One may validly respond to this definitional question in a very

¹⁷⁴ OAU, Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources, Model Legislation 101, originally adopted at the 68th Ordinary Session of the Council of Ministers of the OAU in 1998, final version adopted in 2000.

¹⁷⁵ It is pertinent to point out at this juncture that in this context knowledge is not “traditional” because of specific subject matter or content, nor its age or antiquity, nor for that matter its aesthetic qualities. What makes it traditional is the way it has been preserved and transmitted between generations within a community: “its nature relates to the manner it develops rather than to its antiquity”.

¹⁷⁶ M. Johnson, Research on Traditional Environmental Knowledge: Its Development and its Role, in Lore Capturing Traditional Environmental Knowledge 3,3-4 (M. Johnson ed, IDRC 1992)

inclusive way or take a much more restrictive view of what a TK-holding society should look like. Starting with the inclusive view, one could reasonably argue that the existence of TK is not limited to certain types of societies but, on the contrary, may be found in all societies, no matter how modern they might appear to be and how untraditional much of the knowledge in circulation within them is. This is not to suggest that TK is easy to find in every society. Rather, the urbanization and westernization process that has transformed many of the world's societies are unlikely to have resulted in the complete eradication of TK even in those countries that have experienced these phenomena the most comprehensively.¹⁷⁷

Many observers nonetheless prefer to apply the terms more narrowly to knowledge held by tribal populations that live outside the cultural mainstream of the country in which these peoples are situated and whose material cultures are assumed to have changed relatively little over centuries or even millennia. When used this way, the term "traditional knowledge" refers primarily to the knowledge of indigenous and tribal peoples, as defined under the International Labour Organization Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries.¹⁷⁸ According to this Convention, "tribal peoples" refer to those.

Whose social, cultural and economic conditions distinguish
them from other sections of the national community, and

¹⁷⁷ G. Dutfield, Legal and Economic Aspects of Traditional knowledge in Keith E. Maskus and Jerome H. Reichman (eds) op cit 497

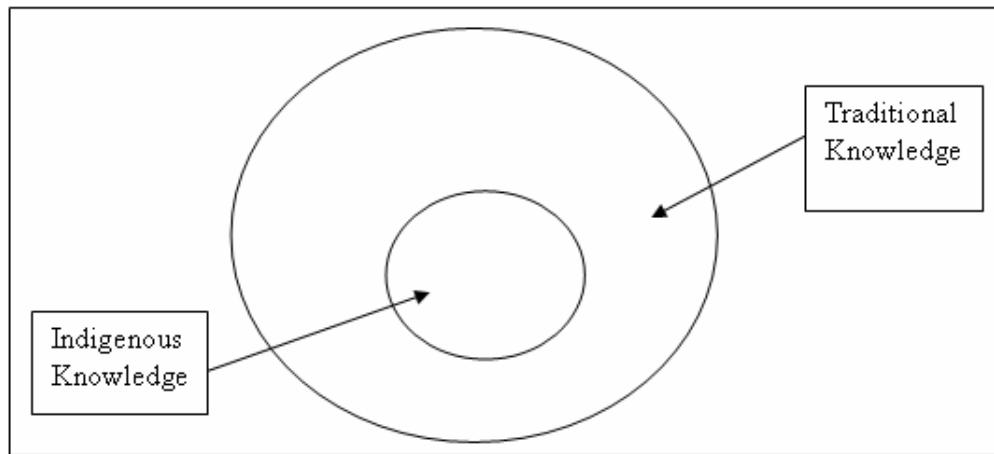
¹⁷⁸ International Labour Organization Convention 169 concerning Indigenous and Tribal Peoples in Independent Countries, 27 June, 1989, 72 ILO OFF. BULL. 59, 28 I.L.M 1382.

whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulations.¹⁷⁹

On the other hand, Indigenous peoples” refers to those people who are regarded as indigenous on account of their descent from the populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonization or the establishment of present state boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions.¹⁸⁰

Because it is so common to characterize traditional knowledge holders as being members of such societies, the term “indigenous knowledge” is sometimes used instead interchangeably with, or as a sub-set of, traditional knowledge (see figure 1.)

Figure 1: Relationship between Traditional Knowledge and Indigenous Knowledge



¹⁷⁹

¹⁷⁹ Ibid Article 1.1 (a)

¹⁸⁰

¹⁸⁰ Ibid Article 1.1 (b)

The term “traditional knowledge” or “indigenous knowledge” are used interchangeably by scholars in the literature and often in different senses (see Figure 2), based mainly on the academic disciplines and the different expectations placed on the right.

Figure 2: Definitions of Traditional Knowledge

The Convention on Biological Diversity (CBD), in Article 8 (j) defines traditional knowledge as the knowledge, innovation and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity.

Traditional knowledge can refer to, as the World Intellectual Property Organization (WIPO) uses it: “..... the traditional-based literary, artistic or scientific works; performances; and all other tradition-based innovations and creations resulting from intellectual activity in the industrial, scientific or artistic field.”¹⁸¹ Indigenous knowledge, on the other hand, is understood by the WIPO to be the traditional knowledge of indigenous peoples. Taken this way: “Indigenous Knowledge is therefore part of the traditional knowledge category, but traditional knowledge is not necessarily indigenous.”¹⁸²

The words “indigenous knowledge” and “traditional knowledge” are used synonymously to: “differentiate knowledge developed by a given community from

¹⁸¹ WIPO, *Intellectual Property Needs and Expectations of Traditional Knowledge Holders*, WIPO Report on Fact-Finding Missions on Intellectual Property and Traditional Knowledge, World Intellectual Property Organization, Geneva, 1998-1999, at 25

¹⁸² Ibid, at 23

the international knowledge system as generated through universities, government research centres and industry sectors”¹⁸³

Traditional knowledge or indigenous knowledge is also defined as the “unique traditional, local knowledge existing within and developed around the specific conditions of women and men to a particular geographic area”¹⁸⁴.

Traditional knowledge or indigenous is also often used to denote indigenous medicinal knowledge which is defined as: “ a coherent system linking social behaviours, supernatural beings, human physiology, and botanical observations”¹⁸⁵

Source: Complied by Padmashree Gehl Sapat in his article “Intellectual Property Rights on Traditional Medicinal Knowledge” The Journal of World Intellectual Property, Vol.7 No. 5 and partially sourced from *Indigenous Knowledge and Development Monitor*, Vol. 6, Issue 3, and December 1998.

All these definitions represent different facets of the universe of traditional knowledge, which are related yet distinct in nature, and are in keeping with the spirit of Article 8(j).

However, and to make matters still more complicated, the term “indigenous knowledge” is also used by others often academics in a lightly different way to express the localized nature of the knowledge they are referring to. Holders of indigenous knowledge, according to this view, may come from a diverse range of (indigenous and non-indigenous) populations and occupational groups, such as traditional farmers, pastoralists, fishermen and nomads, whose knowledge is linked to a specific place and is likely to be based on a long period of occupancy spanning

¹⁸³ Michael Warren, “*Indigenous Knowledge and Development Monitor*”, Vol. 6, Issue 3, December 1998, p. 13.

¹⁸⁴ Louis Grenier, “*Working with Indigenous Knowledge: A Guide for Researchers*”, International Development Research Centre, Ottawa, Canada, 1998, 1.

¹⁸⁵ W.V. Reid. *Sorcerers and Healing Spirits*, 1983, Cited in Michael J. Huft. “*Indigenous People and Drug Discovery Research: A Question of Intellectual Property Rights*,” 89(4), Northwestern University Law Review 1678, 1995, at 1695.

several generations. Often this knowledge is differentiated from more generally held knowledge and from the knowledge of urbanized and western (or westernized) societies.¹⁸⁶

Still others would claim that such conceptual approaches are unnecessarily narrow, in the sense that traditional knowledge is not necessarily local and informal. To assume otherwise would exclude formalized traditional systems of knowledge that are well documented in ancient texts and are part of the cultural mainstream of some countries, such as the Ayurvedic, Siddha and Unani health systems of the South Asian countries. In some countries, these systems are formalized to such an extent that they are studied at universities and have just as high a status as western biomedicine. In India, some commentators differentiate these knowledge systems from local folk knowledge which still tends to be orally transmitted, even though they consider all these kinds of knowledge to be traditional.¹⁸⁷

TK-holding individuals, groups and communities, then, may be members of culturally distinct tribal peoples as well as traditional rural communities that are not necessarily removed from the cultural mainstream of a country. TK-holding societies may inhabit area of both the developing and the developed world, although they are more likely to be found in culturally (and biologically) diverse developing countries where indigenous groups continue to; in the terminology of the Convention on Biological Diversity, embody traditional lifestyles¹⁸⁸. But while TK holders tend to

¹⁸⁶ See generally G. Dutfield op cit 498

¹⁸⁷ Ibid

¹⁸⁸

inhabit rural areas, including very remote ones, individual members of such peoples and communities may live in urban areas and still continue to hold TK. Indeed, TK may even be held and used by individuals in urbanized and westernized societies that have no other connection with the societies from which the TK may have originated.

3.3.1 Negative Definitions

Because TK is difficult to define, some experts have tried to clarify this meaning either by describing what it is not rather than what it is, or by identifying various features that totally distinguish it from scientific knowledge as the latter term is understood in urban, western, westernized or secular societies. Leaving aside the point made earlier that traditional knowledge also persists in the latter types of society, albeit to a limited extent, such a dichotomy seems at first to be quite plausible.

For example, Martha Johnson, a Canadian anthropologist, identified several ways that TK is generated, recorded, and transmitted, which the relevant academic literature uses to claim that TK is completely different from western scientific knowledge¹⁸⁹ Thus, traditional knowledge:

- (i) is recorded and transmitted orally;
- (ii) is learned through observation and hands-on experience;
- (iii) is based on the understanding that the elements of matter have a life force;

¹⁸⁹ Preamble, Convention on Biological Diversity, 5 June, 1992, 31 I.L.M. 818, available at <http://www.biodiv.org/convention/articles.asp> (last accessed 28th December,2007)

¹ Johnson, above n. 55, at 7-8.

- (iv) does not view human life as superior to other animate and inanimate elements but that all life-forms have kinship and are interdependent;
- (v) is holistic rather than reductionist;
- (vi) is intuitive rather than analytical, and mainly qualitative rather than quantitative;
- (vii) is based on data generated by resource users themselves rather than specialized groups of researchers;
- (viii) is based on diachronic rather than synchronic data;
- (ix) is rooted in a social context that sees the world in terms of social and spiritual relations between all life-forms; and
- (x) derives its explanations of environmental phenomena from cumulative, collective and often spiritual experiences. Such explanations are checked,
- (xi) validated, and revised daily and seasonally through the annual cycle of activities.¹⁹⁰

Is this dichotomy simplistic or even false? While seemingly credible, based as it is on a thorough review of the literature, it needs at least to be qualified. Few, if any, populations are completely isolated or have been for a long time.

Cross-cultural transfers of knowledge and consequent hybridization and cross-fertilization between different systems of knowledge are thus likely to be the norm rather than the exception. One should therefore exercise caution in assuming that traditional knowledge systems are discrete, pristine and susceptible to generalization of the kind made by Johnson. As another anthropologist has argued, the same story

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¹ Ibid

may be told about scientific knowledge, which “is indisputably anchored culturally in western society, where it largely originated, although with the contemporary communications revolution and cultural globalization. Hybridization is occurring and blurring distinctions between scientific and other knowledge on socio-cultural grounds.”¹⁹¹

Even if these differentiations were completely reliable, one should not conclude that TK is inherently unscientific. Johnson’s findings confirm that a great deal of traditional environmental knowledge is empirical and systematic, and therefore scientific. Further support for the view that TK is scientific comes from anthropologists and other academics that use the ethno science approach to studying TK relating to nature,¹⁹² and treat this knowledge as being divisible into western scientific fields. On this view we find ethnobiology, ethnozoology, and ethnomedicine, for example.

Of course, not all TK would fall into these categories. After all, nowhere in the world is all knowledge associated with nature deemed scientific. But it seems reasonable to claim that some TK is, at least to some degree, scientific even if the form of expression may seem highly unscientific to most of us. For example, an indigenous person and a scientist may both know that quinine bark extract can cure malaria.

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¹⁹² P. Sillitoe, What, Know Native? Local Knowledge in Development, 6 Soc. Anthropology 203, 207-09 (1998) cited also in G.Dutfield op cit at 500.

¹ P. Sillitoe Ibid at 205

They are likely to describe what they know in very different ways that may be mutually unintelligible (even when communicated in the same language).¹⁹³

To some, traditional knowledge is by definition age-old knowledge, and creativity and innovation are generally lacking. Otherwise it would not be traditional. However, recent empirical studies of traditional communities have discredited this view. As Russel Barsh, a noted scholar and commentator on the rights of indigenous people argues,

What is “traditional” about traditional knowledge is not its antiquity, but the way it is acquired and used. In other words, the social process of learning and sharing knowledge, which is unique to each indigenous culture, lies at the very heart of its “traditionalist”. Much of this knowledge is actually quite new, but it has a social meaning and legal character, entirely unlike the knowledge indigenous people acquire from settlers and industrialized societies.¹⁹⁴

In short, knowledge held and generated within “traditional” societies can be new as well as old. People who point this out are likely to emphasize that TK has always been adaptive because adaptation is the key to survival in precarious environments. Consequently, while TK is handed down from one generation to another, this does not mean that what each generation is handed is adding to the stock of knowledge.

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¹ It might be countered that since the indigenous peoples of western Amazonia do not really understand why quinine works, their quinine-based treatment is a technology that is not science-based. However, one could equally infer that many western “scientific” applications ought likewise to be “downgraded” to technologies, since they are not based on a complete understanding of why they work.

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¹ R.L Barsh, Indigenous Knowledge and Biodiversity, in Indigenous Peoples, Their Environment and Territories, in Cultural And Spiritual Values Of Biodiversity 73 (D.A. Posey ed., IT Publications & UNEP 1999)

Similarly, while the traditional classical health systems of China, India, Japan and Korea are based upon ancient texts, these systems continue to evolve and many present-day innovations take place. This is demonstrated by the existence of many Chinese patents on refinements of “traditional” medical formulations,¹⁹⁵ and also by the activities of the Chinese Academy of Traditional Medicine.¹⁹⁶

3.3.2 The Question of Ownership

Who owns knowledge on traditional societies? Is it the individual creator or holder? The leader or leaders of a community? The whole community? A group of people within a nation, tribe or community such as a clan or lineage group? Or alternatively, is traditional knowledge best viewed as something shared freely because traditional societies do not have concepts of property or least do not apply them to knowledge? Discussion of these questions is often characterized by tendentious and misleading generalizations. Even if we narrow the scope of our inquiry to indigenous peoples, such as those of the Amazon, Siberia or the Pacific, these questions defy easy answers. Many traditional communities have a strong sharing ethos, but this does not mean that everything is shared with everybody. This is confirmed by a wealth of anthropological literature, which reveals that such concepts as “ownership” and “property” – or at least close equivalents of them also exist in most, if not all,

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¹ Liu identifies five ways that traditional Chinese Medicine (TCM) inventions may fulfill the patentability requirements: (1) new techniques for preparation of TCM; (2) isolation of responsible component(s) of TCM; (3) new functions of TCM; (4) new prescriptions; and (5) new pathways of administration of TCM. Y. Liu, IPR Protection for New Traditional Knowledge: With a Case Study of Traditional Chinese Medicine, 25 Eur. Intell. Pro. Rev. 194 (2003).

¹⁹⁶ For similar and more discussion on this see also Jerry. I-H. Hsiao, “Patent Protection for Chinese Herbal Medicine Product Invention in Taiwan”, The Journal of World Intellectual Property Volume 10 Issue 1 page 1-21 January, 2007.

traditional societies.¹⁹⁷ In fact, many traditional societies have their own custom-based “intellectual property” systems, which are sometimes quite complex. Customary rules governing access to and use of knowledge do not necessarily differ all that widely from western intellectual property formulations, but in the vast majority of cases they almost certainly do. They also differ widely from each other. Therefore, to assume either that there is a generic form of collective/community IPRs or some generic form of sharing would be misleading since it would ignore the tremendous diversity of traditional proprietary systems.¹⁹⁸

Despite this empirical reality, it is often assumed that traditional knowledge has been shared freely and that, where property rights do exist, they are always collective in nature rather than individual as in the West. This view may do a disservice to traditional societies concerned about the misappropriation of TK. Consider that once TK has been disclosed to non-members of a small community or group of people, it is usually considered to enter in the public domain unless its disclosure arose through illegal or deceptive behaviour by the recipient, such as a breach of confidence. If no property right exists, then whose rights are being infringed by somebody's

¹⁹⁷ See generally D.A Cleveland & S. C. Murray, “The World’s Crop Genetic Resources and the Rights of Indigenous Farmers”, 38 Current Anthropology 477 (1997) (discussing aspects of the debate over the protection of indigenous farmers’ rights); T. Griffiths, “Indigenous Knowledge and Intellectual Property; A preliminary review of the Anthropological Literature” (1993) (unpublished paper commissioned by Working Group on Traditional Resource Rights, Oxford) (discussing the concept of exclusive rights as it is inherent in indigenous communities regarding magical knowledge). Shamans and other TK holder specialists may wish to restrict access to their knowledge for reasons other than because they consider it to be their property. For example, sacred knowledge—which may include knowledge of the therapeutic properties of plants—is often considered dangerous if it gets into the hands of the therapeutic properties of plants—is often considered dangerous if it gets into the hands of the uninitiated. In other words, they may be concerned for the welfare of those who acquire the knowledge and try to use it. The author is grateful to the late Darrell Posey for this insight. See also J.W Hendricks, “Power and knowledge: Discourse and Ideological Transformation among the Dhuar,” 15 Am. Ethnologist 216 (1988) (discussing the importance of the completion of an apprenticeship for shamans)

¹⁹⁸ Traditional Healers and even Blacksmiths in African societies had and still have their own ways of protecting knowledge, which is equivalent to indigenous intellectual property.

publishing this knowledge, commercially exploiting it, or otherwise appropriating it? Arguably nobody's.

Dutfield argues that, one may view such behaviour as unjust, regardless of whether the knowledge in question was the property of the TK creator, holder or community. All the same, it becomes logically harder to justify this view if we overstate the case that TK is shared without restrictions.¹⁹⁹

Even this point, however, may elicit other arguments. One such argument derives from the problematic nature of the public domain concept, at least from the perspective of many traditional societies in which TK holders or other, such as tribal elders, have permanent responsibilities concerning the use of such knowledge, irrespective of whether it is secret, is known to just a few people, or is known to thousands of people throughout the world.²⁰⁰ Custodianship responsibilities do not necessarily cease to exist just because the knowledge has been placed in the so-called public domain. There is no doubt that a tremendous amount of TK has been disclosed and disseminated over the years without the authorization of the holders. In this context, the following observation about indigenous peoples by Barsh is revealing:

Indigenous peoples generally think in terms of the freedom of individuals to be what they were created to be, rather than being free from certain kinds of state encroachments. Along with this highly individualized notion of “rights” is a sense of

¹⁹⁹ See generally G. Dutfield in Legal and Economic Aspects of Traditional Knowledge, op cit, 502.

²⁰⁰ See D.A Posey, “Selling Grandma: Commodification of the Sacred through Intellectual Property Right,” in Claiming The Stone/Naming The Bones: Cultural Property And The Negotiation Of National And Ethnic Identity 201 (Elazar Barkan & Ronald Bush eds., 2002)

unique personal responsibilities to kin, clan and nation. Each individual's "rights", then consists of freedom to exercise responsibilities towards others, as she or he understands them, without interference.²⁰¹

In short, indigenous societies often consider each member as having individual rights and collective responsibilities that are linked inextricably. Indeed, the persistence of these responsibilities is probably more of a reason why the formal IPR system is inappropriate than the supposedly collective nature of customary right over TK. Besides, individual property right over knowledge is not necessarily absent from many traditional societies, but these will often be accompanied by certain duties.

Attribution is far from a simple matter in many traditional societies. Many commentators, especially those supporting the rights of traditional peoples and communities in the developing world, emphasize the collective nature of creative processes in traditional societies, which they contrast with the individualistic view of creativity (and of ownership in the end-product of that creativity) that prevails in western societies. Such generalizations have some truth to them, but we should not exaggerate the differences either. The sources of much TK are difficult to trace, either because two or more people or communities share the knowledge, or because the author is simply unknown.

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¹ R.L. Brash, Indigenous People and the Idea of individual Human Rights, 10 Native Stu. Rev. 35, 44045 (1995)

What of the perceptions of indigenous people and other traditional communities? Again, views vary widely. Some indigenous groups actually consider it presumptuous to attribute authorship to a human being or a group of people. According to the late ethnoecologist Darrell Posey, who spent many years studying and working with the Kayapo people of the Amazon, “indigenous singers may attribute songs to the creator spirit”.²⁰² Australian lawyer Michael Blakeney states, “if the beliefs and practices of Australian indigenous peoples are any guide, authorship may reside in pre-human creator ancestors.... Authorship is replaced by a concept of interpretation through initiation.”²⁰³

But for other groups, this may not be true at all. For example, many of the 10,000 “grassroots innovations” documented by the India-based Honeybee Network are attributed to and claimed by individuals.²⁰⁴

3.3.3 The Economic Value of Traditional Knowledge and Need for its Protection

The mainstreaming of this issue is undoubtedly linked to a better understanding of the wealth-generating potential of TK. Traditional peoples and communities are responsible for the discovery, development, and preservation of a broad and tremendous range of medicinal plants, health-giving herbal formulations, and agricultural and forest products that are traded internationally and generate

²⁰² D.A Posey, “Indigenous Peoples and Traditional Resource Rights: A basis for Equitable Relationship?,” Green College Centre for Environmental Policy and Understanding Conference Paper 17 (1995)

²⁰³ M. Blakeney, “The Protection of Traditional Knowledge under Intellectual Property Law”, 22 EUR. INTELL. PROP. REV. 251, 251-52 (2000)

²⁰⁴ For a discussion by the Director of the Honeybee Network regarding the origin of the knowledge leading to such “grass roots innovations,” see A.K. Gupta, “Making Indian Agriculture More Knowledge Intensive and Competitive: the case of Intellectual Property Right,” 54 INDIAN J. AGRIE. ECON. 342, 346-52 (1999)

considerable economic value.²⁰⁵ Traditional knowledge plays an important role in the global economy.²⁰⁶ TK is also used as input into such modern industries as pharmaceuticals, botanical medicine, cosmetics and toiletries, agriculture, and biological pesticide.²⁰⁷

Attempts have been made to estimate the contribution of TK to modern industry and agriculture. For pharmaceuticals, the estimated market value of plant-based medicines sold in OECD countries in 1990 was \$ 61 billion.²⁰⁸ Many pharmaceutical companies are likely to have used TK leads in their product development, as demonstrated by biochemist Norman Farnsworth's estimate that 119 drugs are made out of plant-based compounds used in medicinal plants from which they were derived²⁰⁹. This by far is an enormous contribution that TK makes to the pharmaceuticals and thus calling for its urgent legal protection.

A study of the use and value of traditional crop varieties (landraces) for rice breeding in India calculated that rice landraces acquired from India and overseas contributed 5.6 percent, or an annual present value of benefits worth \$ 6.1 million, to India's rice

²⁰⁵ See generally G. Dutfield op cit.

²⁰⁶ The fact that traditional knowledge is being so widely disseminated and commercially exploited with such a small proportion of the benefits flowing back to provider peoples and communities raises the question of ownership as discussed above and IPRs. Can IPRs such as copyright, patents and trade secrets be used for the protection of traditional knowledge? At the international level, the idea of applying copyright law to protect intangible cultural expressions including those of traditional peoples and communities dates back to the 1960s.

²⁰⁷ Ibid. Over the years many traditional peoples and communities have condemned the unauthorized reproduction of their fixed and unfixed cultural expressions and medicinal knowledge. Not only do outsiders frequently neglect to ask permission to do so, but also fail to acknowledge the source of the creativity, and even share the benefits realized from the sale of the medicinal knowledge.

²⁰⁸ ¹ Peter Principal, Economics and Medical Plants, in *Medical Plants: Their Role In Health and Biodiversity* 42, 44-45 (Timothy R. Tomlinson & Olaiyiwola Akerele eds., 1998). There do not appear to be any more recent estimates.

²⁰⁹ Norma R. Farnsworth, Screening Plants for New Medicines, in *BIODIVERSITY* 83,91 (E.O. Wilson ed., 1998)

yields.²¹⁰ There are no reliable estimates of the total contribution of landraces to the global economy. However, assuming that India's landraces contribute equally to other countries where rice is cultivated, the global value added to rice yields by use of landraces can be estimated at \$ 400 million per year.²¹¹

All this suggests that TK plays an important role in the global economy and that it has potential to play an even greater one. However, the industrial demand for TK should not be overestimated either. While enhanced abilities to screen and analyze huge quantities of natural products might suggest that commercial ethnobiology will become more popular, it seems more likely that advances in biotechnology and new drug discovery approaches based, for example, on combinatorial chemistry, genomics, and proteomics will in the long term reduce industrial interest in natural products and their associated TK.²¹²

One should note that TK is valuable first and foremost to indigenous and local communities who depend upon it for their livelihoods and well-being, as well as for enabling them to sustainably manage and exploit their local ecosystems such as through sustainable low-input agriculture. According to the World Health Organization, up to 80 percent of the world's population depends on traditional

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¹ Robert E. Evenson, Economic Valuation of Biodiversity for Agriculture, in *Biodiversity, Biotechnology, And Sustainable Development In Health And Agriculture: Emerging Connections* 153, 162 (1996)

²¹¹ Ibid

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¹ The Best-known company to adopt this screening approach in developing new drugs was Shaman Pharmaceuticals. Facing the threat of closure, however, the company left the pharmaceuticals sector and entered the market for botanical medicines. Consequently, the economic case for ethnobioprospecting has been notably weakened. For detailed account of this see RAFI, 1996 Biopiracy Update: A Global Pandemic, RAFI Communiqué September/October 1996 cited also in H. Svarstad and S.S. Dhillon (Eds), Bio prospecting, from biodiversity in the South to medicines in the North, Spartacus Forlag AS, OSLO 2002.

medicine for its primary health needs. For those comprising the poorest segments of developing country societies, traditional knowledge is indispensable for survival.²¹³

Interest in TK, then, is largely driven by a perception that TK has the potential to make a tremendous contribution to developing country economies. The few studies conducted to investigate this indicate that possibilities exist, but suggest that one should be somewhat cautious and not exaggerated (as many are inclined to do).²¹⁴

All in all it is pertinent to point out that the fact that traditional knowledge is being so widely disseminated and commercially exploited with such a small proportion of the benefits flowing back to provider peoples and communities raises the question of ownership and IPRs²¹⁵. This is more in particular when the developed countries benefit a lot out of the traditional knowledge that comes mainly from the developing countries which are rich in biodiversity and medicinal plants.²¹⁶

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¹ UNCTAD Secretariat, Systems and National Experience for Protecting Traditional Knowledge, Innovations and Practices, UNCTAD Background Note, Agenda Item 3 at 6, U.N Doc. TD/B/COM.1/EM.13/2 (22 Aug. 2000), available at www.unctad.org/trade_env/ondex.htm.

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This is according to studies conducted by the World Health Organization and similar studies. See generally Stephen Brush and Doreen Stabinsky, *Valuing Local Knowledge, Indigenous People and Intellectual Property Rights*, Island Press, Washington DC, 1996.

²¹⁵

In many Asian countries traditional medicine which is one form of traditional knowledge continues to be widely used, even though allopathic medicine is often readily available. In Japan, 60%-70% of allopathic doctors prescribe kampo medicines for their patients. In Malaysia, traditional forms of Malaysian, Chinese and Indian medicine are used extensively. In China, traditional medicine accounts for around 40% of all healthcares delivered, and are used to treat roughly 200 million patients annually. Latin America, the WHO Regional Office for the Americas (AMRO/PAHO) reports that 71% of the population in Chile and 40% of the population in Colombia have used traditional medicine. I

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According to the WHO Traditional Medicine Strategy 2002-2005 in many developed countries, certain Complimentary and Alternative Medicine (CAM) which is another term for Traditional Medicine (TM) for developed countries, therapies are very popular. Various governments and non-government reports state that the percentage of the population that has used CAM is 46% in Australia, 49% in France and 70% in Canada. A survey of 610 Swiss doctors showed that 46% had used some form of CAM, mainly homeopathy and acupuncture. This is comparable to the CAM figure for the Swiss population as whole. In the United Kingdom, almost 40% of all general pathic practitioners offer some form of CAM referral. In terms of usage in many developed countries on CAM it is becoming more and more purchased. The percentage of the population which used CAM at least once is 48% in Australia, 70% in Canada, 42% in USA, 38% in Belgium and 75% in France. In many parts of the world expenditure on TM/CAM is not only

The desire to protect TK is motivated by one or more of several policy objectives, such as prevention of erosion and disappearance of traditions, prevention of unauthorized exploitation, stimulation and promotion of innovation and creativity based upon TK, protection from misappropriation, distortion and other prejudicial actions, protection and conservation of cultural and biological diversity, protection of the dignity and moral rights of traditional innovators and creators.²¹⁷

The need to protect TK comes also from the fact that IP is not limited to existing categories such as patents, copyright and trademarks. Indeed, the definition of IP in the Convention establishing the World Intellectual Property Organization (WIPO),²¹⁸ 1967 makes it clear that “intellectual property” is a broad concept and can include productions and matter not forming part of the existing categories of intellectual property, provided they result, as the definition states, “*from intellectual activity in the industrial, scientific, literary or artistic fields.*”²¹⁹ IP is evolutionary and adoptive. New advances in technology-information technology and biotechnology particularly and changes in economic, social and cultural conditions require continuous appraisal of the system and at times adjustment expansion, accompanied often by controversy. For example, the last few decades have seen the recognition of new forms of IP, such as *sui generis* form of protection for plant variety (in the 1950s and 1980s), a *sui generis* form of protection for layout designs (topographies)

significant, but growing rapidly. In Malaysia, an estimated US\$ 500 million is spent annually on this type of health care, compared to about US\$ 300 million on allopathic medicine. In USA, total 1997 out-of-pocket CAM expenditure was estimated at US\$ 2700 million while in Canada is US\$ 2300 million and Australia is US\$ 80 million. For more details see WHO Traditional Medicine Strategy 2002-2005.

²¹⁷ See generally WIPO Draft Report on Fact- Finding Missions on Intellectual Property and Traditional Knowledge (1998-1999) at 79.

²¹⁸ WIPO is the UN Intergovernmental Agency that administers intellectual property matters. It was founded in Stockholm, Sweden on July 14th.

²¹⁹ Refer to the World Intellectual Property Organization (WIPO) definition of IP.

of integrated circuits (1980s), copyright protection for computer software (1980s) and protection for databases and compilation of data (1980s and 1990s)²²⁰. Hence exploring the mechanism for protection of traditional-based innovations and creations by the IP system, the subject of this study is timely given the importance of traditional knowledge economically, socially as well as culturally at this particular time.²²¹

According to ARIPO²²² technology has been the principal tool that civilization has fashioned to alleviate the brute conditions of man. Most of the industrial advancement of the developed countries can be traced to technological experimentation and innovation which have been considered as the most dynamic factors in the growth of their national economies. Such technological advancement more aimed at improving the quality of the life of their inhabitants and supplying to the greatest extent possible the needs of the majority of the population by making maximum use of local resources having due regard of the local environment.²²³

Over the past decade biotechnology, pharmaceutical and human health care industries have increased their interests in natural products as source of new biochemical compounds for drugs, chemical and agro-product development. This has brought about the resurgence of interest in traditional knowledge and medicine. This

²²⁰ See also World Intellectual Property Organization (WIPO) Draft Report on Fact Finding Missions on Intellectual Property and Traditional Knowledge (1998-1999) - Draft for Comment-July 3, 2000.

²²¹ It is interesting to note that within WIPO of recent there has been move to protect smell marks, movement marks and sound marks all of these have received the requisite impetus simply because they have direct impact to the rich North.

²²² ARIPO is the regional intellectual property organization for Africa which was adopted at the Diplomatic Conference in Lusaka Zambia in 1976. It has two Protocols the Harare Protocol on Patents and the Banjul Protocol on Marks.

²²³ See ARIPO website at <http://www.aripo.org> as last viewed on 28th December, 2007.

interest has been stimulated by the importance of traditional knowledge and a lead in advancing the frontiers of science and technology. Traditional knowledge has been extensively used to gain useful understanding of how ecological systems generally work and interrelate. It has been estimated that of the 119 drugs developed from higher plants, 74% were discovered from a pool of traditional herbal medicine.²²⁴ Most of these herbal medicines are found mainly in developing countries which gets little benefits from the drugs manufactured by big pharmaceutical companies.²²⁵

On the whole, a significant part of the global economy is based on the appropriation and use of traditional knowledge. It has contributed to the production in modern economy and played significant role in the R & D programs of industry. However, this knowledge has been and continues to be an element in the commercialization of natural products. It is currently supplied to commercial interests through databases, academic publications or field collection. This undue exploitation needs to be paid for in some form. Concern over the growing interest in and associated with, intellectual property has led to a serious.

More recently, many scientists have begun to understand that such traditional knowledge extends far beyond what in western science would be called description

²²⁴ *Ibid.*

²²⁵ According to the World Health Organization, 1996 and Commission on Macroeconomics and Health, 2001 only 4.3% of the pharmaceutical R&D expenditure is targeted to the health problems that mainly concern low- and middle-income countries. Total pharmaceutical R&D in the private sector has more than doubled in the last decade to an estimated US\$ 44 billion in 2000 (Scripts Pharmaceutical R&D Compendium, 2000; Global Forum for Health Research, 2002). It has been estimated that of 1393 drugs approved between 1975 and 1999, only 13 were specifically indicated for tropical diseases. This is according to Trouiller et al., 2002). Where diseases are common to both developed and developing countries, the picture is different. For example, the majority of human immunodeficiency virus (HIV) vaccines are being developed for genetic profiles of subtype B, prevalent in developed countries, but most acquired immune deficiency syndrome (AIDS) sufferers in developing countries are types A and C. Not surprisingly, firms invest in those activities where rents are appropriate.

biology, beyond knowing how to identify different species of animals or describe their feeding, reproduction or migratory behaviour. The knowledge possessed by such traditional-based, non industrial societies is essentially of an ecological nature, that is to say, it seeks to understand and explain the workings of ecosystem or at the very least biological communities, containing many interacting species of animals and often plants, and the determinative role played by certain key biological and physical parameters in influencing the behaviour of the total biological community.²²⁶

In spite of the important role traditional knowledge plays in sustainable development, it continues to be largely disregarded in development planning. It currently plays only a marginal role in biodiversity management and its contribution to the society in general is neglected. Furthermore, traditional knowledge is being lost under the impact of modernization and ongoing globalization process. Traditional Knowledge (TK) may contribute to improved development strategies in several ways such as by helping identify cost effective and sustainable mechanisms for poverty alleviation that are locally manageable and locally meaningful; by a better understanding of the complexities of sustainable development in its ecological and social diversity, and helping to identify innovative pathways to sustainable human development that enhances local communities and their environment.²²⁷ This calls for a clear mechanism for its legal protection. Hence this study proposes this legal mechanism.

²²⁶ *Ibid.*

²²⁷ *Ibid.*

3.3.4 Traditional Intellectual Property Protection

Traditionally intellectual property has always been protected in its various forms, be it traditional medicinal knowledge, blacksmith and traditional songs and dances.²²⁸

Different societies have always adopted different ways of protecting traditional intellectual property. In the area of traditional medicine informal IP regimes are used and the most popular one in Tanzania is the *secrecy regime*. These secret regimes operate independently of governmental regulation or even community support. The secrecy regime rests on innovator's ability to prevent the public disclosure of his or her innovation. Under a secrecy regime, innovative traditional healers employ their inventions only themselves, and benefits arise for the traditional healer only as long as the medicinal knowledge remains.²²⁹

On the other hand traditional medicine is protected through the complex system of rituals, magical and spiritual powers that surround indigenous medicine. Although traditional intellectual property protection systems are not directly analogous to their “formal” counterparts, but they perform an equally crucial function in the

²²⁸ There are various categories of traditional knowledge such as agricultural knowledge, scientific knowledge, technical knowledge, ecological knowledge, medicinal knowledge, including related medicines and remedies, biodiversity-related knowledge, expressions of folklore in the form of music, dance, song, handcrafts, stories and artwork, elements of languages, such as names, geographical indications and symbols, and, movable cultural properties.

²²⁹ This is according to the interview and information gathered with CHAWATA which is an association of traditional healers in Tanzania. Customary laws play an important role in protecting, maintaining and preserving traditional intellectual property in many communities. Such laws may be based on the principles of collective rights, free flow of knowledge and/or reciprocity. Exclusivity may apply in certain instances, for example in relation to ritual knowledge. Seeking to extend existing modern systems of IP protection to such communities might undermine their existing customary systems of protection. The developed world's concept of wealth is not necessarily shared by indigenous communities.

conception, promotion and diffusion of medicinal innovations in local and indigenous communities.²³⁰

It is however, observed that, it is difficult to maintain secrecy within small communities, where close-range interaction and collaboration constrains the informal innovator's ability to conceal his innovation. Informal innovators often rely on modifications of traditional techniques, which have been passed down in the community. Therefore, would-be infringers may be able to imitate the innovation even after minimal observation.²³¹

Traditional healers enjoy a wide variety of benefits in exchange for their services which come out of their innovations, these benefits range from monetary payments,²³² material benefits, labour to commodities (food, trinkets, etc), to event-and service-based benefits (improved access to infrastructures, dedicated feasts and celebrations, etc), to non-monetary benefits (social prestige, political, etc).²³³

During the course of this research it was observed that certain traditional healers treat several patients ranging from 20 to 60 per day and have developed a specialization on chronic diseases such as skin diseases, prostate cancer, sexually transmitted diseases, asthma alike. They use about 40 medicinal plants for oral and external

²³⁰ In the case of songs there has been proprietary exchange between tribes. Often songs have been given as gifts to other tribes who listen to other tribes songs but this does not give them the right to appropriate songs of ones tribes.

²³¹ For further and similar explanation on this see "Intellectual Property Needs and Expectations of Traditional Knowledge Holders" WIPO Draft Report on Fact- Finding Missions on Intellectual Property and Traditional Knowledge (1998-1999). In contrast to secrecy, most formal IP- systems rely on collective intervention to maintain a comparative advantage on the market place for the original innovator.

²³² Most traditional healers in Tanzania do not raise special fee for their services but rather clients normally offer a handful amount of money in particular after succeeding their missions. This is according to interview held with one traditional healer based in Bagamoyo.

²³³ This is according to interview held with traditional healers in Bagamoyo and Iringa.

application and produce each application individually for each patient. They only apply their formulation personally, and perform elaborate rituals during the treatment. Their medicines are effective *only* in association with the appropriate ritual components.²³⁴ The only other practitioners who are authorized to use and learn their rituals are their immediate assistants who are the only ones allowed knowing what is going on. The intangible property consisting of the rituals associated with their practices makes the traditional healers' personal involvement mandatory in each use of their medicinal technology, even though the technology is fully disclosed.²³⁵

²³⁴ Under a ritual regime, an informal innovator makes access to his innovation conditional on the purchase or involvement of a tangible object or condition which he can monopolize (since he can not obtain governmentally granted rights over his intangible possessions).

²³⁵ In many traditional societies such ritual and magical powers are part of informal regimes of protection which apply to specific fields of technology, such as traditional medicine.

CHAPTER FOUR

4.0 TRADITIONAL KNOWLEDGE PROTECTION INITIATIVES

4.1 Introduction

The need for the protection of TK can be described as a horizontal concern, for different multilateral institutions are involved in discussing it from different perspectives and in different contexts. This chapter does not intend to review the entire discussion in depth, but rather to highlight the progress made by other relevant institutions and in other multilateral initiatives in identifying TK and proposing mechanisms for its protection. In addition to the institutions and processes within the multilateral system within the regional and national system, there are various initiatives which have been taking place and equally have importance and relevance for the consideration of TK within an intellectual property (IP) framework. The order of the institutions mentioned and the instruments below does not mean any particular hierarchy as to the relevance of their work. All initiatives being undertaken in other forums and nations that touch the area of TK protection are equally relevant and valuable for this study.²³⁶

It is important to point out at this juncture that protection of traditional knowledge raises a number of policy issues, including the goals and methods protection, and their implications for indigenous people. Obtaining international consensus on a binding instrument has proved to be quite a challenge. While some countries have

²³⁶ As far as World Intellectual Property Organization is concerned, all initiatives being undertaken in other forums that touch on the area of IP are equally relevant and valuable.

simply not been convinced about the need to protect traditional knowledge internationally,²³⁷ other States which see such a need prefer that the matter be addressed in a non binding declaration rather than a binding treaty. Traditional Knowledge protection is a global debate²³⁸ which needs global attention hence this chapter seeks to explore the initiatives to protect traditional knowledge at national, regional and international level.

4.2 International Initiatives

In a clear demonstration that the protection and preservation of traditional knowledge is really a horizontal issue, which cuts across many fields of activities of intergovernmental organizations. Several agencies have dedicated attention and resources to the different aspects of TK and which this study seeks to explore each and every one of these initiatives. These global initiatives include those under the World Intellectual Property Organization (WIPO) which has carried a series of studies and consultations²³⁹ as we shall discuss further in the course of this research. These studies and consultations have been done notably in terms of genetic resources, TK and Folklore. The new global issues were incorporated in the agenda activities of WIPO with the endorsement of the General Assembly in 1999.²⁴⁰

²³⁷ Developed countries are opposed to any move to have a legally binding instrument for the protection of traditional knowledge.

²³⁸ See generally Graham Dutfield; Can the TRIPS Agreement Protect Biological Cultural Diversity? Biopolity International, African Centre for Technology Studies, Nairobi, Kenya, 1997. Similarly see The Right to Good Ideals, The Economist, 25 at 30 June 23rd to 29th 2001 cited also in Adede A.O Biopolity International, The Political Economy of the TRIPS Agreement. Origins and History of Negotiations. African Centre for Technology Studies, Nairobi, Kenya, 2001 and K.E. Maskus and J.H. Reichman (Eds) in International Public Goods and Transfer of Technology under a globalized Intellectual Property Regime, Cambridge University Press, Cambridge, 2005.

²³⁹ One such study is the WIPO Fact-Finding Mission Report on Intellectual Property and Traditional Knowledge which was carried between 1998 and 1999.

²⁴⁰ See WIPO General Assembly, WIPO Doc.WO/GA/30/8.

It is clear that the so-called global and emerging issues involved the works and concerns of other international and regional organizations regarding the legal means of protection of, among other things, TK. It is also clear that intellectual property has an indispensable role in the formulation of an internationally acceptable regime on the global and emerging issues.

The other relevant multilateral institutions and initiatives include the World Trade Organization (WTO), Convention on Biological Diversity, 1992, the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Program (UNEP), the United Nations Educational, Scientific and Cultural Organizations (UNESCO), the Working Group on Indigenous Populations (the WGIP), the World Health Organization (WHO), the International Labour Organization (ILO). At the present time, there is no comprehensive regime governing the protection and exploration of the global and evolving issues mentioned above. Hence, this work seeks to explore this protection. I will endeavor to delve more precisely into some of the mentioned international mechanisms in more detail in the preceding part of this study.

4.2.1 The World Intellectual Property Organization

With reference to the evolutionary and adaptive nature of the intellectual property, WIPO which is the United Nations Agency responsible for the promotion of intellectual property, has interpreted its mandate “for the promotion of the protection of intellectual property throughout the world”²⁴¹ to extend to the “protection of

²⁴¹ WIPO, Intellectual Property Needs and Expectations of Traditional Knowledge Holders (1998-1999), WIPO, Geneva, 2001, at 15 cited also in P.Kuruk, “Bridging the Gap between Traditional Knowledge and

traditional-based innovations and creations.”²⁴² To this end, the Organization has given serious consideration to the possible protection of traditional knowledge under the copyright, patents, plant varieties and trademarks. However, others have questioned the general feasibility of linking traditional knowledge and intellectual property rights (IPRs) noting difficulties with fitting traditional knowledge into certain notions of intellectual property regarding originality, fixation, inventiveness, uniqueness and duration.²⁴³

WIPO undertook in 1998 and 1999 nine fact-finding missions (FFMs).²⁴⁴ The purpose of these fact-finding missions was “to identify and explore the intellectual property needs and expectations of new beneficiaries, including the holders of indigenous knowledge and innovations, in order to promote the contribution of intellectual property system to their social, cultural and economic development”. These missions were intended to enable the “study of current approaches to, and future possibilities for, the protection of intellectual property rights of holders of indigenous knowledge, innovations and culture”.²⁴⁵ WIPO undertook the fact-finding missions as part of new programme of activities, initiated in 1998, to explore and

²⁴² Intellectual Property Rights, Is Reciprocity an Answer?” The Journal of World Intellectual Property Volume 7 No. 3 May ,2004 at 429

²⁴³ Ibid at 16

²⁴⁴ The western intellectual property rights are very specific as regards originality requirements and fixation for the case of copyright, inventive steps and unique or novelty requirements for the case of patents. In addition to that, western IPRs have to be protected for a specific period of time after which they enter into the public domain. But none of these can easily fit in the traditional knowledge.

²⁴⁵ There were a total of nine fact-finding missions between May, 1998 to November, 1999 in various regions of the world such as South Pacific, Eastern and Southern Africa, the Caribbean, South Asia, West Africa, North America, the Arab Countries, South America and Central America.

²⁴⁵ A full report of the fact-finding missions can be found at WIPO’s website (www.wipo.int/globalissues/tk/report/final)

study current approaches to, and future possibilities for, the protection of the IP rights of holders of TK.²⁴⁶

WIPO has also been requested by its Member States to provide a forum where they may discuss the intellectual property implications of those linkages that were raised but not fully addressed in other fora.

In that context during the 26th (12th Extraordinary) Session of WIPO's General Assembly that sat in Geneva on 25th September to 3rd October, 2000 the secretariat suggested and prepared a document which invited member states to consider the establishment of an Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC)²⁴⁷. The WIPO Secretariat suggested that the IGC constitute a forum for members to discuss three themes that it had identified during the consultations. These were "intellectual property issues that arise in the context of (i) access to genetic resources and benefit sharing; (ii) protection of traditional knowledge, whether or not associated with those resources; (iii) the protection of expressions of folklore."²⁴⁸ This suggestion was enthusiastically supported by a large number of developing countries and was approved without formal opposition.²⁴⁹

²⁴⁶ Many indigenous communities called for more practical information, based on actual cases, on the usefulness and limitations of intellectual property in relation to traditional knowledge and cultural expressions/expressions of folklore, particularly information reflecting the perspectives and experiences of indigenous peoples.

²⁴⁷ WIPO's work in this area goes back several decades, but received fresh impetus in 1998 when a series of fact-finding missions met with many indigenous communities and other stakeholders to learn from them about their needs and expectations in relation to the intellectual property system.

²⁴⁸ World Intellectual Property Organization (2000) "Matters concerning intellectual property and genetic resources, traditional knowledge and folklore. Document prepared by the Secretariat" [WO/GA/26/6]

²⁴⁹ See generally G. Dutfield, "Intellectual Property, Trade and Sustainable Development: Mounting Controversy" in Christopher B, Graham D and Ricardo M (Eds) *Trading in Knowledge, Development*

The first session of the IGC convened in April 2001,²⁵⁰ and the second took place the following December. Substantive discussion at the two meetings focused mainly on two subjects: operational principles for contractual agreements concerning access to genetic resources and benefit sharing, and traditional knowledge as prior art. There was a clear division between those countries that favour the creation of new legal norms (mainly from Latin America and African Group) and those opposed to them, including the US and Canada. The latter group of countries, along with industry representatives, considered that solutions should be sought within the existing legal frameworks and, while willing to contemplate additional obligations, would prefer to be non-binding.²⁵¹

The committee also agreed that WIPO should continue its work to establish model IPR clauses for contractual agreements regulating access and benefit sharing, possibly including the development of a data base of such clauses to help guide negotiations. Approval was also given to continuation of WIPO's work on the IPR aspects of documenting public domain traditional knowledge, the aim of which is to ensure that patent examiners are able to prevent cases where patents whose claims extend to traditional knowledge are improperly awarded.²⁵² Several developing countries have proposed, without objections from other participating countries, that WIPO should produce a document providing elements for the model *sui generis*

Perspectives on TRIPS, Trade and Sustainability, International Centre for Trade and Sustainable Development, Earthscan Publications Ltd, London, 2003

²⁵⁰ For the summary of Draft Policy Objectives and Core Principles of the IGC see Annex 1 of document WIPO/GRTKF/1C/7/5

²⁵¹ G. Dutfield op cit at 17

²⁵² For more discussion on documentation of traditional knowledge in India see generally Ghate Utkarsh, Documentation of Traditional Knowledge: People's Biodiversity Registers in Christopher B, Graham D and Ricardo M (Eds) op cit. Also see generally Atul Kaushik, The Indian Experience in the Field of IPRs, Access to Biological Resources and Benefit Sharing in the same book edited by Christopher and others above and lastly see generally Suman Sahai, Indigenous Knowledge and its Protection in India in the same volume of the book above.

protection for traditional knowledge.²⁵³ The possible protection of traditional knowledge through a *sui generis* system will come later in this study for further discussion.

The WIPO General Assembly renewed the mandate of the IGC during its sessions in 2007 and this was due to the recommendation of a key committee of the WIPO which met in Geneva from 3rd to 12 July, 2007.²⁵⁴ During the fourteenth sessions of the IGC meeting which discussed in an-depth discussion on the best way to advance the Committee's future work, the Chairman of the IGC, Ambassador Rigoberto Gauto, noted that the WIPO General Assembly would take up the matter of the IGC's mandate at its September, 2009 session.²⁵⁵

Since its establishment the IGC has made a tremendous progress on its substantive work.²⁵⁶ While the WIPO framework under the IGC offers a good basis for

²⁵³ It is not disputed that WIPO Meeting on protection of traditional knowledge established a strong consensus for WIPO to set up an appropriate forum for future work on traditional knowledge and related issues. It also shows that many countries have not made up their minds on the question of reforming the patent regime to give international legal protection to traditional knowledge. In any case, it underlies the importance of these new global issues which continue to generate debates and discussions far beyond the confines of the patent regime.

²⁵⁴ In contrast to other processes at WIPO, the IGC has made significant efforts to enhance the participation of representatives of indigenous and other local communities. However, after ten sessions of the IGC, indigenous and other local communities continue to reiterate their concerns and reservations regarding the work of the IGC, noting that "the Committee's work to-date has been developed without the broad-based participation of indigenous peoples". Another concern is the slow pace of the work and the unwillingness of some industrialized countries, e. g., the United States and Japan, to work towards a final outcome.

²⁵⁵ The IGC's session focused mainly on the renewal of the mandate of the IGC for the 210-2011. At the basis of the discussion on future work was a proposal by the African Group. Core tenets of this proposal were that the future work of the IGC should compromise "text-based negotiations", conclude with the adoption of "an internationally legally binding instrument(s)", and be under through a "defined work program and time frame, including the holding of intersessional work sessions." During the course of extensive discussion of this proposal, as well as other textual proposals from the European Union, Australia, Mexico and others, positions on key issues became clearer. While the Committee was unable to reach agreement on a roadmap for future work, the extensive discussions provided a basis for enhanced understanding of all the elements of the work under consideration.

²⁵⁶ During this previous session the committee concentrated on core issues for the protection of TK and Traditional Cultural Expression (TCEs), focusing on the fundamental policy challenges that are central to the quest for more effective protection against misuse and misappropriation. These issues cover such questions as

discussions towards the establishment of a legally binding instrument for the protection of traditional knowledge, much work still remains to be done given the slow progress.²⁵⁷

This decision renews the General Assembly's 2005 directions to the IGC to accelerate its work, to and to focus in particular on the international dimension of IP and genetic resources, traditional knowledge (TK), and folklore or traditional cultural expressions (TCEs). The mandate excludes no outcome, including the possible development of an international instrument or instruments in this field.

The working documents of the IGC have already provided useful guidance for community, national and regional consultations, and have directly helped policymakers in working towards stronger legal recognition and protection of TK and TCEs.²⁵⁸

definition of traditional knowledge and traditional cultural expressions, the form and scope of protection and the nature of beneficiaries. This process has constituted the first systematic multilateral review of these fundamental intellectual property policy questions, building on a rich base of work in the Committee that has drawn on the experience of over 80 countries and many indigenous and local communities. The Committee requested the secretariat to prepare new working documents consolidating this exploration of the issues.

²⁵⁷ The slow progress to date can largely be explained by the reluctance of some industrialized countries to fully engage with subject. The tactic adopted by such countries has been to reiterate their repeated calls for "further study", and this tactic has generally impeded a full substantive discussion.

²⁵⁸ Separately, member states also agreed to transmit to the Conference of the Parties (COP) of the Convention on Biological Diversity (CBD) a WIPO study on the relationship between disclosure requirements within the IP system and genetic resources and associated TK. Disclosure of the origin, source and /or legal provenance of the genetic resources and TK that are used in claimed inventions is a cross-cutting issue under consideration in several international forums within and beyond WIPO. The study was prepared in response to an invitation by the CBD COP as a follow-up to a previous WIPO technical study also commissioned by the CBD. Based on inputs from a diverse array of member states, civil society and industry NGOs, the study reviews operation and policy issues relating to disclosure mechanisms and equitable sharing of benefits from the use of genetic resources. This is a further step in a growing program of cooperation between the CBD and WIPO, aimed at considering how to harness the IP system to promote CBD goals such as equitable sharing of benefits. The study was transmitted to the CBD for consideration during the COP meeting at Curitiba, Brazil in March 2006.

Despite the clamor by some Member States for *sui generis* form of protection for traditional knowledge that is not necessarily dependent on intellectual property criteria, the IGC is yet to take up the issue in any comprehensive manner. In any event, the degree of opposition from major States, evident at the start of the WIPO's current initiatives on traditional and growing increasingly strident, does not appear to offer much hope for the possible use of IGC forum to create a binding international instrument²⁵⁹.

4.2.2 The Convention on Biological Diversity

The Convention on Biological Diversity was formally opened for signature at the 1992 Earth Summit²⁶⁰; the CBD was seen as the first decisive step taken by the global community to ensure conservation and sustainable use of the world's biological resources in particular the resource rich countries majority of whom are developing countries²⁶¹.

²⁵⁹ Apparently the U.S support of the current WIPO initiative on traditional knowledge was obtained after guarantees that the Organization would not be a norm- setting track; that is, its work would not be "intended to feed into a process which would end with the creation of a treaty or recommendations": Michael Halewood, Indigenous and Local Knowledge in International Law: A Preface to Sui Generis Intellectual Property Protection, 44 McGill L.J. 953, at 986.

²⁶⁰ For a text of the Convention, see, 31 *International Legal Materials* 818, June 1992; 1960 *United Nations Treaty Series* 79, 143, 1992; and the internet at <http://www.biod.org/legal/cbd-en.pdf>.

²⁶¹ The CBD came into force on 29th December, 2003 and is broad and legally binding Convention to those signatory states. With that step, the Biodiversity Convention became the most important initiative ever taken to set the world on a course toward environmentally sustainable development. The Convention is a global instrument committing signatory nations to work in common cause. This is its central value and message. The Convention also supports national sovereignty and the right of countries to benefit from their bioresources. It further highlights the right of countries to have access to technologies, including new biotechnologies, that could assist the conservation of efforts or that may have use in the exploitation of biological resources. Together, these common decisions represent an essential first step on a long road toward new global and national conservation programs.

One of the areas of policy and legislation development in the Convention on Biological Diversity, 1992 (the CBD)²⁶² regards the implementation of Article 8(j)²⁶³ and related provisions, which mandates Contracting Parties, as far as possible and as appropriate, subject to their national legislation, to “*respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider 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*”

There is a number of limitations within Article 8(j) in so far as the question intellectual property right 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. Some Parties to the CBD may in fact invoke the language of Article 8(j) not to undertake any measures that protect indigenous and local people’ knowledge, innovations and other rights. Language such as “[s]ubject to its national legislation” and “as far as possible and as

²⁶² The CBD was signed by more than 150 states during the Earth Summit explicitly recognizes the rights of indigenous and local peoples in traditional knowledge and innovations. Its preamble makes reference to:-

“....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 sustainable use of its components”

²⁶³ Article 8(j) is perhaps the most authoritative provision dealing with traditional knowledge and has been widely debated in various forums including the Workshop on traditional knowledge that was held at Madrid, Spain from 24th to 28th November, 1997 at the invitation of government of Spain. There was a consensus at that workshop that Article 8(j) of the CBD did not provide an adequate legal basis for protecting knowledge and innovations of indigenous peoples. Several participants in this workshop called for a thorough re-examination and revision of current intellectual property protection systems to create flexibility for protecting indigenous knowledge and innovations.

appropriate” was promoted during the negotiations of the CBD by governments that did not want to commit themselves to protection of indigenous people and their rights²⁶⁴. This was obviously done by those States with prejudices in their minds in so far as protection of indigenous knowledge is concerned. Second, 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.²⁶⁵ This is a direct result of the opposition by countries such as the US in having a binding instrument for protection of traditional knowledge.

It is interesting to note that many governments are not implementing Article 8(j) and none of the studies submitted by governments and other bodies to the CBD Secretariat:

“...refers to a single piece of legislation which specifically addresses the implementation of Article 8(j), but rather, its implementation is carried out, sometimes indirectly, through provisions contained in a wide variety of statutes regarding such matters as land tenure, protected areas, protection of endangered species, land development, water quality and so on. This wide variety of statutes is sometimes further complicated because similar legislation often exist at national, sub-regional and local levels, with resultant inconsistencies”.²⁶⁶

²⁶⁴ Mugabe J. “Intellectual Property Protection and Traditional Knowledge- An International Policy Discourse”, Biopolicy International, No.21 at 22 cited also in Kihwelo P.F, “Indigenous Knowledge: What is it? Why and How do we protect it? The Case of Tanzania, Journal of World Intellectual Property, Volume 8 No.3 May, 2005 at 350-351

²⁶⁵ For more discussion on this see generally Kihwelo P.F Ibid.

²⁶⁶ See United Nations Environmental Programme (UNEP), 1998b: Implementation of Article 8(j) and Related Provisions, Doc.No.UNEP/CBD/COP/4/10.

Concerns on intellectual property protection of traditional knowledge have occupied the agenda of the CBD COPs. COP-3 called for dissemination of case studies on the relationships between IPRs and the knowledge, innovations and practices of indigenous and local communities. COP-4, in Decision IV/9,²⁶⁷ recognized the importance of making intellectual property- related provisions of Article 8(j) and related provisions of the CBD and the provisions of international agreements relating to intellectual property mutually supportive and the desirability of undertaking further co-operation with the WIPO.²⁶⁸

As pointed out before, COP-4 further decided that an *ad hoc*, open-ended, inter-session Working Group composed of Parties and including indigenous and local communities be established to, *inter alia*, “provide advice as a priority on the application and development of legal and other appropriate forms of protection for the knowledge, innovations and practices of indigenous and local communities”.²⁶⁹

On the whole, these efforts 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.

4.2.3 The Rio Principles on Indigenous Knowledge

One of the Principles of the Rio Declaration on Environment and Development (1992) which emerged from the United Nations Conference on Environment and Development (UNCED) popularly known as the “Earth Summit” in Rio de Janeiro in

²⁶⁷ See Ibid

²⁶⁸ See comments under footnote 116 above for similar approach by member states under WIPO.

²⁶⁹ UNEP Op Cit

1992 is that local institutions through which indigenous and local communities socialize and conduct their economic activities should be strengthened. Though it did not explicitly address the question of intellectual property protection of traditional knowledge, it created a political framework for addressing these issues within the environmental circles.²⁷⁰

The Earth Summit addresses issues of intellectual property rights in traditional knowledge and innovations. Agenda 21,²⁷¹ adopted by more than 160 States at the Earth Summit, contains a whole Chapter on indigenous peoples' concerns and makes a wide range of recommendations on how these peoples' rights should be protected.²⁷² Chapter 26 of Agenda 21 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. Over many generations, they have developed a “holistic traditional scientific knowledge of their lands, natural resources, and environment”.²⁷³ It also recommends that governments adopt policies and/or instruments that will protect intellectual and cultural property of indigenous peoples.

4.2.4 The World Trade Organization

Most countries of the world are, or at least aspire to be, members of the World Trade Organization (WTO). The establishment of the WTO was the main outcome of the

²⁷⁰ See Mugabe op cit at pp 20-21

²⁷¹ Agenda 21 is the global agenda for action from the UN Conference on Environment and Development (UNCED) in Rio de Janeiro in June, 1992. It is said to be the real outline for action of the Earth Summit.

²⁷² Mugabe op cit.

²⁷³ See generally United Nations, 1992, Chapter 26 and more particularly, Section 1 cited also in Kihwelo op cit at pp 349 and 350.

Uruguay Round of the General Agreement on Tariffs and Trade (GATT),²⁷⁴ which was concluded in 1994. Annexed to the so-called “Final Act Embodying the Results of the Uruguay Round of the Multilateral Trade Negotiations”, which was signed by 125 countries, was a series of trade-related agreements, and ministerial decisions and declarations.²⁷⁵ This study focuses on one of these agreements, the Agreement on Trade- Related Aspects of Intellectual Property Rights (“The TRIPs Agreement”).²⁷⁶ The negotiation and adoption of the TRIPs has added new dimensions to the debate on IPRs in traditional knowledge²⁷⁷. Tanzania is among the founder Members of the

²⁷⁴ The General Agreement on Tariffs and Trade was established in January 1948 to regulate and expand international trade through the reduction of tariff barriers and other measures in support of trade liberalization. As a multilateral agreement with no institutional foundation except a secretariat based in Geneva, GATT was meant to be a provisional arrangement that would be replaced by an International Trade Organization (ITO). It was intended that this ITO would become a specialized agency of the United Nations Organization (UN). A draft agreement for the ITO, known as the Havana Charter, was agreed by more than 50 countries including all 23 founder members of GATT at UN Conference on Trade and Employment in March 1948. However, an insufficient number of countries ratified the Charter for it to be enforced; the ITO consequently did not come into being.

²⁷⁵ From 1948 to 1994, inter-governmental meetings under GATT’s auspices to further trade liberalization took place through a series of multilateral trade negotiations known as rounds. It was agreed that instead of organizing negotiations on a single issues, there should be a package approach of agenda items covering a whole series of topics. Consequently, these trade rounds could take several years to complete. Thus, the Tokyo Round of 1970s took 6 years, and the Uruguay Round, which began in 1986, was not resolved until the Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations was signed in Marrakesh, Morocco, by 125 governments, in April 1994. For more details on the GATT/WTO see generally Bhagirath Lal Das, *The WTO and the Multilateral Trading System, Past, Present and Future*, Zed Books Ltd, London, 2003.

²⁷⁶ The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs Agreement) forms Annex 1C to the Final Act Embodying the Uruguay Round of Mul-lateral Trade Negotiations.

²⁷⁷ Trade negotiations over knowledge resources issues (that is negotiating equity over TK) are marked by diversity and divergence in principles and values in cultural and ethical perspectives, in policy objectives and in trade and property interests, as well as negotiating asymmetries and the impact of technological development. These factors help shape the contested interaction between the regimes that govern custodianship and sovereignty over GR and associated TK; and the international standards and national laws that govern the grant of patent rights for eligible inventions. The debate has focused on the desirability (from a public point of view) and the legitimacy of certain patents that are cited as instances of misappropriation or misuse of TK-patents that are denounced as acts or evidence of biopiracy. The legitimacy of such patents has been challenged on diverse grounds such as perception of public policy (taking issue with the legitimacy of patents for inventions based on biological materials, or the assertion for private rights in this domain altogether; Lack of conformity with existing patent law principles (suggesting that certain patents lack novelty or inventiveness, or their claims are too broad and insufficiently based on the inventions actually disclosed perceived conflict between parallel regulatory goals, since the assertion of private patent rights over such inventions is argued to undercut sovereign rights over TK used as input for the inventive process, breaches of laws governing access and use of TK, in the absence of applicable laws, as a form of misappropriation of the inheritance value of GR and TK contrary to the spirit and objectives of the CBD, the sustainable use of its components and the fair and equitable sharing of benefits arising from the utilization of TK.

The underlying concern is that TK is accessed illegally or, when formal legal constraints are absent, inappropriately or unethically, and then exploited without sharing the benefits equitably with the country or community of origin. To assert IPRs on innovations derived from access to TK has been construed (i) as an act of direct misappropriation in itself (particularly when it is argued that IPR cover the TK in the form it was

TRIPs Agreement as it signed the Agreement reached during the Uruguay Round that culminated in the formation of the WTO and which also included the TRIPs Agreement²⁷⁸.

The TRIPs Agreement sets minimum standards for countries to follow in protecting intellectual property. Its objective is stated as follows:

“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”²⁷⁹

Countries that ratify the Agreement are expected to establish comprehensive intellectual property protection systems covering patents, copyrights, geographical indications, industrial designs, trademarks and trade secrets.²⁸⁰

accessed.); (ii) as realizing, but inequitably misappropriating, the inherent value of the resource; or (iii) as a symptom or symbol of a more general act of misappropriation or misuse. Charges of ‘biopiracy’ can raise overlapping concepts of illicit access, unauthorised use, breach of any conditions agreed or prescribed at the point of access, failure to share benefits equitably, filing for patent protection without the agreement of the resource country or resource community, and a general requirement to conduct research and commercial activities ethically and equitably.

The contemporary debate is fuelled not merely by different assessments of the relative value of TK as knowledge resources as against the kind of innovation validated by the patent system, but also by differing value systems, which variously privilege *in situ* biodiversity and TK systems, or modern scientific and technological intervention.

²⁷⁸ Ibid

²⁷⁹ See preamble to the Trade-Related Aspects of Intellectual Property Agreement (TRIPs Agreement)

²⁸⁰ Under the TRIPS Agreement, copyright protection extends to computer programs and compilation of data, rental rights and rights of performers, producers, and broadcasting organizations (Article 14). Trademarks are protected indefinitely for renewable seven-year terms, and the compulsory licensing of trade is prohibited (Article 14 and 16.1). Patents are to be granted for “for inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application” (Article 27). The TRIPS Agreement requires Member States to “provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof” (Article 27.3(b)). To permit effective action against infringement of intellectual property, the Agreement specifies certain minimum procedures to be made available under national law, including rights to notice, competent legal representation, presentation of evidence and the protection of confidential information (Article 42). Special procedures are also to be set up to enable right holders, who suspect the importation of counterfeit trademark or pirated copyright goods, to apply in writing to the relevant authorities for the suspension by customs authorities of the release into free circulation of such goods (Article 51 *et seq*). To ensure transparency, each Member is required to publish all laws, regulations and judicial decisions relating the availability, scope, acquisition, enforcement and prevention of abuse of intellectual property (Article 63.1). In addition, the Member is required to notify the Council of TRIPS about such laws and regulations to assist the Council in its review of the operation of the Agreement

However, Article 1 TRIPs (on the nature and scope of the obligations) provides some flexibility in the implementation of the provisions of the Agreement. It states in para 1 that:

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

According to Dutfield, Parties to the TRIPs Agreement can invoke this provision to enact legislation for protection of traditional knowledge. He asserts that “[t]he absence of any mention of traditional knowledge in the Agreement, does not prevent any Member from enacting legislation to protect such category of knowledge.”²⁸¹

A review of the TRIPs Agreement shows that it is not possible to protect traditional knowledge under the current patent law.²⁸² 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 an inventive step and are capable of industrial application.”²⁸³ 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

(Article 61.2). Disputes among Member States concerning the rights recognized under the Agreement are to be resolved following the procedures outlined in the Dispute Settlement Understanding (Article 64.1).

²⁸¹ G.Dutfiled, Can the TRIPs Agreement Protect Biological Diversity? Biopolity International, No.19 at 24

²⁸² See Mugabe J, *op cit* at 13, where he points out that some limited protection of traditional knowledge would be possible using regimes of copyright, trade secrets and geographical indications. However, these IPR regimes have, in fact, provided no protection at all. Not only are they not in place in all jurisdictions, they suffer from in-built rigidities and conflict with the very nature of traditional knowledge.

²⁸³ Mugabe Ibid. For similar view see generally Darrell Posey International agreements for protecting indigenous knowledge in Biodiplomacy Genetic Resources and International Relations edited by Vicente Sanchez and Calestous Juma, African Centre for Technology Studies Nairobi, Kenya 1994.

because, by its very nature, traditional knowledge has been known for some length of time it is only new to the world outside the community from which it came.

Article 29(1) of the TRIPs 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. Opponents of patenting have been quick to point out that 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. Given the absence of financial and organizational competencies of indigenous and local peoples to monitor and enforce patents in modern economic space, their knowledge could easily be used without due compensation.

Traditional knowledge has become an especially important concern for many developing countries in the WTO negotiations and in particular TRIPS Agreement. On 6th August, 1999, two important documents were submitted to the General Council. One of these, from the Permanent Mission of Venezuela,²⁸⁴ proposed that the next review of the TRIPS, *inter alia*, should “establish on a mandatory basis within the TRIPS Agreement a system for protection of intellectual property, with an ethical and economic content, applicable to the traditional knowledge of local and indigenous communities, together with recognition of the need to define the rights of collective holders”.

²⁸⁴ World Trade Organization- General Council (1999) “Preparation for the 1999 Ministerial Conference. Proposals regarding the TRIPS Agreement (Paragraph 9(a) (ii) of the Geneva Ministerial Declaration). Communication from Venezuela” [WT/GC/W282]

The African Group of countries²⁸⁵ proposed that, in the sentence on plant variety protection in Article 27.3(b), ‘a footnote should be inserted stating that any *sui generis* law for plant variety protection can provide for [inter alia]: (i) the protection of innovations of indigenous farming communities in developing countries, consistent with the Convention on Biological Diversity and the International Undertaking on Plant Genetic Resources’. This communication, which attracted considerable civil society organization support worldwide, also warned that ‘by mandating or enabling the patenting of seeds, plants and genetic and biological materials, Article 27.3(b) is likely to lead to appropriation of the knowledge and resources of indigenous and local communities’.²⁸⁶

On the whole, the conditions set under the TRIPs Agreement do not enable the patenting of traditional knowledge and /or traditional innovations.

4.2.5 The International Labour Organization

The International Labour Organization (ILO) was the first UN Organization to address issues of traditional knowledge. A committee of experts established in 1926 examined and developed international standards for the protection of indigenous workers. This committee generated the basis for the adoption, in 1957, of the Convention Concerning the Protection and Integration of Indigenous and other Tribal

²⁸⁵ World Trade Organization- General Council (1999) “Preparation for the 1999 Ministerial Conference. The TRIPS Agreement. Communication from Kenya on behalf of the African Group” [WT/GC/W/302].

²⁸⁶ While Article 27.3(b) and traditional knowledge continues to be important areas of concern for many developing countries, at the century’s end the need to resolve the access to medicines problem understandably became the most contentious TRIPS- related issues. This is of course mainly due to the current HIV/AIDS pandemic, which is the most serious public health crisis for many developing countries, especially in Africa. Millions of people throughout the world have already died and millions more infected people will do so in the next few years unless they can be treated with anti-retroviral drugs. Yet, as mentioned above, a tiny portion of HIV/AIDS sufferers receives these extremely expensive treatments.

and Semi-Tribal Populations in Independent Countries. This Convention is commonly referred to as Convention 107. It aimed essentially to integrate indigenous people into the modern production system.²⁸⁷

Convention 107 was revised in June 1989 as Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries.²⁸⁸ The revised Convention outlines the approach of promoting the assimilation of indigenous and tribal peoples. It promotes the protection of indigenous peoples as distinct and separate people.²⁸⁹ Article 29(2) (b) imposes responsibility upon governments to develop measures to promote full realization of the social, economic and cultural rights of indigenous peoples. Article 5(a) provides for the recognition and protection of the cultural, religious and spiritual values and practices of indigenous peoples. As rightly pointed out by John Mugabe, these provisions should be broadly read to include recognition and protection of traditional knowledge of these indigenous peoples.²⁹⁰ The recognition of collective aspects is a critical feature of the Convention and is important in intellectual property rights issues, since collectivity is fundamental to the transmission, use and protection of traditional knowledge.²⁹¹

It is important to stress that ILO Convention 169 is the only United Nations Convention that specifically deals with indigenous people. Although the Convention does not specify IPRs, its language is conducive to protection of these rights.

²⁸⁷ See generally D. Posey op cit.

²⁸⁸ Mugabe J op cit.

²⁸⁹ *Ibid.*

²⁹⁰ Article 13 (1)

²⁹¹ D. Posey op cit at 124.

Interestingly, Convention 169 is not even mentioned in the United Nations Secretary-General's concise report on "Intellectual Property of Indigenous Peoples."²⁹² This to a great extent leaves much to be desired, as one would expect under normal circumstance that such a crucial Convention that touches on indigenous peoples would have formed part of the Secretary-General's Report.

4.2.6 The United Nations Educational, Scientific and Cultural Organization (UNESCO)

UNESCO, in coordination with WIPO, has long been involved in the protection of traditional knowledge in particular the component relating to folklore. The international community has recognized the need to protect expressions of folklore since the 1970s. In 1982, a set of model provisions were developed under the UNESCO/WIPO auspices which could be incorporated into national legislation to help protect expressions of folklore, namely the UNESCO/WIPO Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and other Prejudicial Actions, 1982. In 1989, the UNESCO General Conference adopted a "Recommendation on the Safeguarding of Traditional Culture and Folklore."²⁹³

Given that an effective international regime for the protection of expressions of folklore has not been developed since the preparation of the model provisions, in

²⁹² See generally Cobo, Jose R. Martinez, and Study of the Problem of Discrimination against Indigenous Peoples, Report of the Special Rapporteur of the Sub-Commission on Prevention of Discrimination and Protection of Minorities, United Nations Commission on Human Rights, UN Doc No. E/CN.4/Sub.2/1986/7 and Add.1-4. See also Posey *Ibid.*

²⁹³ See WIPO, Intellectual Property Needs and Expectations of Traditional Knowledge Holders, WIPO Report on Fact-Finding Missions on IPR and TK, WIPO, Geneva, 1998-1999.

April 1997, at the UNESCO/WIPO World Forum on the Protection of Folklore held in Phuket, Thailand, WIPO and UNESCO were asked to convene regional consultations on these issues. Four regional consultations were convened for developing countries, namely for African,²⁹⁴ for countries of Asia and the Pacific region,²⁹⁵ for Arab countries,²⁹⁶ and for Latin America and the Caribbean.²⁹⁷

UNESCO is also engaged in several other activities relating to the protection of cultural heritage and diversity. Certain UNESCO conventions and the other instruments are particularly relevant. These include: the Convention on Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Biodiversity of Cultural Property, 1970; the Convention Concerning the Protection of the World Cultural and National Heritage, 1972; and the Declaration on the Principles on International Cultural Cooperation, 1966.²⁹⁸

4.2.7 The Food and Agriculture Organization of the United Nations (FAO)

The Commission on Genetic Resources for Food and Agriculture, of the Food and Agriculture Organization of the United Nations (FAO), is a permanent forum in which governments are, *inter alia*, renegotiating the International Undertaking on Plant Genetic Resources, 1983. In 1993, the FAO Conference adopted Resolution 7/93 for the adaptation of Farmers' Rights. The revision has proceeded in three stages: the first was the integration of the interpretative annexes into the Undertaking, a legally non-binding document (the protection and with the CBD); the

²⁹⁴ This was held at Pretoria in South Africa in March, 1999.

²⁹⁵ This was held at Hanoi in Vietnam in April, 1999.

²⁹⁶ This was held in Tunis, Tunisia in May, 1999.

²⁹⁷ This was held in Quito, Ecuador in June, 1999.

²⁹⁸ WIPO op cit at 60.

second stage was the consideration of access to plant genetic resources (including access to collections acquired outside the framework of the CBD) and the realization of farmer's rights. The third stage concerns legal and institutional options.²⁹⁹

At present, it appears that the negotiators of the Undertaking have agreed on a general approach to farmers' rights, which the parties to the future agreement shall have to recognize and abide.³⁰⁰

The revised text of the International Undertaking is expected to provide protection of traditional knowledge under a narrow approach. Indeed, the subject matter of farmers' rights is confined to plant genetic resources for food and agriculture.

4.3 Regional Initiatives

Despite the above international initiatives there have been a number of efforts taking place at various regional levels relating traditional knowledge protection. Among these efforts we shall endeavor to discuss some, including the OAU Model Law, ARIPO Legal Instrument on the Protection of Traditional Knowledge and Expression of Folklore and the like, both in Africa and elsewhere. We will briefly delve into some of these for the purposes of highlighting what has been taking place at the regional levels.

²⁹⁹ Ibid at 59

³⁰⁰ See the Revision of the International Undertaking on Plant Genetic Resources- Consolidated Negotiations Text Resulting from the Deliberations during the Fifth Extraordinary Session of the Commission on Genetic Resources for Food and Agriculture, CGRFA/IUND/CTN/Rev.1(Article 12)

4.3.1 The (OAU) Model Law

The Organization of Africa Unity (OAU), now African Union (AU) has been an active participant in the Uruguay Round as well as the Earth Summit (1992) enunciated Agenda 21 and the Convention on Biological Diversity (CBD). This was before the negotiations at the Uruguay Round were concluded in 1994. Issues on the implementation of the Convention and its related Agreements as outcome of the Uruguay Round are reflected on the Annual Agenda of the session of the Council of Ministers and Summit of Heads of States and Governments (HAG) of the OAU.

In more recent times, the Organization's Scientific, Technical and Research Commission targeted issues of trade (specifically bio-trade), ownership, access to biological resources and benefit sharing. This has been articulated particularly with reference to the ownership and access to biological resources, traditional knowledge, traditional medicine practice and health services delivery system.³⁰¹

Member States of the OAU (now AU) are signatory to various protocols resulting from the bilateral and multilateral initiatives that came prior and mainly after the Rio Convention. They have however, not been able to cope with the complex and intricate procedures required.

The OAU Model Law is one effort to assist Member States deliberate on, formulate and implement national policies and legal instruments compatible with the national

³⁰¹ For more discussion on this see J.A Ekpere, The OAU Model Law for the Protection of the Rights of Local Communities Farmers and Breeders and The Regulation of Access to Biological Resources. A paper presented to the Multi-Stakeholders Dialogue on Trade, Intellectual Property and Biological Resources in West and Central Africa; Dakar, Senegal, July 30-31, 2002 (on hand with the present author).

goals and political aspirations while at the same time satisfying their international obligations.³⁰²

4.3.1.1 The OAU Initiative: Rationale and Peculiarities

The OAU Model Law was developed as a direct response to the decision taken and the directive given by the OAU Council of Ministers in 1998. It is an effort to put in place “*sui generis*” system of Protection of the Rights of Local Communities, Farmers and Breeders and for the Regulation of Access to Biological Resources. It has been operationalized through a process of regional, sub-regional and national consultation of stakeholders and informed public debate.³⁰³

The second component of the OAU initiative is the coordination of an African Common Position on the TRIPs Agreement in general and the review of its Article 27 (3) (b) in particular³⁰⁴. The need for a common position was informed by a better understanding of the Agreement and its obvious contradictions with the relevant provisions of the Convention on Biological Diversity (CBD), consequently, the OAU initiative provided the conceptual framework and empirical evidence for the

³⁰² Ibid

³⁰³ The objective of the resultant legislation is to give reasoned attention to the conservation of biological diversity, sustainable use of biological resources, sustenance of food security, protection of community rights (including farmers and breeders), equitable sharing of benefits consistent with the provisions of the Convention on Biological Diversity (CBD) and concept of national sovereignty. It is intended to provide Member States of the Organization of African Unity (OAU) now African Union (AU) with a framework for the formulation of legislation relevant to their national interest and the protection of new varieties of plants as entrenched in the TRIPs Agreement.

³⁰⁴ The TRIPs Agreement had implicitly stipulated a review, five years after ratification. It is common knowledge that most African countries were not most active participants in the negotiations leading to the final agreement even though they were later, signatory to the final TRIPs Agreement. Article 27.3(b) reads as follows;—

“...plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. The provision of this sub-paragraph shall be reviewed four years after the date of entry into force of the WTO Agreement.

formulation of the African Common Position that was severally discussed in various fora.³⁰⁵

The Communication by the Government of Kenya on behalf of Africa (1999), the submission by the Southern Africa Development Commission to the World Trade Organization (WTO) and the on-going negotiations by the African Trade Missions in Geneva are all a reflection of the OAU initiative in pursuance of the African Common Position on the TRIPs Agreement and the review of its Article 27 (3) (b).³⁰⁶

The primary objective was “to ensure the evaluation, conservation and sustainable use of biological resources, including plant genetic resources as well as associated traditional knowledge (which includes medicinal plants, knowledge) in order to improve their diversity as a means of sustaining “life support systems”.³⁰⁷

The Model Law was crafted with specific reference to the Convention on Biological Diversity (CBD) and Article 27(3) (b) of the TRIPs Agreement. It does not address the various other contentious issues of the TRIPs Agreement. It was not intended to be a mega-law, yet it contains constructs that could be applied in the formulation of legislation on protection of traditional knowledge among other things. The model law is peculiar and unique in other ways because it addresses many issues in a

³⁰⁵ The need for formulating an African Common Position was discussed at the OUA Council of Ministers in Algiers (July 1999), the meeting of African Ministers of Trade in Algiers (September 1999) and the meeting of African Ministers of Trade in Cairo (September 2000).

³⁰⁶ Article 27.3(b) is one of the most controversial provisions of the TRIPs Agreement which has lead to global discussions and debate in the WTO and in particular within TRIPs Council.

³⁰⁷ See generally Ekpere op cit.

holistic approach, among them being Prior Informed Consent (PIC) as a precondition for access.

The OAU Model Law has been a catalyst in Africa towards the effort for formulation or adoption of a similar system for protection of traditional knowledge. However, the OAU initiative has been a major factor in on-going discussion in various national parliaments on the development of legal instruments.³⁰⁸ It is imperative to note however that the development of National Laws based on the Model Law has been slow and that majority of the African countries are contemplating the possibility for developing a “*sui generis*” of protection fashioned after the OAU model law or other forms of legislation.³⁰⁹

4.3.2 ARIPO Legal Instrument on the Protection of Traditional Knowledge and Expressions of Folklore

The African Intellectual Property Organization (ARIPO) is yet another regional initiative for protection of the traditional knowledge within the ARIPO member States. The ARIPO Legal Instrument was adopted at the Thirtieth Session of the Administrative Council of ARIPO which took place in Maputo, Mozambique, from November 20 to 24, 2006.

This came as a result of member states recognizing the intrinsic value of traditional knowledge including medicinal knowledge. The member states thought that there needs to be a legal instrument for protection of traditional knowledge which must be tailored to the specific characteristics of traditional knowledge including the

³⁰⁸ Kenya, Uganda, Nigeria and South Africa have been in the process of enacting laws to protect traditional knowledge based upon the Model Law.

³⁰⁹ For an elaborate explanation of the Model Law see Annex 1

collectivity or community context, the intergenerational nature of their development, preservation, their link to community's cultural and social identity, integrity, beliefs, spirituality and values, and their constantly evolving character within the community concerned.

The purpose of the ARIPO instrument is to protect traditional knowledge holders against any infringement of their rights as recognized by the instrument. The legal instrument provides that for the traditional knowledge to be protected it shall not require any formality.³¹⁰ A number of ARIPO Member States are contemplating adopting this legal instrument in their own jurisdictions after the process of discussing it in their jurisdictions which is ongoing will have come to the end.

4.4 National Initiatives

Besides the international and regional initiatives, various nations at their own levels have decided to take some steps to protect traditional knowledge. This has been done in a variety of ways including enacting specific laws on protection of traditional knowledge in countries such as Brazil, Panama, Portugal and Peru.³¹¹ Some countries

³¹⁰ This is by virtue of Article 4 of the ARIPO Legal Instrument on the Protection of Traditional Knowledge and Expressions of Folklore which is all about Formalities relating to protection of traditional knowledge. The provision provides as follows:-

1. Protection of traditional knowledge shall not be subject to any formality.
2. In the interests of transparency, evidence and the preservation of traditional knowledge, relevant national authorities of Contracting States and regional bodies may maintain registers or other records of knowledge, where appropriate and subject to relevant policies, laws and procedures, and the needs and aspirations of the traditional knowledge holders concerned.
3. The registers maintained under paragraph (2) of this article may be associated with specific forms of protection, shall not compromise the status of hitherto undisclosed traditional knowledge or the interests of holders of traditional knowledge in relation to undisclosed elements of their knowledge.

³¹¹ The WIPO Secretariat, in its Consolidated Survey of Intellectual Property Protection of Traditional Knowledge, WIPO Doc. WIPO/GRTKF/IC/5/7, identifies in paragraph 22 Brazil, Panama, Portugal and Peru as having legislation for the protection of traditional knowledge *stricto sensu* and not only as protection of *expressions* of traditional knowledge. However, the WIPO Secretariat says that there exist

have gone to the extent of providing a constitutional guarantee for the protection of traditional knowledge. These include countries such as the Philippines, Thailand, Ecuador, Republic of Venezuela, Brazil and many others. Other countries have ensured that traditional knowledge is protected through a variety of legislation such as Biodiversity Laws or Environmental laws. Tanzania, Brazil, Costa Rica and India have enacted laws that recognize protection of traditional knowledge, even though most of these laws have not adequately covered the subject of protection of traditional knowledge.³¹²

The Constitution of the Philippines of 1987 provides “The State shall recognize, respect and protect the rights of the indigenous cultural communities to preserve and develop their cultures, traditions and institutions”.³¹³ This is interpreted to include the protection of traditional knowledge.

Thailand’s Constitution of 1997 states: “Persons so assembling as to be a traditional community shall have the right to conserve or restore their customs, local knowledge, arts or good culture of their community and of the nation and participate in the management, maintenance, preservation and exploitation of natural resources and the environment in a balanced fashion and persistently as provided by law.”³¹⁴ Though the Constitution does not specifically mention protection of traditional knowledge, by necessary implication it does embrace protection of traditional knowledge.

³¹² thirty-five national and regional measures protecting traditional knowledge; see *Protection of Traditional Knowledge: Overview of Policy Objectives and Core Principles*.

³¹³ Tanzania has enacted the Forest Act and Forest Regulations which protects TK though in a very periphery manner.

³¹⁴ Section 17, Article XIV of the Constitution of the Philippines of 1987.

³¹⁴ Section 46 of the Thailand Constitution.

The Constitution of Ecuador of 1998 recognizes “collective intellectual property rights” on communities’ ancestral knowledge,³¹⁵ which includes traditional medicinal knowledge. The Intellectual Property Law of Ecuador establishes a *sui generis* system of collective intellectual property rights of indigenous and local communities.³¹⁶

According to the Constitution of the Federal Republic of Brazil of 1989: “The Indians shall be accorded recognition of their social organization, customs, languages and traditions and the original rights in the lands that they occupy by tradition, it being the responsibility of the Union to demarcate them, protect them and ensure respect for all their property including intellectual property rights in the traditional knowledge.”³¹⁷ In addition to the above constitutional provision the Provisional Measure in Brazil No.2.052-6 of 21st December, 2000, provides that the State recognizes the indigenous and local communities’ rights to decide on the use of traditional knowledge associated with genetic resources. This knowledge is protected against “illicit exploitation” and other unauthorized uses.³¹⁸ This Measure has been subsequently renewed (and partially amended) by acts of the Brazilian Executive Power (Provisional Measure No2.126-11, 26th April, 2001). Decision No 391 of the Andean Group of 1996 recognizes the rights of indigenous, Afro-American and local communities to decide on their knowledge, innovations and traditional practices associated with genetic resources and derived products.

³¹⁵ Article 84 of the Constitution of Ecuador of 1998.

³¹⁶ Article 337 of the Intellectual Property Law of Ecuador Act No 83 of 1989.

³¹⁷ See Article 231 of the Constitution of the Federal Republic of Brazil.

³¹⁸ ¹ Article 8(1) and (2) of the Brazil Provisional Measure, 2000.

The Constitution of the Republic of Venezuela of 1999 says: “The collective intellectual property of indigenous knowledge, technology and innovations is guaranteed and protected. Any work on genetic resources and the knowledge associated therewith shall be for the collective good. The registration of patents in those resources and ancestral knowledge is prohibited.”³¹⁹ The constitution seems to curtail registration of traditional knowledge under any form of patents³²⁰ but does not prohibit registration of traditional knowledge under any form of intellectual or industrial property rights, which is absurd.

The Costa Rica Biodiversity Law establishes that: “The State expressly recognizes and protects, under the common denomination of *sui generis* community intellectual property rights, the knowledge, practices and innovations of indigenous peoples and local communities related to the use of components of biodiversity and associated knowledge. This right exists and is legally recognized by the mere existence of the cultural practice or knowledge related to genetic resources and biochemicals; it does not require prior declaration, explicit recognition or official registration; therefore it can include practices which in the future acquire such status. This recognition implies that no form of intellectual property or industrial property rights protection regulated in special laws or international law shall affect such historic practices.”³²¹ The law seems to have gone a step further by protecting any recognized form of traditional knowledge by making it override over any form of intellectual or industrial property rights protection.

³¹⁹ Article 124 of the Constitution of the Republic of Venezuela of 1999.

³²⁰ *Ibid.*

³²¹ See Article 82 of the Costa Rica Biodiversity Law.

In Tanzania the Constitution does not have any provision specifically for protection of traditional knowledge but rather there is a provision on right to protect ones property including traditional knowledge for local and traditional communities.³²² On the other hand, The Environmental Management Act, 2004³²³ which seems to be the law which touches on issues of indigenous knowledge provides that the Minister while striving to attain conservation of biological diversity shall take into account all rights over those resources including indigenous knowledge.³²⁴ Similarly, the same Act provides further that the Minister may make regulations among other things on the guidelines on methods to respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities.³²⁵ The law does not seem to talk of protection of traditional knowledge at all. It only provides for respect, preservation and maintenance of indigenous and local communities of which in my view do not amount to protection of traditional knowledge by any stretch of imagination.

4.5 Conclusion

As noted above the international community has realized the benefits that are and can be derived from traditional knowledge and the risks that may accrue to the communities that have produced such knowledge where a legal and institutional framework for their protection is lacking. However, it must be noted that despite the efforts that the international community has taken so far and despite the fact that the international community underscores the contribution of traditional knowledge to

³²² Article 24 of the Constitution of the United Republic of Tanzania of 1977 as amended from time to time provides for unfettered right to property which includes intellectual property and traditional knowledge being one of them.

³²³ Act No 20 of 2004.

³²⁴ See Section 66 Ibid.

³²⁵ Section 67 (2) (j) Ibid.

sustainable development, little efforts have been taken to secure adequate and effective binding instrument for the protection of traditional knowledge. This seems to be the outcome of the perceived prejudices of the developed world regarding indigenous knowledge as being primitive, barbaric, heathenism and associated directly with witchcraft.

On the other hand, it may be argued that leaving traditional knowledge out of the negotiation area within the Uruguay Round of Multilateral Trade Negotiations (MTNs) and the framework of the World Trade Organization was intentionally done so as to enable the rich North keep on plundering and pirating traditional knowledge from the poor South.

CHAPTER FIVE

5.0 SOME SELECTED CASE STUDIES OF BIORAPIRY IN TANZANIA

5.1 Introduction

Biopiracy is defined to mean the use of intellectual property laws (e.g. patents and plant breeders' rights) to gain exclusive monopoly control over genetic resources that are based on the knowledge and innovation of farmers and indigenous peoples.³²⁶

Biopiracy and bioprospecting do not just happen in the field. Biopiracy is even more likely to take place in the laboratories of industry and academia and in patent offices in the industrialized North.³²⁷

In Tanzania there have been a number of cases of biopiracy which have taken various forms. Attempt will be done to explain some few case studies that will indicate the magnitude of the problem in the country and the need to arrest the situation.³²⁸ Tanzania is just one of the many African countries that have suffered from Biopiracy.³²⁹

³²⁶ Bio-prospecting refers to the exploration of biodiversity for commercially valuable genetic resources and their biochemical components.

³²⁷ For detailed account of this, see RAFI, 1996 "Biopiracy Update: A Global Pandemic", RAFI Communiqué September/October 1996. cited also in H. Svarstad and S.S. Dhillion (Eds), Bioprospecting, from biodiversity in the South to medicines in the North, Spartacus Forlag AS, OSLO 2002.

³²⁸ Ibid

³²⁹ Kenya has faced a similar situation. For instance, a traditional woven market basket used by Kenyan women "Kiondo" is an authentic Kenyan product but patented in Japan as if it is their brainchild. Besides these few cases there has been a number of similar cases in elsewhere. A number of cases have been documented where patents have been issued with respect to generic resources, as well as products or processes that have been known and used by traditional or local communities for many years and even centuries (for more details see IP/C/W/429/Rev.1,21 September, 2004, paragraph 2.). Cases such as those relating to turmeric, neem tree, hoodia cactus and ayahuasca , kava plant, have been widely publicized and discussed. One of the arguments that have been advanced in defence of patent examiners is that the prior art was not available to them and that there was no way of knowing that the claimed invention was in fact not new or novel and therefore not patentable at all.(For more details see IP/C/W/IC/429/Rev.1,paragraph 2; WIPO/ GRTKF/IP/IC/4/15, paragraph 99.

The wisdom and knowledge accumulated by indigenous communities over thousands of years is being lost or plundered for corporate profit, according to a report by an international coalition of experts on intellectual property.³³⁰

5.2 The Case of Sharman Pharmaceuticals

Sharman Pharmaceuticals is a multinational pharmaceutical company that discovers and develops novel pharmaceutical products for human diseases by isolating active compounds from tropical plants with a history of medicinal use.³³¹ By screening plants used for centuries as medicines for select diseases, Sharman produces a wide variety of drug candidates that are diverse in both chemical class and mechanism of action. Further, it focuses its drug discovery in efforts on complicated diseases that are not conducive to high-class models typically used by the pharmaceutical industry. By evaluating plants used for centuries to treat specific diseases, Sharman Pharmaceuticals believes it can develop safe, effective and orally active therapeutics faster and more efficiently than current high-class screening technologies.³³²

Sharman's drug discovery efforts were initiated in 1990; it is a company that has claimed to have an ethical profile in which reciprocity with local co-operators is important. Sharman has been criticized for not providing satisfactory remuneration to local partners.³³³ In 1995 Sharman carried out an expedition in Tanzania with

³³⁰ See landmark study reports by international coalition on intellectual property experts, breakdown in traditional knowledge systems, September 9th 2008.

³³¹ Sharman Pharmaceuticals is based in San Francisco, California in the United States of America. It has its derived organisation The Healing Forestry Conservancy which is located in Washington DC.

³³² See S.R. King et al Issues in the Commercialization of Medicinal Plants in H. Svarstad and S.S. Dhillon (Eds), *Bioprospecting; from Biodiversity in the South to Medicines in the North*, Spartacus Forlag AS, OSLO 2002 at 78.

³³³ For a detailed account of this see Reyes V, The Value of Sangre de Drago. *Seedling* 13(1) March, 1996 and RAFI & Cultural Survival Canada, Sangre de Drago. *Bio Pirates* Logo No.4. The Rural Advancement Foundation International (RAFI) and Cultural Survival Canada. June

Tanzania researcher co-operators.³³⁴ First of all, the expedition approached traditional healers³³⁵ who were asked to describe their application of medicinal plants for certain diseases.³³⁶ Following this, the plants were collected for screening in Sharman's laboratory in California.³³⁷

During the expedition, Sharman collected 55 species of plants used to treat non-insulin-dependent diabetes mellitus, respiratory syncitial virus and hepatitis.³³⁸ Rowena Richter presents the local benefits Sharman contributed in terms of "short-term reciprocity". After the collection mission, Sharman donated a total of US\$ 6500 to local projects. In the first of the two districts, the funds were to be spent on construction materials for building a centre for the district association of traditional healers.³³⁹ In the second district, the funds were divided among the five visited villages and spent on tasks such as village clinics and school desks. Each local participant also received a salary of approximately US\$ 5 a day. "Long-term reciprocity" is to be allocated to all collaborators from a part of the company's income from selling the products.³⁴⁰

³³⁴ Richter R.K, *et al.*(undated) Mutualism: An ethnomedicinal research collaboration between Sharma Pharmaceuticals and the Institute of Traditional Medicine in Tanzania. Draft article for *Journal of Ethnobiology*.Withdrawn from publishing.

³³⁵ In Tanzania, traditional healers often provide an important part of the available health services for rural people. Many of their remedies are effective.

³³⁶ A group of women identified as traditional birth attendants also participated, but the scope of this chapter is too limited to deal with that aspect of expedition.

³³⁷ H. Svarstad and S. S Dhillon *Bioprospecting From biodiversity in the South to medicines in the North* op cit at 146. This chapter is too limited to deal with that aspect of expedition.

³³⁸ Richter R.K op cit.

³³⁹ In September, 1998 buildings erected using Sharman's donated money were still half raised and traditional healers and other local people were ambivalent with respect to their experience with Sharman Pharmaceuticals. Most of them expressed their high degree of disappointment. For a detailed account of this see Richter *et al.*, in which she expresses her field work in Tanzania in areas where Sharman Pharmaceuticals carried out their expedition in 1995.

³⁴⁰ H. Svarstad and S. S Dhillon *Bioprospecting From biodiversity in the South to medicines in North* op cit at 146. It is imperative to point out also that the company contributed "medium-term reciprocity" to its main research co-operator in Tanzania, the Institute of Traditional Medicine (ITM). It is beyond the scope of this

The traditional healers' attitude towards bioprospecting can first of all be explained by the way they see themselves as local scientists and doctors. For the healers, bioprospecting is considered a means to communicate with representatives of the conventional scientific system, thereby getting access to this system's knowledge on the healers' own pharmacopoeia.³⁴¹ From the co-operation with Sharman Pharmaceuticals, however, the healers had hoped to get more of such benefits than they actually received. It appeared that Sharman had sent a letter to the leader of the district organization simply saying that all the analyzed plants, except one, had the assumed medical effects. Although some satisfaction was expressed concerning the confirmation of these effects, many of the healers were disappointed that the feedback was so limited and was received late. Only one letter was sent to all the healers as a group, and the information did not reach all of them³⁴². Whereas traditional healing is often perceived as representing a sector contrasting modernization process, bioprospecting contributes to new local perceptions of the healers as possessors of advanced knowledge important for health care and development at the local and even the global level.

From the foregoing case study of the Sharman Pharmaceuticals expedition in Tanzania, it is quite obvious that healers know that their contributions of plants and knowledge are valuable for the biospectors, and therefore many of the healers expect

³⁴¹ study to look at those contributions but all the same whatever was contributed was very minimal not commensurate to the gains that the company received from the expedition.

³⁴² Ibid at 147. The term pharmacopoeia is a term of art which refers to the healers' own unique ways.

Ibid

payment. Tanzania has not attempted to oppose any attempt to patent inventions abroad, which inventions have been in use in Tanzania since time immemorial, unlike in India³⁴³ and the Kalahari.³⁴⁴

5.3 The Case of Export of Barks

In Tanzania, there has been a growing tendency of biopiracy of pharmaceutical companies in the guise of export of barks in large quantities.³⁴⁵ These companies have in various occasions bought products mainly Cinchona Barks which have very active ingredient for manufacture of pharmaceutical medicines most of the rare medicines for treatment of prostate cancer. The actual fee for export, for grading and inspection, range between a mere Tshs.100, 000.00 and Tshs.560, 000.00. After processing in the western pharmaceuticals, these medicines are brought back and sold at sky rocketing prices to the poor citizens of this country who cannot afford to get even two meals a day while these multinational pharmaceutical companies are making super profits to the tune of billions of US Dollars or Euros.³⁴⁶

³⁴³ India has in various occasions attacked the grant of patent to various countries. For instance grant of Patent in the USA to Turmeric products was attacked by the Indian Council of Scientific and Industrial Research (CSIR). The CSIR challenged the grant of patent on Turmeric by the US Patent Office on the plea that the patent could not be granted since there was no novelty in the invention. Also that what was patented was already published in Indian texts and use of Turmeric preparations has been made in their country (India) since time immemorial.

³⁴⁴ Bushmen in Kalahari objected to the patent of Hoodia Plant by the US Patent Office since Hoodia has been used times immemorial by the people of Kalahari as a means to assist them stay longer in the desert without taking food. Pfizer sought to register this patent as a medicine to control obesity. The opposition was successful and Pfizer had to negotiate for Access to and Benefit Sharing mechanism with the community concerned for the use of that traditional knowledge and people of Kalahari did benefit a lot from that move.

³⁴⁵ These companies include Pfizer Inc, a US based pharmaceutical company. The company has a leading portfolio of medicines that prevent, treat and cure diseases across a broad range of therapeutic areas. Other companies include Merz Pharma, Boehringer Ingelheim which are leading German pharmaceutical companies, Nova Associates Ltd of India, OM Farm N' Ceuticals Ltd of United Arab Emirates and Tabeco International Ltd of France.

³⁴⁶ It must be remembered also developing countries due to their budget deficits do not afford to import medicines to cure and treat the most dangerous diseases such as HIV/AIDS, Malaria, tuberculosis which kills thousands of people everyday while they are the source and maintainers of these medicines which are taken by bio prospectors.

Recent evidence demonstrates that there is increasing private industry interest in *prunus africana*—a medicinal plant found in Cameroon, Democratic Republic of Congo (formerly Zaire), Kenya and Tanzania. *Prunus Africana*'s bark contains active compounds for the treatment of benign prostatic hypertrophy. Major markets for the extract of the plant are Italy, Switzerland, France, German and Australia. In Cameroon, a French company, Plantecam Medicam, has been harvesting tones of the plant since 1970s. Italian companies import bark extract from Cameroon, Kenya, Uganda and the Democratic Republic of Congo. Capsules and tablets are marketed under various trade, names including “Tadenan” and “Pygenil” The total market value of trade in *Prunus africana* was estimated to be US\$ 150 million in the 1990s³⁴⁷ and is estimated to be more than US\$ 200 million at present.³⁴⁸ In Tanzania, *Prunus Africana* of recent has been massively exported to Europe and elsewhere at a very cheap price in the guise of logs!

Below is a table that indicates respective dates and names of companies that exported barks, product names, quantity of barks exported, fees paid and the country of destination.

³⁴⁷ See generally, Cunningham A. B., Mbenkum F.T, “Sustainability of Harvesting Prunus africana bark in Cameroon” People and Plants Working Paper 2. Paris: UNESCO, 1993.

³⁴⁸ *Ibid.*

Figure 3: Particulars of medicinal plants exported and country of destination

DATE	COMPANY/ INDIVIDUAL NAME	PRODUCT NAME	QNTY IN kgs	EXPORT FEES (Grading/ inspection fees) in TShs	COUNTRY OF DESTINATION
09.05.2006	Nova Associates	Cinchona Barks	17800	100,000.00	INDIA
15.11.2006	Nova Associates	Cinchona Barks	28000	100,000.00	INDIA
28.12.2006	Nova Associates	Cinchona Barks	7850	100,000.00	INDIA
22.11.2007	UNILEVER TEA (T) LTD	Cinchona Barks	68730	560,000.00	GERMANY
17.12.2007	UNILEVER TEA TANZANIA LTD	Cinchona Barks	66690	560,000.00	GERMAN
27.12.2007	NOVA ASSOCIATES LTD	Cinchona Barks	19200	140,000.00	INDIA
1.10.2007	NOVA ASSOCIATES LTD	Cinchona Barks	18000	140,000.00	INDIA
7.12.2007	OM FARM N' CEUTICALS LTD	Cinchona Barks	22000	280,000.000	UAE
12.12.2007	TABECO INTERNATIONAL LTD	BARKS PYGEUM AFRICANUM	20000	140,000.00	FRANCE

Source: Ministry of Tourism and Natural Resources-Ivory Room.

5.4 The Case of Chinese Bioprospectors

In Tanzania, just like the case of other neighboring countries, there have been some serious cases of biopiracy and bioprospectors from China in the form of Chinese companies or even individuals.

These Chinese companies have made use and benefited from genetic materials and ethnobiological knowledge which they later on use to develop pharmaceutical drugs.³⁴⁹ These medicines are markedly more stable and effective than traditional

³⁴⁹ This is as per the field interview with villagers in some parts of Bagamoyo District where a Chinese company operating in the guise of religious training college has been operating and extracting traditional medicine as exports to China in disguise.

formulations known to, and used by, indigenous people in the source areas.³⁵⁰ The case in point on this aspect in Tanzania is the medicine for prostate cancer, diabetes, toothpaste and dental medicine.

In this respect not only do the Chinese companies fail to compensate the indigenous communities and in particular the villagers, but they also assert patent rights on these medicines and on other products developed from the wonder plants, and TK of its uses. In those circumstances, they stand in a position to collect a patent-driven premium from the very villagers who informed the Chinese companies of the wonderful plants' properties and who helped harvest the companies' first samples of the plants.

The mistrust between traditional healers and modern doctors or prospectors has come to be very predominant due to various incidences in which indigenous communities have informed the mainstream doctors about a certain plant which cures certain diseases but to the surprise of these indigenous communities the mainstream doctors or prospectors have improved these medicines and without acknowledging the role of the indigenous communities which are the source of this traditional medicinal knowledge. The Institute of traditional knowledge at Muhimbili University of Health and Allied Science is also accused by traditional healers of this malpractice and the improvement of the medicine that cures prostate cancer is cited as a vivid example of

³⁵⁰ In the context of this research is the local area of Tanzania such as Buma and Chambezi where the researcher visited and met a number of traditional healers and village authorities.

this.³⁵¹ The medicine which originated from traditional healers has been improved and is packed in a modern manner in capsules and is very famous and sold widely in Tanzania and beyond the borders.³⁵² This has been the case in various occasions and is doomed to persist if no legal mechanism is put in place to recognize and protect TK.

³⁵¹ The researcher bought this medicine *Prucan Capsules* at Institute of Traditional Medicine and the medicine is an extract from *Prunus Africana* and is made of modern capsules to remove the unpleasant taste.

³⁵² This is as per the interview done by the researcher and a number of traditional healers in Tanzania in particular on their perception and trust vested by them to the Traditional Medicine Institute at Muhimbili University of Allied and Health Sciences.

CHAPTER SIX

6.0 PROTECTION OF TRADITIONAL MEDICINE IN TANZANIA

6.1 Introduction

Tanzania is a vast country covering about 945,000 sq km³⁵³, of which about 62,000 sq km³⁵⁴ is covered by inland water bodies.³⁵⁵ The country's jurisdiction over biological resources includes an 804 km stretch of coastline³⁵⁶ and a 200 km marine Exclusive Economic Zone.³⁵⁷ The expanse, coupled with physical features of tremendous variety, superlative attributes and uniqueness, make Tanzania home to a great diversity of organisms, a good proportion of them existing in great abundance.³⁵⁸ Tanzania is consequently one of the world's mega-diversity nations, it ranks very high in the number of species in number taxa.³⁵⁹

Tanzania is one of the richest countries in the world in terms of biodiversity and among the 12 most diverse countries.³⁶⁰ With at least 310 mammal species, the country has Africa's largest number of mammals,³⁶¹ third largest number of birds with 1,035 species,³⁶² second largest number of plants with 10,000 species; fourth for

³⁵³ United Republic of Tanzania, *Country Study Report on Biological Diversity*, The Government of the United Republic of Tanzania, Vice President's Office, Da es Salaam, June 1998.

³⁵⁴ *Ibid.* See also United Republic of Tanzania, The *National Investment Policy* 1996, President's Office Planning Commission, Dar es Salaam, October 1996; Irving Kaplan Irving, (ed). *Tanzania: A country Study*, 2nd edition The American University, Washington D.C, 1978.

³⁵⁵ *Ibid.*

³⁵⁶ The World Bank, *Tanzania at the Turn of the Century: Background Papers and Statistics*, Washington D.C, United Republic of Tanzania and The World Bank, 2002; United Republic of Tanzania, The National Investment Policy 1996, President's Office, Planning Commission, Dar es Salaam, October 1996.

³⁵⁷ *Ibid.*

³⁵⁸ *Ibid.*

³⁵⁹ See T. Kaiza- Boshe, B. Kamara and J. Mugabe, "Biodiversity Management in Tanzania" in J. Mugabe and N. Clark (Eds) *Managing Biodiversity, National Systems of Conservation and Innovation in Africa*, African Centre for Technology Studies (ACTS), Nairobi, Kenya, 1998 at 121.

³⁶⁰ This is as per information relating to Forestry Sector as viewed in the Ministry of Tourism and Natural Resources website as viewed on 20th May, 2008.

³⁶¹ *Ibid*

³⁶² *Ibid*

amphibians with 127; fourth for reptiles with 245 species;³⁶³ and fourth for angiosperms with 10 species. Tanzania also contains one of the 20 biodiversity hot spot areas in the world—the Eastern Pare Mountains, Uluguru, Udzungwa and others.³⁶⁴

Biodiversity is vitally important for the country's economic development. There are reliable data on the contribution of the forestry subsector to the Gross Domestic Product (GDP).³⁶⁵ By forestry it includes forestry based products such as medicinal products. This makes Tanzania rich in medicinal plants, hence the need for their protection. Indeed, if exports of medicinal forestry products were to be based on their fair prices as argued above, the subsector's contribution to the country's economy would have been much higher.

However, the presence of a wide diversity of flora and vascular plants which are endemic to Tanzania has made Tanzania a host to an increasing influx of foreign researchers and bio-prospectors searching for potential cures of diseases such as cancer, AIDS, asthma and cardiovascular diseases.³⁶⁶

³⁶³ Ibid

³⁶⁴ See T.Kaiza-Boshe op cit at 122.

³⁶⁵ The forestry sector has a very important role to play in Tanzania's economy. Although in absolute terms, its contribution to total gross domestic product (GDP) is low, it has increased considerably during the past 10 years by about 35 per cent, from 2.6 to 3.4 per cent of GDP. Due to methodological problems large party of the activities within the sector are not reflected in the GDP figures. Under estimation has been estimated at 35-60 per cent. At present it is estimated that GDP contribution of forestry is at the region of 5%.

³⁶⁶ A.J. Tesha and R.L.A. Mahunnah "Conserving Rare and Endangered Plant Species in Tanzania" pp.61-71 in *Population and Environment and Development in Tanzania*, Demographic Training Unit, University of Dar es Salaam and United Nations Department of Economic and Social Development, Dar es Salaam, 1993; and William R. Mziray, "Biotechnology Applications in Relation to the CBD and its Relevance to Tanzania", A paper presented at the 2nd National BIO-EARN Biopolicy Workshop on Biotechnological Applications in Tanzania, held at the Commission for Science and Technology Conference Hall, Dar es Salaam, Tanzania, December 4-5, 2001 (similarly noting that there is a growing number of foreign researchers and businessmen who are targeting particular organisms of their interest but the necessary procedures for ensuring that the country's biological resources are not exploited without clear knowledge of the intentions of the collectors and or gains to the country are lacking)

This chapter therefore seeks to analyze policy, legislative and national initiatives and measures to protect traditional knowledge for the sake of holders of this knowledge.

6.2 The growing importance of Plant Biodiversity

The advent of new biotechnologies and the capacity to identify and incorporate exotic genetic material into commercial products has forced the pace of change in industry and in IP systems. Researchers are discovering new ways to use old biomaterials, and the role of biomaterials for food, health, and other industrial purposes is expanding significantly. These new market opportunities have catalyzed additional research and investment. However, critically, the new technologies and the new hope for sustainability depend upon society's access to, and use of, a wide range of genetic materials.³⁶⁷

6.2.1 Medicinal Plants

In the health field, 80% of the world's population is at least partly dependent upon traditional medicine and in Tanzania it is estimated that approximately 90% of the country's population is dependent upon traditional medicine and medicinal plants to treat their ills.³⁶⁸ The conservation of pharmaceutical biodiversity is critical. More than two-thirds of the word's plant species--at least 35,000 of which have potential

³⁶⁷ The Crucible Group, *People, Plants and Patents*, The impact of Intellectual Property on Biodiversity, Conservation, Trade and Rural Society, International Development Research Centre, Ottawa, Canada, 1994 at pp 2,3. In manufacturing, some analysts are projecting that plants could recapture the share of the total industrial materials market they enjoyed in the 1920s and that full one-third of all such materials could be derived not from petroleum- based stocks but from plant resources. Handled correctly, the environmental and social benefits could be considerable. Much of the new market could accrue to tropical and sub tropical regions.

³⁶⁸ For similar view see Shelton D, Legal approaches to obtaining compensation for the access to and use of traditional knowledge of indigenous Peoples. Santa Clara School of Law, University of California, Berkely, CA, USA, 1993 cited in Crucible Group at 3.

medicinal value--originate in developing countries.³⁶⁹ African traditional medicine abounds in medicinal plants, and the tribal people, wherever they exist; still rely chiefly on herbal medicines.³⁷⁰

6.2.2 The Values of Medicinal Plants

Plant species are essentially used for medicine in two ways: commercially, whether by prescription or over-the-counter sales and as traditional medicines which may or may not attract a market price. In the rich world perhaps 25 per cent of all medicinal preparation is based on plants and plant derivatives, as indicated before.³⁷¹ In the poor world like in Tanzania, the figure is in the region of 75 to 80 per cent.³⁷² Clearly, both uses have economic value, but most analyses undertaken have tended to focus on the first category, the value of medicinal plants as the source of substances for use by the international pharmaceutical industry. The analyses have considered only part of the use value of medicinal plants and on the option value of maintaining diversity as a source of pharmaceuticals. Analysis of the other uses of medicinal plants as an integral part of primary health care show that the cultural role of these plants is central to how they are utilized and protected legally. This implies

³⁶⁹ Quiambao, C, "Good medicine, bitter pill?" United Nations Educational, Scientific and Cultural Organization, Paris, France. Newsletter of the Regional Network for the Chemistry of Natural Products in Southern Asia.

³⁷⁰ Tribes of Tanzania have a rich folklore; a few reports are available on their ethno botany (Bally 1937; Brenan and Greenway, 1949; Chhabra, Mahunna, and Mshiu 1987, 1989, 1990). See S.C. Chambray and R.L.A. Mahunna in Plants used in traditional medicine by hayas of the Kagera region, Tanzania, Economic Botany, Springer New York, Vol. 48 No.2 April, 1994.

³⁷¹ In many developed countries, 70% to 80% of the population has used some form of alternative or complementary medicine. Herbal treatments are the most popular form of traditional medicine, and are highly lucrative in the international market place. Annual revenues in Western Europe reached US\$ 5 Billion in 2003-2004. In China sales of products totalled US\$ 14 Billion in 2005. Herbal medicine revenue in Brazil was US\$ 160 million in 2007.

³⁷² See Principe, P.P, Valuing the Biodiversity of Medicinal Plants. The Conservation of Medicinal Plants. Chiang Mai, Thailand: Cambridge University Press, 1991.

that these resources have not only great cultural value but also intrinsic value and rights vested in them.³⁷³

The value of biodiversity as a source of pharmaceutically active substances has been the subject of a number of studies which call for legal protection of traditional medicinal knowledge. This value is now being cited as one of the many arguments for seeking to legally protect traditional medicinal knowledge.³⁷⁴ This argument seems to take into account the additional role of these herbal treatments used by the majority of people not only in rural areas but also in urban areas.³⁷⁵

6.3 Protection of TK using Conventional IP Regimes: Rhetoric or Reality?

In Tanzania, some attempts have been taken to protect the rich traditional medicine through the use of conventional IP regime although this route does not seem to be popular for a number of reasons, one of which being the fact that conventional IP regime is not very much known to these holders of traditional medicinal knowledge. Other factors for the lack of popularity are that conventional IP are perceived to be complex and the difficulty criterion for patentability, in particular the novelty and capability for industrial application as well as time limitation in its protection.

³⁷³ K. Brown and D. Moran, Valuing Biodiversity: The Scope and Limitations of economic analysis in Vicente Sanchez and Calestous Juma (Eds), *Biodiplomacy Genetic Resources and International Relations* loc cit at 226.

³⁷⁴ This study has revealed that there is a variety of herbal plants which produces various ranges of herbal medicine. Just to mention a few of them is *CINCHONA* Herbal Plant which has been used to make Quinine that cures malaria. The other one is *ARTIMESININ* Herbal Plant for cure of malaria too.

³⁷⁵ In the course of this study it have been revealed that majority of the people in urban areas have turned to herbal medicines not only for major diseases like HIV/AIDS, Malaria, Blood pleasure, gout, asthma, diabetes and weight loss.

Despite the above reasons, there have been in Tanzania a few cases of registered patents which deal with protection of traditional medicine. These attempts have been made in very few cases and for the sake of the present study we shall use this as a test case for trying to protect TK using the conventional IP regimes.

6.3.1 The First Case of Patent No.TZ/P/01/00042

The first patent to be granted in this respect is Patent **No. TZ/P/01/00042** which was issued on 10th December, 2002 to one Emanuel Songambele Lugakingira. This patent was issued in respect of a complete cure of malaria by using a herbal medicine called “*MNYAMBULIKO*”. The history behind this patent is that the plant used in treating malaria was introduced to the author by Laurean Majenge in 1973 in Bukoba, Kagera Region. The plant parts which include the branch stem and root barks were collected at different seasons from Kagera region, dried and kept in containers in the traditional medicine clinic at Nansio on Ukerewe Island. The herbarium was sent to the Swiss Tropical Institute 4002 Basel for Botanical Identification and Analysis.

Volunteer patients who appreciated the author’s practice in medicine came for help at different periods. They were 120 of them, 60 males and 60 females. They were registered; proper history of the disease was taken and was clinically examined. The procedure was done from January, 1986 to January, 1987 at the Nansio traditional medicine clinic on Ukerewe Island in Tanzania. Registration included the names of patients, age, sex, religion, the name of ten cell leaders and the diagnosis. These patients were each sent to Nansio Hospital Laboratory for blood examinations as regards malaria and hemoglobin estimation. Results were brought back to the traditional medicine clinic and preserved.

Patients with malaria parasites in blood were given dried root/stem bark of *Maystenus Senegalensis* about 270 gm. They were instructed to put about 90 gms of bark in question in a cooking pot, add in about 500 mls of clean water and boil for about one minute. The cool decoction had to be taken orally in doses of about 150 mls three times in a day to patients above 16 years of age; About 75 mls three times a day for patients with 6 to 16 years of age and about 37.5 mls three times a day for patients under 5 years of age. The dosage was to be taken three consecutive days and patients were warned not to use any other medicines during that period of treatment. When blood samples were taken no one had malaria in the blood slide the second day of *Maytenus Senegalensis* treatment³⁷⁶

The medicine itself is not popular so far, and there is no information whether a similar trademark was registered to protect the sale of this medicine under the name **MNYAMBULIKO**. But all the same the patent is in existence.

6.3.2 The Second Case of Patent No. TZ/P/99/00030

This is another patent which deals with protection of traditional medicine, that is, **Patent No. TZ/P/99/00030** in respect of a complete cure of oral diseases. Toothache and other syndromes are treated without filling cavities or extraction of damaged teeth by means of “**RANOS**”. This patent was issued to John Kasalimu of Traditional Dental Therapy (TDT) Clinic of Dar Es Salaam.³⁷⁷

³⁷⁶ This is as per information extracted from the Registrar of Patents in particular the Request for Grant of Patent, Certificate of Patent and the Description of the Patent.

³⁷⁷ The idea to establish Traditional Dental Therapy (TDT) and subsequent to a Traditional Therapy Clinic (TDT-Clinic) originated from Mr. John Kabalimu. Mr Kabalimu had suffered a great deal of oral and teeth problems ranging from inflammation of gums, gum bleeding, toothache and looseness of teeth. Modern dental clinics gave temporary relieve to his problems and several teeth of his teeth were extracted. It took

RANOS is prepared from herbal medicine. Herbal clinic preparations are basically parts of plants including roots and barks and sometimes shoot. Equipments are simple wooden pots and sticks for powdering the natural material into a fine powder. The powder is boiled in specified amounts of water for a period of ten to fifteen minutes to enable boiling to 100 Celsius and process of evaporation for the preparation of a concentrated complex compound of *RANOS*. At this time after cooling, *RANOS* will be ready for use. *RANOS* is stored in sterile containers. Sterility handling of the medicine is observed at all stages of medicine development and in the course of administration.

RANOS is in liquid form and is applied topically in the oral cavity. The patient holds one table spoonful of *RANOS* in the mouth without movement for a minimum period of 15 minutes. After this period the patient spits out. The patient is advised not to swallow the contaminated drug fluid and the reasons for spitting out entirely based on hygienic point of view rather than the drug's lethal effects.³⁷⁸

Treatment regimen for *RANOS* is a minimum of 3 consecutive days. *RANOS* could be administered at any time of the day, but is normally applied after dinner for the sake of convenience allowing at least a minimum of 5 hours of a total mouth rest for

him seven years from 1984 to 1991 to establish a traditional cure (*RANOS*) through research after realizing that his problems came to a halt after using *RANOS*. Mr. Kabalimu revealed and verified the entire story about *RANOS* with samples of his teeth completely cured by *RANOS* but only showing a grail remain at the top portions of the teeth the enamel. The clinic is a registered herbal practice centre under the Ministry of Healthy Ref.No. HEO/10/4A/72. The clinic is situated in Dar es Salaam city.

³⁷⁸ This information is as per search report done at the Registrar of Patents' office.

RANOS to take its course. The dosage rate is same for both adults and children but children should be old enough to be able to hold *RANOS* in the mouth.³⁷⁹

About 98% of patients who have visited the dental clinic have been relieved of their pains by *RANOS*. The rest (2% of the cases) suffering from impacted teeth, chronic apical *granuloma* and other tumors sometimes with cysts are referred for X-ray examinations and subsequent extraction if found necessary.³⁸⁰

The analysis of the drug carried out by the Government chief chemist vide letter Reference No. 341/ Vol.X1/131 confirmed to contain “ALKALOIDS”. Alkaloids are found in herbs and may be synthesized. Alkaloids like any other drug are toxic in nature but *RANOS* is extremely safe under the recommended treatment regimen. Essentially the clinic treats patients with oral and dental problems and promoting the medicine *RANOS* by collaborating with modern dental clinics and other traditional practitioners.³⁸¹ Like the case of *MNYAMBULIKO*, the patent for *RANOS* is still in existence but it is not known whether a similar trademark has been registered. The medicine is not very popular despite its importance.

³⁷⁹ RANOS is a wonderful drug treatment and after a full dosage of RANOS carious cases recover completely without filling them. RANOS penetrates deep into the tooth structure and following treatment there are observable changes in the pulp and dentine forming a new growing tissue and within a period of 3 months to 6 months the carious/ cavity will be completely obstructed by an organic matter. Only the enamel will be showing a depression at grail. The treatment is wonderful and encouraging. It seems as if the medicine prohibits growth of micro-organisms responsible for tooth decay and its action seems to be long acting nature. Research work is required to study the vitalization process of RANOS on the tooth under the following subjects:-

- (i) The effect of RANOS on the growth of micro-organisms.
- (ii) The durability of RANOS in the carious, hence to determine its residue effect.
- (iii) The effect of RANOS on tissue growth that is the odontoblast cell body of the pulp cavity, dentine and centrum.
- (iv) RANOS as pain killer, pain sensations are blocked instantly by topical application of RANOS. Hence to study its Analgesic effect.

³⁸⁰ For a period of more than twenty years of intensive work on quality and excellence, people of different walks of life have received RANOS treatment and there is no outstanding complaint or rather side effects reported. The above explains the reason why there is no need for filling caries and extraction of damaged teeth. The patient stays with damaged teeth forever without need of filling or extracting them out. RANOS is a pain killer, brown in colour, with a kind of aromatic smell and salty-Bitter taste. RANOS causes no discolorations to teeth and gums but irritating to eyes and the oral cavity.

³⁸¹ This information is as per search done at the office of the Registrar of Patents.

It should however be noted that laws on intellectual property rights are so confused that they are reducing claims by indigenous people to barely trickle. It has become clear that we need more than property rights to protect traditional knowledge and ensure fair and equitable benefit sharing with indigenous communities for the use of their knowledge.³⁸²

6.4 Legislative Attempts to Protect Traditional Knowledge

Some attempts have been made to protect traditional knowledge through scattered legislation, but these attempts have been done at a level which is very periphery in the sense that the laws that attempt to protect traditional knowledge so far have not been very comprehensive but rather have done so by passing.

6.4.1 The Traditional and Alternative Medicine Act

The first law that attempts to protect traditional medicinal knowledge is the Traditional and Alternative Medicine Act.³⁸³ This Act was enacted with the ultimate aim of making provision for promotion, control and regulation of traditional and alternative medicines practice. The law also establishes the Traditional and Alternative Heath Practice Council.³⁸⁴

This is the only law in Tanzania that defines traditional medicine. By virtue of this Act, traditional medicine is defined to mean a combination of knowledge and practice, whether applicable or not, used in diagnosing, preventing or eliminating a

³⁸² This is according to Tania Bubela of the School of Public Heath, University of Alberta, Canada, co-author of the study by International Expert Group on Biotechnology, Innovation and Intellectual Property titled “Towards a New Era of Intellectual Property: from Confrontation to Negotiation”, reported in *The East African* December, 22-28, 2008.

³⁸³ Act No. 23 of 2002

³⁸⁴ The Council is established under Section 4 of this Act and it has various functions as outlined in Section 6 of the Act.

physical, mental or social disease and which may rely exclusively on past experience and observation handed from one generation to another orally or in writing.³⁸⁵

The Council established under this Act has various functions. Among them is to promote the maintenance and enforcement of traditional and alternative health care.³⁸⁶ Of particular importance for this study is the role of the Council in providing protection for Tanzanian medicinal plants, and other natural resources of medicinal value such as animals, minerals, aquatic and marine products including parts thereof.³⁸⁷

Besides the good intention of the Act to vest these wide powers to the Council including protection of traditional plants and other natural resources, the Act does not categorically cater for protection of traditional medicinal knowledge in a comprehensive manner. In addition to that, the law is silent on how can the Council achieve its mandate of protecting traditional medicinal plants and other natural resources. Regulations have not been passed since the law was enacted in 2002 although the Registrar of the Council was appointed by the Minister.³⁸⁸ If regulations were passed they could prescribe for the manner upon which the Council could go about in protecting Tanzanian medicinal plants and other natural resources of medicinal value although it is very hard to provide adequate legal protection in the regulation in the absence of an elaborate provision in the Patents Act, since regulations as always are meant to ensure better carrying out of the provisions of the Act and not otherwise.

³⁸⁵ This is by virtue of Section 3 of the Act.

³⁸⁶ See Section 6(j) ibid

³⁸⁷ See Section 6(n) ibid

³⁸⁸ The Minister is empowered to appoint the Registrar pursuant to Section 9 of the Act.

It is striking to note that the Minister under his powers of making regulations³⁸⁹ may make regulations, but subject to the provisions of the Patents Act, 1987,³⁹⁰ to provide for matters relating to patenting of traditional medicine inventions.³⁹¹ The above provision has two bottlenecks; one, the Minister so far has not promulgated any regulations despite the fact that the law has been in the statute books for the past 7 years now; and two, even if the Minister had passed these regulations the same would not be practically easy to ensure protection of traditional medicinal knowledge since it has to be subjected to the cumbersome provisions of the Patents Act which is an absurdity due to the difficulty to subject traditional medicinal knowledge to the ordinary patents criterion.³⁹²

6.4.2 The Environmental Management Act

This is the first law in Tanzania³⁹³ to adequately address issues relating to not only environmental protection but also environmental management³⁹⁴. The Act is very modern and covers a wide range of issues unlike the former National Environment Management Act³⁹⁵. Even looking at the preamble to the Act, one will realize that this is one of the comprehensive pieces of legislation as far as environmental management is concerned³⁹⁶.

³⁸⁹ This power is conferred upon him under the provisions of Section 55 of the Act.

³⁹⁰ Act No. 1 of 1987 Chapter 217 of the Revised Edition 2002.

³⁹¹ See Section 55(l) *op cit*

³⁹² The criteria for protection of Patents include novelty, must involve an inventive step and be capable of industrial application. These criteria are hard to be met under the traditional medicine or any other type of traditional knowledge and that is why the western IP system is taken to be not suitable for protection of traditional knowledge.

³⁹³ Prior to that there was the Environmental Management Council Act, 1983, but this merely addressed management and had nothing on environmental protection.

³⁹⁴ Act No. 20 of 2004.

³⁹⁵ Act No. 19 of 1983 which was repealed by Section 231 of the Environmental Management Act, 2004.

³⁹⁶ The preamble to the Act reads “An Act to provide for legal and institutional framework for sustainable management of environment; to outline principles for management, impact and risk assessments, prevention and control of pollution, waste management, environmental quality standards, public participation, compliance and enforcement; to provide basis for implementation of international instruments

It is imperative to note that despite the comprehensive nature of this legislation it still does not sufficiently address issues relating to traditional knowledge although much of environmental matters have something to do with traditional knowledge and traditional knowledge plays a critical role in environmental management.³⁹⁷

This Act, which has 233 sections, has two provisions only which stipule matters that could be linked to traditional knowledge. The first provision deals with conservation of biological diversity.³⁹⁸ This provision does not protect or even seek to protect traditional knowledge directly, but rather it stipulates that:-

The Minister³⁹⁹ shall strive to attain the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.⁴⁰⁰

Further to that, the Act stipulates in explicit terms what the Minister may regulate in striving to attain the conservation of biological diversity. The powers of the Minister under this section shall in general include regulating appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources, *indigenous knowledge*, technologies and appropriate funding.⁴⁰¹

³⁹⁷ on environment; to provide for implementation of the National Environment Policy; to repeal the National Environment Management Act, 1983 and provide for continued existence of the National Environment Management Council; to provide for establishment of the National Environmental Trust Fund and to provide for other related matters.

³⁹⁸ This includes traditional beliefs of protecting traditional sacred places which preserve environment.

³⁹⁹ See Section 66 of Act No. 20 of 2004.

⁴⁰⁰ Section 3 of the Act defines a Minister to mean the Minister responsible for matters relating to the environment.

⁴⁰¹ See Section 66(1) Ibid.

⁴⁰¹ See Section 66(2) Ibid.

Further to that the law empowers the Minister in consultation with the relevant sector Ministry, to make regulations providing for *in-situ* conservation of biological diversity.⁴⁰² Regulations made under this section may prescribe:

“Guidelines on methods to respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities.”⁴⁰³

One very important point that needs to be made here is that the Environmental Management Act, besides referring to traditional knowledge⁴⁰⁴ by passing it does not precisely refer to its protection, hence making it hard to afford protection of this knowledge under this legislation.

6.4.3 The Seeds Act

The Seeds Act⁴⁰⁵ is an Act that makes provisions for the control and regulation of the standard of agricultural seeds and for matters incidental therewith.⁴⁰⁶ The Seeds Act⁴⁰⁷ establishes the National Seeds Committee which is a technical committee that has the mandate and function, among other things, to advise the Government on all matters relating to the development of the Tanzania seed industry.⁴⁰⁸ The Committee is a stakeholders’ forum.⁴⁰⁹

⁴⁰² See Section 67 (1) of Act No. 20 of 2004.

⁴⁰³ See Section 67(1) (j) *Ibid*.

⁴⁰⁴ In this context and as pointed out earlier the term traditional knowledge and indigenous knowledge refers to one and the same thing.

⁴⁰⁵ Act No. 18 of 2003 of the Law of Tanzania. This was assented by the then President Benjamin William Mkapa on 30th January, 2004.

⁴⁰⁶ This is as per the preamble to the Act.

⁴⁰⁷ *Op cit*

⁴⁰⁸ See Section 3 and 4 of Act No. 3 *Ibid*.

⁴⁰⁹ Section 5 *Ibid*

The Act protects importation, exportation, production, processing, distribution, sale or advertisement for sale any seeds unless there is a permit as per the requirement of the Plant Protection Act (PPA).⁴¹⁰ The Seeds Act seeks to protect standards and grade names of seeds and nothing more. There is no provision whatsoever, be it explicit or implicit, that seeks to protect TK or even GR and anything similar to TK despite the fact that seeds could have something to do with TK, since a number of medicinal knowledge could likely come from seeds.

6.4.4 The Plant Protection Act

The Plant Protection Act⁴¹¹ is an Act promulgated to prevent the introduction and spread of harmful organisms, to ensure sustainable plant and environmental protection, to control the importation and use of plant protection substances, to regulate export and import of plants and plant products and to ensure the fulfillment of international commitments, to entrust all plant protection regulatory functions to the Government, and for related matters incidental thereto or connected therewith.⁴¹² Going through lines of the Plant Protection Act, one will note that the Act was promulgated to regulate protection of plant importation or exportation only and only if the plant carries any harmful organisms in excess of an amount specified by the Minister in the notice.⁴¹³

The Plant Protection Act as it is does not stand a good chance to protect the current body of traditional knowledge, in particular traditional medicinal knowledge despite

⁴¹⁰ Act No. 3 of 1997 Chapter 133 of the Revised Edition 2002.

⁴¹¹ Ibid

⁴¹² See Preamble to Act No.18 of 1997.

⁴¹³ The Minister referred in this Act is the Minister responsible for the time being responsible for agriculture.

the fact that the law mentions a lot on protection of plants, plant materials and plant products, which could by necessary implications include medicinal plants. However, the spirit behind the PPA seems to focus on the plant protection substances and nothing that could offer protection on TK, as such the PPA is not a suitable arena for considering the protection of body of TK and traditional medicinal knowledge in particular.

6.4.5 The Forest Act

The Forest Act⁴¹⁴ was promulgated with a view of providing for the management of forests, to repeal certain laws relating to forests⁴¹⁵ and for related matters.⁴¹⁶ The Act defines a forest to mean an area of land with at least 10% tree crown cover, naturally grown or planted or planted and over 50% or more shrub and tree regeneration cover and *includes* all forest reserves of whatever kind declared or gazetted under this Act and all plantations⁴¹⁷ virtue of this definition, the Act would seem to cover forests other than reserved forests upon although going through the Act itself it would appear that it does not seem to have covered protection to forests other than reserve forests.

The Act further classifies forests into various types, namely national forests reserve which consist of forest reserves⁴¹⁸ and nature forests reserves,⁴¹⁹ local authority

⁴¹⁴ Act No.14 of the Laws of Tanzania, Acts Supplement 7th June, 2002 published in the Gazette of the United Republic of Tanzania No. 23 Vol.83.

⁴¹⁵ The Forest Act repealed the Forests Ordinance, Cap. 389 of the Laws of Tanzania, The Export of Timber Ordinance, Cap.288 of the Laws of Tanzania and The Grass Fires Ordinance, Cap 133 of the laws of Tanzania.

⁴¹⁶ See preamble to the Forest Act, 2002.

⁴¹⁷ See section 2 *Ibid*

⁴¹⁸ See Section 4 (a) (i) of the Forest Act.

⁴¹⁹ See Section 4(a) (ii) *Ibid*

forest reserve which consist of local authority forest reserve⁴²⁰ and forests on general land;⁴²¹ Village forests,⁴²² community forests reserves⁴²³ and private forests.⁴²⁴ Reading through the lines of the above provisions, one would realize that the Forest Act does not recognize protection of any forest and forest products in any other place than forest reserves despite the fact that the definition section looks a little bit broader by necessary implication.

The objectives of the Forest Act are *inter alia* to enable Tanzania to pay fully in contributing towards and benefiting from international efforts and measures to protect and enhance global bio-diversity.⁴²⁵ It is very unfortunate however that the Act does not mention benefits in TK.⁴²⁶ Since TK is part and parcel of the global diversity, then indigenous communities must benefit also from the TK by equitably sharing any benefits that comes as a result of TK, in particular by prospectors.

The Act stipulates matters upon which permits may be issued to allow the activities specified to be carried in a national or local authority forest reserve subject to such conditions, as may be attached to the said permit that is to pluck, pick, take parts or extracts of any protected plant for purposes of research or the production *or manufacture of any medicine* or other product.⁴²⁷ This is one of the very few provisions in the Act where medicinal plants seem to have recognition although it has not well been treated given its importance and its diversity in forests in Tanzania.

⁴²⁰ See Section 4(b) (i) also Section 22 *Ibid.*

⁴²¹ See Section 4(b) (ii) also Section 22 *Ibid*

⁴²² See Section 4(C) also Section 32(2) and 33*Ibid.*

⁴²³ See Section 4 (c) also Section 42 *Ibid.*

⁴²⁴ See section 4(d) also Section Part VI of the Forest Act.

⁴²⁵ This is by virtue of Section 4(i) *Ibid.*

⁴²⁶ It is important to note that in Tanzania, forest reserves are the main source of medicinal plants and other valuable genetic materials that are sought by foreign researchers and bio-prospectors.

⁴²⁷ See Section 49 (c) of the Act.

It is pertinent to point out also that the Act, despite mentioning in a peripheral way and recognizing the fact that some applicants for forest permits normally do extract any protected plant for purposes of manufacture of medicine, but the law does not create any clear mechanism for protection of traditional medicinal plants. The law does not have any elaborate provisions that seem to have special focus on protection of TK and traditional medicinal plants in that respect.⁴²⁸

The Forest Act has very elaborate provisions on sovereignty of Tanzania over biological resources in forests,⁴²⁹ by virtue of the provisions of Article 27 of the Constitution of the United Republic of Tanzania,⁴³⁰ protection of wild plants which will automatically include medicinal plants,⁴³¹ inspection of forest produce before export.⁴³² The Act also restricts export of timber or other forest products without an export certificate and through such places or ports of exit.⁴³³

It goes without saying that despite the elaborate and articulate nature of the Act there is no separate or express mention of “protection of traditional knowledge” in the Act, but terms such as “knowledge” or “information” are used obliquely to refer to the concept of traditional knowledge.

Further, this “knowledge” or “information” which is sought to be protected by the Act is qualified by another criterion: that it should relate to, or be associated with,

⁴²⁸ The Forest Regulations which are made pursuant to the provisions of Section 106 (1) of the Act do not provide adequate protection for TK and traditional medicinal plants in that respect.

⁴²⁹ See Section 69 of the Forest Act, 2002.

⁴³⁰ 1977 as amended from time to time.

⁴³¹ See Section 67 *op cit*

⁴³² See Section 61 *Ibid.*

⁴³³ See Sections 58 and 59 *Ibid.*

biological resources. Thus, only a sub-set of traditional knowledge, not the entire genus of it, has been dealt with in the framework of the Act.

All in all the Forest Act is a good model for formulating a specific legislation on protection of TK in Tanzania as it could be modeled in the same line with the Forest Act which has special focus on forest and forest products not necessarily focusing on TK.

6.4.6 The Forest Regulations

The Forest Regulations⁴³⁴ are made pursuant to the Forest Act⁴³⁵ and they are meant mainly to regulate forests primarily in reserve areas. The regulations mainly protect by restricting any person from collecting, taking, picking, storing or removing any wild plant, parts of plant or seed from a forest reserve.⁴³⁶

The above restriction seems to cover forest reserve only, leaving forests outside the protected areas uncovered. In addition to that, the regulation at this part does not mention anything on protection of TK and the associated knowledge. The regulations could be modeled in the manner that it will afford protection to the body of traditional knowledge and in particular medicinal traditional knowledge. The regulations could be modeled in such a way so as to restrict taking, collecting, picking or removing any wild plant or animal, parts of plant or animal, seed from *any forest* or related area with a view of protecting misappropriating traditional knowledge of indigenous people without permit from an authorized officer. The most

⁴³⁴ Government Notice No.153 published on 21/5/2004.

⁴³⁵ Act No. 14 of 2002 of the Laws of Tanzania and in particular Section 106 (1)

⁴³⁶ See Part XI of the Forest Regulations.

crucial part which is more relevant to this current study is Part XVII of the Regulations,⁴³⁷ which deals with provisions on access to genetic resources.

Part XVII deals with declaration and publication by the Minister⁴³⁸ of a list of genetic resources found in any forest areas of Tanzania Mainland.⁴³⁹ Access to these forest resources that are within the protected areas are subject to prior informed consent (PIC).⁴⁴⁰ The regulations as they are restrict themselves to GR and only in protected areas. They leave a larger part of GR in none protected areas unprotected, but worse still they do not cover protection for TK which is abundant in major forests in Tanzania.

The Regulations proceed to provide that except with the permit applied and granted by the Director of Forests, no person shall have access to GR in any forest in any part of Tanzania Mainland.⁴⁴¹ Again, this provision, just like the previous ones, restricts itself to GR leaving TK outside the realm of protection.

The law mentions by passing that the Director of Forestry shall approve the granting of access to the biological resources or the community innovation, practice, knowledge or technology in question with any conditions it may deem necessary.⁴⁴² The regulations do not specifically mention, TK but rather they do so implicitly, in particular where knowledge could be interpreted to embrace TK.

⁴³⁷ In particular Rule 52 of the Forest Regulations, 2004.

⁴³⁸ In the context of these Regulations the Minister means the Minister for the time being responsible for forests.

⁴³⁹ Rule 52(1) *Ibid*

⁴⁴⁰ Rule 52(2) *Ibid*

⁴⁴¹ Rule 52 (8) *Ibid*

⁴⁴² Rule 52(9) *Ibid*

The Regulations have elaborate and articulate provisions on the need for written prior informed consent before the access permit is granted,⁴⁴³ the need for a signed written agreement between the Director and the concerned local community or communities on the one hand, and the applicant or collector on the other hand.⁴⁴⁴

The written agreement referred to above shall contain a number of commitments by the collector. Among these commitments includes informing immediately the Director and the concerned local community or communities of all findings from research and development on the resources,⁴⁴⁵ not to transfer the biological resources or any of its derivatives or the community innovation, practice, knowledge or technology to any third party without the authorization of the Director and the concerned local community or communities.⁴⁴⁶ The Regulations do not specifically focus on protecting TK, despite the commitment required in the agreement.

Further to the above, the Regulations stipulate additional commitments, which include, *inter alia*, not to apply for any form of intellectual property protection over the biological resources or parts or derivatives thereof and not to apply for intellectual property rights protection over a community innovation, practice, knowledge or technology without the prior informed consent of the original providers.⁴⁴⁷ As pointed out before, the Regulations do not expressly mention TK, although reference to knowledge could be inferred to cover TK. However, a more

⁴⁴³ Rule 52(11) *Ibid*

⁴⁴⁴ Rule 52(10) *Ibid*

⁴⁴⁵ See Rule 12 (C) *Ibid*

⁴⁴⁶ Rule 12 (d) *Ibid*

⁴⁴⁷ Rule 12 (e) *Ibid*

elaborate and specific mention in these Regulations or some other specific Regulations on protection of TK will be most preferred.

Lastly the Regulations require the agreement to provide for a specific provision on sharing of benefits,⁴⁴⁸ and that access shall be conditioned upon a commitment to contribute economically to the efforts of the State and concerned local community or communities in the generation and conservation of the biological resources, and the maintenance of the innovation, practice, knowledge or technology to which access is sought.⁴⁴⁹

The Forestry Regulations are very elaborate and articulate in so far as protection of forest products and GR is concerned. However, as they stand they are not suitable for protection of TK for two simple reasons. One, the Forestry Regulations are easy to enforce as far as GR and forestry issues are concerned, for there is international commitment by states to adhere and implement the provisions of CBD, whereas there is no similar instrument internationally for the protection of TK; and two, the Forestry Regulations do not specifically mention, TK but rather refer to knowledge in its general sense.

The provisions of Rule 23 seem to be very close to protecting TK as they provide for recognition of community intellectual property rights. It reads as follows:

The Community Intellectual Property Rights of the local communities, including traditional professional groups, particularly traditional practitioners, shall at all times

⁴⁴⁸ See Rule 12 (f) *Ibid*

⁴⁴⁹ Rule 12 (g) *Ibid.*

remain inalienable, and shall be further protected under the mechanism established by the relevant law relating to intellectual property rights.⁴⁵⁰

The Regulation proceeds to stipulate further that non-registration of any community innovations, practices, knowledge or technologies, shall not mean that these are not protected by Community Intellectual Property Rights.⁴⁵¹

Further to the recognition of community rights, the Forest Regulations of 2004 also provide for the recognition, protection and inalienability of “community intellectual property rights.”⁴⁵² The Regulations further provide that patents over life forms and biological processes are recognized and cannot be applied for under the Regulations.⁴⁵³ This rule is harmonious with the provisions of the *Patents (Registration) Act*,⁴⁵⁴ which exclude from patentability plants or animal varieties or essentially biological processes for the production of plants or animals, other than microbiological, and the products of such a process.

Regulation 52(23) of the Forest Regulations of 2004 states that;

“The community intellectual property rights of local communities, including traditional professional groups, particularly traditional practitioners shall at all times remain inalienable, and shall be further protected under the mechanism established by the relevant law relating to intellectual property rights”⁴⁵⁵

⁴⁵⁰ See Rule 23 (a)

⁴⁵¹ See section 23 (c) .This presupposes the existence of traditional intellectual property rights.

⁴⁵² Sub- regulation 23(a) to (d).

⁴⁵³ Regulation 52(14).

⁴⁵⁴ Chapter 217 of the Revised Laws 2002.

⁴⁵⁵ It is however, important to note that none of the laws relating to intellectual property rights lays down any mechanisms for the protection of “community intellectual property rights” over use of traditional knowledge save for the protection accorded to expressions of folklore under the *Copyrights and Neighboring Rights Act, Chapter 218 of the Revised Laws 2002*.

The term “community intellectual property rights” is not defined under any law in Tanzania. This has implications on the validity of their incorporation in the Regulations. The incorporation of provisions for protection of “community intellectual property rights” in the Forest Regulations of 2004 is anomaly because the Forest Act, 2002 does not at all address ‘community intellectual property rights’.

The Power to make laws in Tanzania is vested in the Parliament under section 64(1) of the Constitution of the United Republic of Tanzania as amended from time to time. The protection to community intellectual property rights is provided for by the Forest Regulations which have been made under delegated powers and therefore constitute delegated legislation. All delegated or subsidiary legislation are generally treated as being part and parcel of the enactment under which they are made. This means that regulations cannot contact provisions on matters that have not been legislated upon by the Parliament. Hence any provisions in a subsidiary legislation, which are outside the provisions of the Act under which they are made, are *ultra vires*. This is by virtue of the provisions of the *Interpretation of Laws and General Clauses Act*,⁴⁵⁶ which requires that words and expressions in the subsidiary legislation shall have the same meaning as in the written law under which they are made and thus should not be inconstancy.⁴⁵⁷

The Forestry Regulations, being very elaborate and articulate in so far as the provisions on access to genetic resources are concerned, just as the case was for the Forests Act could be the best model for making similar provisions on access to TK.

⁴⁵⁶ Chapter 1 of the Revised Laws of Tanzania, 2002 in particular section 39(1) and 36(1).

⁴⁵⁷ For similar comments see R. A. Mwaipopo (*supra*) at pp 31-35

This could be done in the interim while working towards an internationally binding treaty on protection of TK.

6.4.7 The Protection of New Plant Varieties (Plant Breeders' Rights) Act

According to the preamble to the Act,⁴⁵⁸ this law was enacted to provide for the establishment of a registry of plant breeders' rights; promotion of plant breeding and facilitation of agricultural advancements through the grant and regulation of plant breeders rights and for matters connected therewith.⁴⁵⁹

The Protection of New Plant Varieties (Plant Breeders' Rights) Act was enacted as an implementation of the Convention on the Protection of New Varieties of Plants of 1991.⁴⁶⁰ The Convention is administered by the International Union for the Protection of Plant Varieties (UPOV). The Convention establishes international standards for plant variety protection by plant breeders' rights.

The Act establishes, within the Ministry responsible for agriculture, a Government office known as the Plant Breeders' Rights Registry.⁴⁶¹ The Minister shall, by notice in the *Gazette*, appoint or designate an officer to perform the functions conferred to or imposed on the Registrar of Plant Breeders' Rights under this Act.⁴⁶²

⁴⁵⁸ Act No. 22 of 2002.

⁴⁵⁹ See preamble to the Act *Ibid*.

⁴⁶⁰ Which Tanzania missed to sign before the closure of the signing date as such it had to enact the law so as to overcome pressures from foreign seeds companies.

⁴⁶¹ See Section 3 *Ibid*

⁴⁶² See Section 4 *Ibid*

The functions of the Registrar of Plant Breeders' Rights are, *inter alia*, to grant Plant Breeders' Rights, in its acronym PBR, to establish a documentation centre for the purposes of dissemination of information on Plant Breeders' Rights; to maintain a register and provide information on Plant Breeders' Rights issued in Tanzania; to facilitate transfer and licensing of Plant Breeders' Rights and perform such other functions as are necessary for the furtherance of the objects of the Act.⁴⁶³

Reading through the lines, the provisions of the Act, there is no single provision whatsoever that seeks to protect traditional knowledge in any of its forms, be it medicinal knowledge or the like.⁴⁶⁴

6.4.8 Copyright and Neighboring Rights Act

The Copyright and Neighboring Act⁴⁶⁵ was enacted with a view of making better provision for protection of copyright and neighboring rights in literary, artistic works and folklore and for related matters.⁴⁶⁶ Going through the lines of the Act in particular on the objectives one wonders whether the Act was meant to cover protection of TK. The objective of the Act is among other things to safeguard expressions of traditional culture.⁴⁶⁷

The Act further stipulates works upon which copyright may subsist however; there is no mention of TK hence making the TK out of the categories of works protected by

⁴⁶³ See Section 5 *Ibid.*

⁴⁶⁴ Tanzania is not a member country of the UPOV. Section 10 of the Act in recognition of the close relation between plant variety protection and intellectual property right protection takes on board one representative from a Government Agency or Authority responsible for registration of intellectual property rights in the Standing Committee known as the Plant Breeders' Rights Advisory Committee.

⁴⁶⁵ Chapter 218 of the Revised Edition 2002 which came into operation by virtue of the GN No.452 of 1999.

⁴⁶⁶ This is by virtue of the preamble to the Act.

⁴⁶⁷ See section 2 of the Copyright and Neighbouring Act, Chapter 218 *Ibid*

the Act.⁴⁶⁸ What is even more worse the Act stipulates duration of protection⁴⁶⁹ and qualifications for ownership of copyright⁴⁷⁰ which are not applicable to TK which is perpetual and communally owned.

One of the salient features of the Act is the protection of Expressions of Folklore against Illicit Exploitation.⁴⁷¹ This Act was meant to protect expressions of traditional culture but this does not cover TK.⁴⁷² It is pertinent to point out at this juncture that copyright cannot protect TK as most TK cannot meet criteria relating to authorship and originality.

6.4.9 The Patents Act

This Act⁴⁷³ as the preamble clearly spells out is meant to provide for better provisions for the promotion of inventivity and innovation for the facilitation of the acquisition of technology on fair terms through the grant and regulation of patents, utility certificates and innovation certificates.⁴⁷⁴

The Act is very clear on the criteria for patentability which is novelty, inventive step and capability for industrial application.⁴⁷⁵ It proceeds to define that an invention is new if it is not anticipated by prior art.⁴⁷⁶ In addition to that an invention shall be considered as involving an inventive step if, having regard to the prior art, within the meaning of section 9(2) (a), it would not have been obvious to a person skilled in the

⁴⁶⁸ See section 5 *Ibid*

⁴⁶⁹ See section 14 *Ibid*

⁴⁷⁰ See section 15 *Ibid*

⁴⁷¹ See Part III of the Act in particular sections 24-30 *Ibid*.

⁴⁷² *Ibid*.

⁴⁷³ Chapter 217 of the Revised Edition 2002 which came into force after the Minister Published in the Gazette GN No. 457 of 1994.

⁴⁷⁴ See preamble to the Act.

⁴⁷⁵ See section 8 *Ibid*.

⁴⁷⁶ See section 9 *Ibid*.

art on the date of the filing of the application or, if priority is claimed, on the priority date validly claimed in respect thereof.⁴⁷⁷ Further to that the Act stipulates that an invention shall be taken to be capable of industrial application if according to its nature, it can be made or used, in the technological sense in any kind of industry, including agriculture, fishery and services.⁴⁷⁸

Looking at the criteria for a patentable invention which is novelty, inventive step and capable of industrial application it is crystal clear that patent law is not the ideal law to protect TK since TK does not meet any of the above criteria.

6.5 Other attempts to protect TK in Tanzania

There have been various other attempts to recognize TK and attempt to protect it. These attempts include but are not limited to the following.

6.5.1 Introduction of the Institute of Traditional Medicine

The Institute of Traditional Medicine started as a research Unit in July 1974 and its research activities were under a University Senate sub-committee.⁴⁷⁹ The Research Unit was transformed into the Institute of Traditional Medicine under the Muhimbili University College of Health Sciences by an Act of Parliament.⁴⁸⁰ The Act provided for an Institute Board, which reported to the Academic Board of the College.⁴⁸¹

⁴⁷⁷ See section 10 *Ibid.*

⁴⁷⁸ See section 11 *Ibid.*

⁴⁷⁹ The Senate here refers to the Senate of the University of Dar es Salaam.

⁴⁸⁰ No. 9 of 1991, Section 10-(1) (c).

⁴⁸¹ The Act since then has been repealed by the Universities Act, 2005 Act No. 7 which repealed all the Acts establishing Public Universities and in its place required each University to have in place a Charter of Incorporation.

The Institute of Traditional Medicine is charged with the responsibility to research into traditional healing systems in Tanzania, to identify useful practices which can be adopted and to also identify useful material medicines be modernized and developed into drugs. Tanzania is estimated to have a traditional healer-population ratio of 1:400, thus giving an estimated number of over 80,000 traditional healers with varying specialties. The majority of healers are herbalists using mainly plants and a few animal and mineral products. There are also practices such as bone setting and socio-cultural aspects which contribute to the healing practices.

Tanzania has over 12,000 higher plant species and it is estimated that at least a quarter of these plants have medicinal value. The Institute has so far documented over 3000 species with limited preliminary chemical and pharmacological work and about 10,000 duplicates.⁴⁸²

This means that there is still a lot of work to be done to effectively exploit this vast potential.⁴⁸³ It is also true that some of the plants growing in Tanzania are already proven to have medicinal value and have a big market potential worldwide and can be exploited for local drug production. Some examples include *Cinchona ledgeriana*, *Artemisia afra*, *Rauvolfia caffra*, *Rauvolfia serpetina*, *Atropa belladonna*, *Catharanthus rosea*, *Pischiera fuchsiaefolia*, *Moringa oleifera*, *Vuacanga Africana*, *Prunus Africana*, and *Waltheria indica*, to mention just a few. The Institute plays a leading role in the development of this vast resource by strategically building expertise in all areas related to drug development, including basic science knowledge

⁴⁸² Institute of Traditional Medicine, Five Year Rolling Strategic Plan for the Period 2004/05-2008/9 cited also in Mwaipopo at 331.

⁴⁸³ *Ibid.*

base, biological testing, pre-clinical toxicological studies, clinical trials and evaluation, pharmaceutical technology, standardization of herbal pharmaceuticals, biotechnology aimed at producing plants with best levels of active molecules and maturing in a short period. Other areas include tissue culture, for production of secondary metabolites as drugs etc. Involvement of development partners, private entrepreneurs and increased financial input from Government to support research, training, recruitment and development of infrastructure are much needed.

The mission of the TMI is to act as a centre of excellence in the evaluation, documentation, creation and dissemination of knowledge on traditional medicine and drug discovery and, hence, contribute to the intellectual life of Tanzania, educate the public and ensure that research in traditional medicine responds to the health needs of the people and acts as a catalyst to improve health care services in the country.

The objective of the TMI are:-

- To conduct scientific investigations on plants, animal and mineral products used for medicinal purposes.
- To evaluate, rationalize and promote the use of natural products, and beneficial customs and practices of traditional medicine.
- To identify and discourage products, customs and practices which are detrimental to health

The basic functions of the Institute will therefore be:-

- To promote field data collection from traditional healers and traditional birth attendants and communities, documentation and storage of information and materials pertaining to all aspects of traditional medicine.

- To empower traditional healers by providing feedback from research findings resulting from collected materials and information,⁴⁸⁴ and offering training related to Intellectual Property Rights and modernization of their practices through workshops, seminars and brochures.
- To do anthropological work so as to retrieve, document and store information pertaining to customs and traditional practices in traditional medicine.
- To promote non-clinical and toxicological studies aimed at determination of safety of herbal medicines and compounds with therapeutic potential
- To initiate and promote clinical trials on promising traditional medicines.
- To promote local production of already established herbal medicines and plant derived pharmaceuticals and help to reduce the burden on imports.
- To enhance phytochemical and biological screening of potential medicinal materials in plants, animals and mineral substances.
- To promote community based cultivation of medicinal plants to supply materials for local production of herbal medicines and use this avenue as a strategy for poverty reduction.
- To disseminate information obtained from research to the scientific community, traditional healers and the public at large.
- To promote *Ex-situ* and *In-Situ* conservation of medicinal and aromatic plants for sustainable production of herbal medicines.

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During the course of this study, the researcher found that out that ITM discourages collaboration with traditional healers on account of the fact that traditional healers wants protection from their traditional medicinal knowledge of which they have no prior art and that the knowledge that they want to assert exclusive right is public domain and does not have a specific owner. The respondents also pointed out that the traditional healers do not have clinical data and/ or test to support their invention.

To achieve its mission the Institute has the following set goals:

- **To promote the use of traditional medicines and traditional methods of healing** The Institute will use its expertise to evaluate, rationalize and promote the use of natural products, and beneficial customs and practices of traditional medicine.

It will also carry out clinical observations and toxicological studies as a means to promote safe products and to identify and discourage harmful products, customs and practices which are detrimental to health. Useful practices like bone setting, methods of contraception etc will be documented and promoted.

- **To promote commercial exploitation of medicinal plants**

The Institute shall organize itself to promote trade in herbal medicines, as a way to contribute to the national poverty reduction strategy. The Institute, in collaboration with other institutions, intends to promote community based cultivation of medicinal plants and sale of their extracts and possibly isolated pure compounds within the country and abroad. This will promote commerce in medicinal plants and, therefore become a source of income for the people.⁴⁸⁵

- **To contribute to the discovery of new drugs**

The Institute will, through collaboration with traditional healers and traditional birth attendants, conduct scientific investigations on plants, animal and mineral products that are used traditionally as medicines with the purpose of developing new drugs. The pursuit of patents shall be part of the core activities of the Institute and shall serve the purpose of discovery of new drugs to treat conditions that are prevalent in

⁴⁸⁵ The TMI like any local individuals and institutions has suffered unfair treatment from bio prospectors from the west.

Tanzania and also serve as a source of income by generating new drug molecules, which are of interest to the pharmaceutical industries. The Institute shall build a strong team of natural product chemists and experts in biological testing to address this goal.

- **To contribute to the local production of pharmaceuticals**

There are a number of established medicinal plants growing in Tanzania. The country continues to import drugs derived from these plants while their production could be done locally. The Institute would like to pioneer the production of drugs from known plants that grow in Tanzania. The Institute is endeavouring to champion research and development activities in the production of herbal pharmaceuticals and pass on the developed products to industrial partners for production and distribution. The Institute shall benefit from the sale of the produced medicines by collecting royalties at agreed rates lasting the life time of the products in the market. In order to achieve this goal the Institute shall build a strong team of experts in pharmaceutical technology and acquire equipment for laboratory production of capsules, tablets and powders.⁴⁸⁶ The Institute will also seek to acquire analytical equipment for the analysis of content and ingredients in pharmaceutical formulations. The Institute shall also acquire equipment for stability testing for the purpose of establishing shelf life of drugs that will be produced.

⁴⁸⁶ The researcher during his visit to TMI was availed to a number of traditional medicines that have been extracted from medicinal plants and are being sold to patients upon prescription from medical doctors. These medicines are in the form of both powders, capsules and tablets and they include medicines for prostate cancer, kidney, stomach, asthma and sickle cell anemia.

Despite the mandate and the objectives of the ITM this study has found the most striking scenario where there is lack of trust between the traditional knowledge holders and the ITM in term of disclosing knowledge in the form of medicinal knowledge. Trust between traditional knowledge holders and the ITM plays a vital role in facilitating negotiations and sharing information that could benefit both sides, as well as the larger public.

The ITM has never been safe from the unfair and unconscionable bargain with multinational pharmaceutical companies from the west. The ITM entered into a agreement with the National Cancer Institute⁴⁸⁷ through its collecting contractor Missouri Botanic Gardens (MBG). The contract turned out to be a contract for exploitation of Tanzanian scientists and the inequitable extraction of Tanzania's genetic resources. The benefits offered to ITM were dismally small limited to field allowances for researchers and nothing and some few trips to NCI- Frederick laboratories to US.

Worse still NCI though MBG did a partial disclosures after an aggressive follow up by ITM and revealed that about 433 samples from amongst plants that were collected in Tanzania under the contract screened for anti-cancer and ant-HIV activity were active, +active and ++active (meaning active, very active and plus very active). The

⁴⁸⁷ The NCI is one of the seventeen US National Institutes of Health (NIH) under the auspices of the Department of Health and Human Services of the US Government. The seventeen NIH are involved in a wide variety of activities related to and dependent on biological diversity, with the NCI contributing two-thirds of all NIH activities in this area. NCI was established in 1937, with the mission to "to provide for, foster and aid in coordinating research related to cancer". Consequent to the emergence of HIV- AIDS, the present central mission of NCI is the discovery and development of new drugs for cancer and AIDS.

NCI denies that though no patent applications have been filed in respect of those compounds.⁴⁸⁸

It goes without saying that scientists at ITM support the protection of traditional medicinal knowledge in as far as the same has gone through clinical trials. Otherwise scientists at ITM do not support claims being raised by traditional healers on protection of traditional medicinal knowledge without clinical trial and to that end the two have conflicting views as regards to protection of traditional medicine.⁴⁸⁹

⁴⁸⁸ To the great dismay and frustration of ITM scientists, some of the relevant results have been published in journals without prior consultation with ITM or any form of acknowledgement of their contribution. One of such articles have been published in the Journal of Natural Products, 2000, Vol. 63 at page 1170, entitled, “Isolation and characterization of *Myrianthus holstii lectin*, a potential HIV-I Inhibitory Protein from Plant *Myrianthus holstii*(collected under contract in 1991 from a riverine forest in Tanzania). For a detailed account of the contract between ITM and NCI see Mwaipopo R.A (supra)

⁴⁸⁹ This is as per interviews conducted with officials to ITM in various occasions.

CHAPTER SEVEN

7.0 CONCLUDING REMARKS, OBSERVATIONS AND RECOMMENDATIONS

7.1 Conclusion

The inappropriateness of the existing intellectual property laws for protecting TK has been discussed extensively in the past couple of decades. The nub of the arguments presented thus far has been that the existing intellectual property laws have been the product of Western capitalism, which has glorified the virtues of individual efforts in furthering the knowledge systems. Thus, the patent and copyright laws were designed to safeguard the interests of the individual inventor or the authors and creators of artistic works. The temporary monopoly that was provided to both the inventors and authors and other creators of artistic works, through the grant of IPRs, was aimed at providing them with the incentive to further hone their skills. By nature, therefore, IPRs, as we understand them now, are designed to prevent anyone other than the inventor or the creator from using these products of human intellect without express authorization from the author under prior agreed arrangement.

These monopolistic and exclusionary characteristics of IPRs are not suited for the protection of TK on at least two counts. The first is that the existing intellectual property laws have not been applied to knowledge that is mostly collectively held. Traditional knowledge has become to be collectively held primarily because of the fact that it has generally been free flowing, unbound by limits of time and space. It is this nature of TK that has given the system the strength not only to survive the

millennia but also to establish the point that it could play an important role in ensuring the sustainability of human civilization.⁴⁹⁰

The second issue, albeit a conceptual one, is the veracity of using certain forms of IPRs to protect knowledge that is essentially in the public domain. The major forms of IPRs, namely patent, trademarks and copyrights can only be used to protect knowledge that has not fallen into the public domain. This means, in other words, that patents and copyrights can only be used to protect an invention in the case of the former, or a literary or artistic work in the case of the latter, only if the embodied knowledge was novel.⁴⁹¹

Alongside the so-called “market-based” approach for protecting TK by using existing forms of IPRs, there have been several attempts to devise alternative approaches. These approaches have tried to emphasize the rights of communities and farmers over the genetic resources and knowledge they have customarily used over generations through the so-called *sui generis* options. The *sui generis* options have been seen as the alternatives to protecting TK, through the existing intellectual property laws. These options have focused almost entirely on defining the rights of the communities over the genetic resources that they have been using. In the more specific context of agriculture, the concept of “Farmer’s Rights” has been put forth. These concepts are still evolving through the various initiatives taken at the national and multinational levels, mostly involving the developing countries.

⁴⁹⁰ See Prof Biswajit Dhar and R. V. Anuradha, “Access, Benefit-Sharing and Intellectual Property Rights,” *The Journal of World Intellectual Property*, Vol. 7 No. 5, September, 2004 at 623.

⁴⁹¹ *Ibid*

7.2 Observations

This study has observed that there has been massive transfer and implementation of foreign ideals of IP protection in national laws and policies of most Governments of developing and least developed countries. This transfer has often been accomplished without questioning the exotic recipe's type of IPRs to be protected such as TK, which cannot be effectively protected under the western concepts and norms. Hence, the main underlying assumption is that the current IPR protection systems and approaches are incapable of resolving "present day problems".

Most of the IPR laws and policies that are enacted remain generally premised on such assumptions. As a result, the laws and policies have to a large extent overlooked the potential role of indigenous traditional knowledge.

So far, the Government of Tanzania has not promulgated a national policy that specifically deals with the question of indigenous intellectual property rights protection and this has hampered any move to positively protect traditional knowledge which is being lost or plundered for corporate profit.

It must be emphasized that the TRIPs Agreement does not prevent the establishment of any new categories of intellectual property, provided that this does not impact on the obligations states already have under the agreement, thereby implying that the TRIPs provisions are not given effect. At present, four states have recognized traditional knowledge in their legislation as part of the implementation of the Convention on Biodiversity (CBD). These states are Brazil, Panama, Portugal and Peru. They have decided to recognize traditional knowledge in their own laws

primarily as compliance to the Convention on Biological Diversity, but also to nurture and protect their rich biodiversity which could be best protected using traditional knowledge.

Africa is endowed with genetic resources that form a significant portion of raw material for the global industrial development in sectors such as pharmaceuticals, agriculture and chemicals. It is estimated that tropical and sub-tropical Africa has 40-45,000 higher plant species that hold considerable industrial value.⁴⁹²

The last few decades have witnessed a revival of interest in Africa's genetic diversity. Scientific advancements, especially in the field of biotechnology, have stimulated interest in medicinal plants and related indigenous knowledge. As a result, researchers and firms have increased their investment in the search for new biological and chemical compounds from Africa's biodiversity. As a result of this, an impressive corps of biologists, engineers, ecologists and agronomists are busy surveying and monitoring forests in search for valuable medicinal plants.⁴⁹³

To assess the operation of the IPR system in the desire to protect TK, we need to look more closely at the world of patents. Statistics currently available on the number of patents held worldwide are notoriously misleading, as they add up patents grants given to the same invention by many countries. There are, in all, about five hundred

⁴⁹² WCMC, Global Biodiversity. Status of the Earth's Living Resources. London: Chapman and Hall, World Conservation and Monitoring Centre, 1992.

⁴⁹³ For a detailed account of this see Surendra J. Patel, "Can the Intellectual Property Rights System Serve the Interest of the Indigenous Knowledge?" In Stephen B. Brush and Doreen Stabinsky (Eds), Valuing Local Knowledge, Indigenous People and Intellectual Property Rights, Island Press, Washington D.C, 1996.

million patents in the world. Of these, Third World countries including Tanzania have granted to both foreigners and nationals only 200,000 or about 5 per cent of the world total. But the nationals of the Third World countries own only 30,000—that is less than even 1 percent of the world total. The other 170,000 of these grants are owned mainly by foreign transnational corporations. To add insult to injury, not even 5 percent of the foreign-held patents are even used in the productive system of southern countries.⁴⁹⁴

The current IPR system thus reserves the Third World markets for foreigners. It perpetuates these perverse preferences, reverse reservations. It is a system for the benefit of foreign enterprises, legalized, operated, and even subsidized by the nationals of the Third World. The system guarantees private foreign gains at public cost to the Third World.⁴⁹⁵

In the comity of nations, the Third World accounts for 75 percent of the world population, 20 percent of world income, 25 percent of world trade, and about 45 percent of world enrollment in higher education. But it owns less than even 1 percent of world patent grants. The patent system is quite clearly the most unequal and the most unjust of all the relationships between the developed and developing countries.⁴⁹⁶ Under these circumstances the patent system as it is will not be able to protect TK, which is largely found in the poor South.⁴⁹⁷

⁴⁹⁴ *Ibid*

⁴⁹⁵ *Ibid.*

⁴⁹⁶ *Ibid.*

⁴⁹⁷ *Ibid*

In a clear demonstration that the protection and preservation of traditional knowledge is really a horizontal issue which cuts across many fields of activities of intergovernmental organizations, several agencies have dedicated attention and resources to the different aspects of TK. However, these initiatives have not realized any tangible results which could assist countries such as Tanzania to effectively protect its TK.

The use of conventional IP regime has also been attempted to protect the rich traditional medicine that Tanzania has, although this route does not seem to be popular for a number of reasons, one of which being the fact that conventional IP regime is not well known to these holders of traditional medicinal knowledge. Other factors for the lack of popularity are that conventional IPRs are perceived to be complex and the criteria for patentability, in particular the novelty and capability for industrial application as well as time limitation in its protection, are not appropriate for TK.

In this research we have observed that at the international level there is a proliferation of parallel processes with overlapping and sometimes competitive mandates in different international fora. These processes can encompass discussions, analytical and technical work and sometimes negotiations. In some cases, parallel processes are being coordinated and in other cases they simply run in parallel. Efforts to build coherence and synergies on these issues have been minimal to date. They have often led to confusion on where and how to address them and how to avoid potentially counterproductive or conflicting outcomes. For some countries a

proliferation of parallel processes can have negative impact on the defense of their interests due to lack of capacities and resources to follow them effectively. Finding solutions to the relationship between genetic resources, intellectual property and the protection of TK seems to be a very complex task that cannot be resolved by isolated processes.

7.3 Recommendations

Any policy on IP related to TK must be determined within the context of national needs and as part of a wider national strategy to promote and protect interests of TK holders. We are aware that nations do not live in the world alone and that national policies must survive within a regional and global political framework not often of their own choosing. In the absence of a reliable global morality, however, we give the greatest importance to national self-determination. National policy must be developed bearing in mind the importance of TK for development, the changing role of IP in world commerce, and the place of TK holders in human progress.

It is also recommended that we need to encourage the establishment of civil societies that will deal with conservation of medicinal plants, promote the use of safe and effective traditional medicines, and ensure that indigenous traditional medicinal knowledge and practices are respected and protected. These civil societies will also ensure that medicinal plants are documented for more effective protection as well as ensure that adequate training and awareness-raising are undertaken for the sake of promotion and protection of traditional medicinal plants.

Given the fact that TRIPs does not prevent the protection of traditional knowledge, Tanzania should enact a specific law on protection of their rich traditional knowledge which remains unprotected despite the rich diversity spots that we have. This can take into account the current model law on TK approved by ARIPO member states and similar legislation such as the Forest Act⁴⁹⁸ and the Forest Regulations.⁴⁹⁹ Protection of TK at national level will be a step further while awaiting for the plans to have a legally binding treaty for the protection of TK at global level, which seems to be taking decades due to lack of consensus.

The Government of Tanzania may play an important role in securing local benefits from bioprospecting. Many Governments are today developing regulations of bioprospecting as a central part of their implementation of the Convention on Biological Diversity.⁵⁰⁰ As such, Tanzania may follow suit by finalizing a specific legislation on access and benefit-sharing on traditional knowledge.⁵⁰¹ Such regulations could require that local knowledge is always adequately remunerated by prospectors, and funds could be targeted at the improvement of traditional health care services in cooperation with the modern health sector.

⁴⁹⁸ Act No.14 of 2002.

⁴⁹⁹ Government Notice No.153 of 2004 made pursuant to Section 106 (1) of Act No.14 of 2002.

⁵⁰⁰ Tanzania has formulated The Forestry Regulations which is an implementation of the Convention on Biological Diversity but this does not necessarily offer protection for traditional medicinal knowledge.

⁵⁰¹ Countries like Kenya, Uganda and Nigeria have prepared specific legislation on access and benefit sharing. Kenya has taken the root of preparing a subsidiary legislation- essentially a gazetted notice under the Science and Technology Act, while Uganda under the assistance of the Africa Centre for Technology Studies (ACTS) has prepared detailed regulations on access and benefit sharing. For detailed account of this, see John Mugabe, "Regulating Bioprospecting in Africa: Towards National Policy and Legislative Measures", in Hanne Svarstad and Shivcharn S. Dhillon (Eds) *Bioprospecting, From biodiversity in the South to medicines in the North*, Spartacus Forlas AS, Oslo 2000.

In order for Tanzania to formulate and effectively implement national TK legislation, it requires capacities drawn from a wide range of areas. For example, Tanzania requires expertise from environmental law and policy, taxonomy, ethnobiology, intellectual property law, and other related technical areas. However, like most African countries, Tanzania does not sufficiently possess all these expertise. Without the creation and/or mobilization of relevant expertise, Tanzania will be unable to make amendments to its existing laws so as to reflect the need for protection of TK.

Specific training courses and/or workshops on TK and such IP-related matters is required in order to enlarge the knowledge and skills base of policy-makers, scientists and legal practitioners. Such courses would focus on the importance of TK, biopiracy and the need to protect TK at national level and what gaps exist in the current laws and international convention in terms of protecting TK. The trainings could be focused on specific sectors that have direct link with TK protection, such as Wildlife, Forestry, Industry, Health, Justice and such similar sectors. The training should be based on new research or assessment of national needs and strengths in regulating protection of TK.

Policy and legal measures are needed at the national level to protect TK. Some features that should be included in national legislation are:

- Disclosure of the origin of materials or knowledge used in patent and plant variety protection applications, including, for example, information on the use of farmer variety in breeding a new variety or the use of medicinal or aromatic

plants to make products or extracting vegetable dyes from certain minerals and plants.

- Evidence of prior informed consent (in standard format) before using the bioresource.
- Evidence (in standard format) of the nature (monetary, non-monetary), mode and method of sharing benefits derived from using TK.
- Applications for use of TK should be published in all major newspapers with wide circulation and should as much as possible be made known to the surrounding communities in which the TK comes.
- Proof of TK should be presented in both written and oral form and in the form of community knowledge conveyed by third parties.
- The onus of proving compliance (burden of proof) should be reversed. In the case of a dispute, the user agency should be required to prove that all conditions of disclosure and benefit-sharing have been met.
- The penalty for infringement should be severe enough to be an effective deterrent.
- Tanzania will need to adopt documentation of TK like other countries such as India and Australia.

It is also pertinent that there must continue to be a distinct forum, for consultations among the regional countries and on a global basis. The WIPO Intergovernmental Committee seems to be the appropriate forum at the moment due to its broad mandate and participation of both governments and concerned groups. It should enhance cooperation with other international and regional organizations to ensure a comprehensive approach that is perceived as convenient, fair and equitable by all the parties concerned, and to make the best use of the ongoing efforts to find the most appropriate mechanism to give adequate international legal protection to TK.

SELECTED BIBLIOGRAPHY

ABBOT, FREDERICK M.: *WTO Trips Agreement and Its Implications for Access to Medicines in Developing Countries*, Study Paper No. 2a, prepared for the Commission for Intellectual Property Rights (CIPR), London, 2002.

ADEDE A. O, The Political Economy of the TRIPS Agreement: Origins and History of Negotiations, Biopolicy International, African Centre for Technology Studies, Nairobi, Kenya, 2001.

ALLISON, JOHN R. AND MARK A. LEMLEY: Who's Patenting What? An Empirical Exploration of Patent Prosecution, Vanderbilt Law Review, Vol. 53, No. 6, November, 2000.

ATUL KAUSHIK, The Indian Experience in the Field of IPRs, Access to Biological Resources and Benefit Sharing in the same book edited by Christopher B et-al Trading in Knowledge, Development Perspectives on TRIPs, Trade and Sustainability, International for trade and sustainable development Earthscan Publications Limited, London, 2003.

ANTENCIO LOPEZ, in the Roundtable Discussion for Intellectual Property and Indigenous Peoples in Geneva, 1998.

AXT, J.R.; CORN, M.L; LEE, M.; ACKERMAN, D.M. Biotechnology, indigenous peoples and intellectual property rights. Congressional Research Service, Washington, DC, USA. Report for Congress, 16 April 1993.

BISWAJIT DHAR AND R.V. ANURADHA "Access, Benefit-Sharing and Intellectual Property Rights," the Journal of World Intellectual Property, Volume 7 No. 5 September 2004.

BHAGIRATH LAL DAS. The WTO and the Multilateral Trading System, Past, Present and Future, Zed Books Ltd, London, 2003.

BLAKENEY, M. The Protection of Traditional Knowledge under Intellectual Property Law, 22 EUR. Intel.. Prop. Rev. 251, 251-52 (2000)

BRASH, L. R, Indigenous People and the Idea of individual Human Rights, 10 NATIVE STU. REV. 35, 44045 (1995)

BARSH, R. L, Indigenous Knowledge and Biodiversity, in Indigenous Peoples, Their Environment and Territories, in Cultural and Spiritual Values of Biodiversity 73 (D.A. Posey ed., IT Publications & UNEP) 1999.

BRASH, R. L, Indigenous People and the Idea of individual Human Rights, 10 Native Stu. Rev. 35, 44045, 1995

BLAKENEY M. The Protection of Traditional Knowledge under Intellectual Property Law, 22 EUR. INTELL.. PROP. REV. 251, 251-52 (2000)

BRENDAN TOBIN. Certificates of Origin: A Role for IPR Regimes in Securing Prior Informed Consent, in Access to Genetic Resources: Strategies for Sharing Benefits 329 (ACTS Press 1997)

Bringing the Gap between Traditional Knowledge and Intellectual Property Rights-Is Reciprocity an Answer? The Journal of World Intellectual Property Volume 7 May 2004 Number 3.

BROWN K. AND D. MORAN, Valuing Biodiversity: The Scope and Limitations of economic analysis in Vicente Sanchez and Calestous Juma (Eds), Biodiplomacy Genetic Resources and International Relations, 2003.

CARVALHO, N. P. From The Sharman's Hut to the Patent Office: How Long and Winding is the Road? 41 Revista Da Associacao Brasileira De Propriedade Intellectual 3.1999

CARVALHO N.P, Requiring disclosure of the origin of genetic resources and prior informed consent in the patent applications without infringing the TRIPS Agreement: the problem and the solution. Washington University Journal of Law and Policy 2, 2000

CHHABRA S.C AND R.L.A, MAHUNNA, in Plants used in traditional medicine by hayas of the Kagera region, Tanzania, Economic Botany, Springer New York, Vol. 48 No.2 April, 1994.

COBO, JOSE AND MARTINEZ R, Study of the Problem of Discrimination against Indigenous Peoples, Report of the Special Rapporteur of the Sub Commission on Prevention of Discrimination and Protection of Minorities, United Nations Commission on Human Rights, UN Doc No. E/CN.4/Sub.2/1986/7 and Add.1-4

CONSTANTINE MICHALOPOULOS, Developing Countries in the WTO, 154,
Palgrave, Haundmills, Basinstoke, Hampshire, New York, 2001.

COTTIER T AND PANIZZON M, Legal Perspectives on Traditional Knowledge:
The Case of Intellectual Property Protection, 7 Journal of International
Economic Law, 2004.

CHABOT MARCELE AND CAROLE LEVESQUE, Indigenous knowledge,
Contribution to a Review of the Literature, Montreal, Institute national de la
recherché scientific, urbanization, culture et societe 2001

CLEVELAND, D.A & S. C. MURRAY, The World's Crop Genetic Resources and
the Rights of Indigenous Farmers, 38 Current Anthropology 477.1997

CORREA, C.M, Traditional Knowledge and Intellectual Property: Issues and
Options Surrounding the Protection of Traditional Knowledge, Quaker
United Nations Office Discussion Paper 18. 2001

CORREA, C.M "Sovereign and Property Rights over Plant Genetic Resources"
paper No. 2 November, 1994.

CORREA, C.M "Access to Plant Genetic Resources and IPR" , Background
study paper No. 8 prepared for the Secretariat of the FAO commission on
Genetic Resources for Food and Agriculture, April 1999.

CUNNINGHAM, A. B., MBENKUM F.T, Sustainability of Harvesting *Prunus africana* bark in Cameroon. People and Plants Working Paper 2. Paris: UNESCO, 1993

CUNNINGHAM, A.B, Ethics, Ethnobiological Research, and Biodiversity, World Wildlife Fund for Nature, Washington DC, 1993.

CRUCIBLE GROUP, People, Plants and Patents, International Development Resource Centre, Ottawa; Dag Hammarskjold Foundation, Stockholm; International Plant Genetic Resource Centre, Rome, 1994

DAES, E.-I.A. Study of the protection of the cultural and intellectual property of indigenous peoples. UN Commission on Human Rights, New York, NY, USA.E/CN.4/Sub.2/1993/28. 1993.

DRAHOS P. Towards An International Framework For the Protection of Traditional Group Knowledge and Practice, paper presented at Elements of National Sui Generis Systems for the Preservation, Protection and Promotion of Traditional Knowledge, Innovations and Practices and Options for an International Framework UNCTAD- Commonwealth Secretariat Workshop, 2004

DRAHOS, P. Indigenous Knowledge, Intellectual Property and Biopiracy: Is a Global Bio-collecting Society the Answer?, 6 euro.intell.prop.rev.245 (2000)

ECOSOC; Report of the Secretary General 1992 Intellectual property of indigenous peoples; ECOSOC, GENEVA, Switzerland. E/CN.4/sub.2/1992/30

EDWIN C. HETTINGER, Justifying Intellectual Property, 18 Philosophy and Public Affairs 31, 1989.

EKPERE, J. A, The OAU Model Law for the Protection of the Rights of Local Communities Farmers and Breeders and The Regulation of Access to Biological Resources Multi-Stakeholders Dialogue on Trade, Intellectual Property and Biological Resources in West and Central Africa; Dakar, Senegal, July 30-31, 2002

ERNST FEHR AND KLAUS SCHMIDT, *Theories of Fairness and Reciprocity: Evidence and Economic Applications*, Discussion Paper prepared for the Centre for Economic Policy Research, 2001

FREEDMAN, M. D.A LLOYD, Introduction to Jurisprudence, sixth edition, Sweet and Maxwell, London, 1994.

GADBOW, R.M.; RICHARDS, T.J., (ed) 1990k. Intellectual property rights- global consensus, global conflict? Westview Press, Boulder CO, USA.

GEPTS, P. Who owns biodiversity, and how should the owners be compensated? Plant Physiology 134, 2004.

GERVAIS, D. The TRIPS Agreement: Drafting History and Analysis, 2nd Edition,
Sweet and Maxwell, London, 2003

GERVAIS, D. Traditional Knowledge and Intellectual Property: A TRIPS-Compatible approach, Michigan State Law Review 137, 2005.

GHATE UTKARSH, Documentation of Traditional Knowledge: People's Biodiversity Registers in Christopher B, Graham D and Ricardo M (Eds). Trading in Knowledge, Development Perspectives on TRIPs, Trade and Sustainability, International for trade and sustainable development earthscan Publications Limited, London, 2003.

GOLVAN, C. Aboriginal art and the protection of indigenous cultural rights. European Intellectual Property Law Review, 7, 1992.

GRAHAM DUTFIELD, Legal and Economic Aspects of Traditional knowledge in Keith E. Maskus and Jerome H. Reichman (eds). International Public Goods and Transfer Technology under Globalized Intellectual Property Regime. Cambridge University Press. Cambridge 2005.

GRAHAM DUTFIELD, Can the TRIPs Agreement Protect Biological Diversity Biopolicy International, African Centre for Technology Studies, Nairobi, Kenya, 1997.

GRAHAM DUTFIELD, TRIPS-Related Aspects of Traditional Knowledge, 33 Case W.Res.Journal of International Law 239.

GRAHAM DUTFIELD, Intellectual Property, Trade and Sustainable Development: Mounting Controversy in Christopher B, Graham D and Ricardo M (Eds) Trading in Knowledge, Development Perspectives on TRIPS, Trade and Sustainability, International Centre for Trade and Sustainable Development, Earthscan Publications Ltd, London, 2003.

GRAHAM DUTFIELD, Sharing the benefits of biodiversity: Is there a role for the patent system? Journal of World Intellectual Property Law Volume 5, 2002.

GRAIN, Community or Commodity: What future for traditional knowledge? Seedling July, 1-3, 2004.

GRAIN, Freedom from IPR: Towards a convergence of movements, Seedling October, 1-4, 2004.

GREAVES, T._Intellectual Property for Indigenous People. A source Book society for applied anthropology, Oklahoma City OK, USA, 1994.

GUPTA A. K, Study on the role of Intellectual Property Rights in the Sharing of Benefits Arising from the use of biological resources and associated traditional knowledge, WIPO Publication No. 769 (E), WIPO- UNEP, 2005.

GUPTA, A. K, making Indian Agriculture More Knowledge Intensive and Competitive: the case of Intellectual Property Right, 54 INDIAN J. AGRIE. ECON. 342, 346-52.1999

HART, L.A. Are there any Natural Rights? 64 Philosophical Review 175, 1955

HAUGEN, H.M. Traditional Knowledge and Human Rights, The Journal of World Intellectual Property, Vol. 8 No. 5 September 2005.

HENDRICKS, J. W, Power and knowledge: Discourse and Ideological Transformation among the Dhuar, 15 AM. Ethnologist 216 (1988).

JAY KESAN, Agricultural Biotechnology and Intellectual Property: Seeds of change, CABI international, Oxfordshire, Uk, 2007.

JERRY .I-H. Hsiao Patent Protection for Chinese Herbal Medicine Product Invention in Taiwan, The Journal of World Intellectual Property Volume 10 Issue 1. January 2007.

JEROME H. REICHMAN & TRACY LEWIS, Using Liability Rules to Stimulate Local Innovation in Developing Countries: Application to Traditional Knowledge. Cambridge University Press, Cambridge, 2005

JOHN MUGABE, Intellectual Property Protection and Traditional Knowledge: An Exploration in International Policy Discourse, Biopolicy International, African Centre for Technology Studies, Nairobi, Kenya, 1999.

JOHN MUGABE, Regulating bioprospecting in Africa: Towards national policy and legislative measures in Hanne Svarstad and Shivcharn S. Dhillon (Eds) Bioprospecting, From biodiversity in the South to medicines in the North, Spartacus Forlag AS, Oslo 2000.

JOHNSON, M. (ED) LORE: Capturing Traditional Environmental: Ottawa: Dene Cultural Institute and International Development Research Centre, 1992.

KABUDI.P.J “Legal Challenges of Bio-prospecting in Tanzania: Redressing the Lack of A Regulatory Framework”, *Eastern Africa Law Review*, Vol.28-30, 2003: 96-117.

KAIZA- T. BOSHE, KAMARA B AND J. MUGABE, “*Biodiversity Management in Tanzania*” in J. Mugabe and N. Clark (Eds) *Managing Biodiversity, National Systems of Conservation and Innovation in Africa*, African Centre for Technology Studies (ACTS), Nairobi, Kenya, 1998.

KING S. R at el Issues in the Commercialization of medicinal plants in H. Svarstad and S.S. Dhillon (Eds), Bioprospecting, from biodiversity in the South to medicines in the North, Spartacus Forlag AS, OSLO 2002

KIHWELO P.F, Indigenous Knowledge, What is it, why and how do we protect it: The case of Tanzania. The Journal of World Intellectual Property, Volume 8 May 2005 Number 2.

KIHWELO P.F, Intellectual Property and Human Rights: Correlations and Contradictions, Tanzania Lawyer, Vol.2 No.3 of 2008.

LADUKE, W, Traditional ecological knowledge and environmental futures. Colorado Journal of International Environmental Law and Policy Volume 5, 1994.

LAIRD, "Natural Products and the Commercialization of Traditional Knowledge" In Intellectual Property Rights for Indigenous Peoples: A sourcebook, edited by T. Greaves. Oklahoma City, OK, USA: Society for Applied Anthropology, 1994

LALL, SANJAYA, Technological Change and Industrialization in the Asian Newly Industrializing Economies: Achievements and Challenges, in Borrus, 2000.

LARS ANDERS BAER, Roundtable on Intellectual Property and Indigenous Peoples, Geneva, 1998.

LAURINE, G.T, "Intellectual Property Rights and Interests of Indigenous People"; Lesotho Law Journal Vol. 10 No. 1, 1997, National University of Lesotho.

LAWRENCE C. BEKER, *Reciprocity* 3, Routleg & Kegan Paul, London, Boston, 1986.

LEMLEY, M.A, Place and Cyberspace, California Law Review 91, 521-542, 2003.

LESKIEN D AND FLITNER M, Paul Kuruk Intellectual Property Rights and Plant Genetic Resources, Options for a "Sui Generis" Issues in Genetic Resources Institute (IPGRI) 1997.

LIU, Y IPR Protection for New Traditional Knowledge: With a Case Study of Traditional Chinese Medicine, 25 European Intellectual Property Review 194 2003.

LOUIS GRENIER, Working with Traditional Knowledge: A guide for Researchers, International Development Research Centre, Ottawa, Canada, 1998.

MCMANIS, C.R, Re-engineering patent law: the challenge of new technologies, Washington University Journal of Law and Policy 2, 2000.

MAJAMBA HAMUDI ISMAIL, Indigenous Knowledge Systems and Wildlife Management: A framework for Legislation and Policies in Sub-Saharan Africa. A PhD Dissertation presented to the Department of Law, Policy and Society, Northern University, Boston Massachusetts, 1999.

MASKUS K.E AND J.H. REICHMAN (Eds). International Public Goods and Transfer of Technology under a Globalized Intellectual Property Regime, Cambridge University Press, Cambridge, 2005

MARCO, B “The Impact of TRIPs; Intellectual Property Protection in Developing Countries”, Common Market Law Review 31:1 245-8, 1994.

MAUI SOLOMON. Indigenous People’s Rights versus Intellectual Property Rights, in Tomas Nin (ed). Collective Human Rights of Pacific Peoples, Human Rights Commission, Wellington, New Zealand, 2001.

MAY, CHRISTOPHER, : Learning to Love Patents-Capacity Building, Intellectual Property and the (Re) production of Governance norms in the “Developing World”, paper presented at the Aston Business School Workshop on “Risk Regulations, Accountability and Development” University of Manchester, UK., 26 June, 2003.

MBOGORO, D.K,Global Trading Arrangement and their Relevance to Tanzania Economic Development; challenges and Prospects, Friedrich Ebert Stiftung, Dar es Salaam, 1996

MICHAEL HALEWOOD, Indigenous Knowledge and Local Knowledge in International Law: A Preface to Sui Generis Intellectual Property, 44 McGill Law Journals 953.

MICHAEL WARREN, Indigenous Knowledge and Development Monitor, Volume 6, Issue 3, December 1998.

MSHIGENI, K.E, Foreword. *In* Proceedings of the International Conference on Traditional Medicinal Plants, Arusha, Tanzania, 18-23 October, 1992.

MONGANE WALLY SEROT, (MP) Chairman of Parliamentary Committee on Arts, Culture, Languages, Science & Technology, Cape Town, South Africa. Geneva 23 and 24, 1998.

MWAPOPO, A. R, in Intellectual Property Rights and the regulation of Access and Benefits Sharing of Genetic Resources in Tanzania, A PhD Thesis submitted in fulfillment of the requirements for the Degree of Doctor of Philosophy of the University of Dar es Salaam, November, 2008 (mimeo) available in the University of Dar es Salaam Library, East Africana Section.

NGULUMA, A.T, The role of law in the development of science and technology, related policies and strategies in post independence Tanzania. PhD Thesis, University of Dar es Salaam. 1994

NORMA R. FARNSWORTH, Screening Plants for New Medicines, in Biodiversity 83, 91 (E.O. Wilson ed., 1998)

PATRICIA KAMERI-MBOTE, An Assessment of the Status of Law, Research and Policy Analysis on Intellectual Property Rights in Kenya, April, 2004.

PETER PRINCIPAL, Economics and Medical Plants, in medical plants: Their role in Health and Biodiversity 42, 44-45 (Timothy R. Tomlison & Olayiwola Akerele eds., 1998).

PRINCIPE, P.P, Valuing the Biodiversity of Medicinal Plants. The Conservation of Medicinal Plants. Chiang Mai, Thailand: Cambridge University Press, 1991.

PATEL, S.J, "Pitfalls of the Paris Convention, Part 1 and 2. "The Times of India, 8, 9 April, 1987

PATEL, S.J, "Intellectual Property Rights in the Uruguay Round: A Disaster for the South?" The Economic and Policy Weekly (Bombay), 6 May, 1989.

PATEL, S.J, "Can the Intellectual Property Rights System Serve the Interests of Indigenous Knowledge?" in Stephen B. Brush and Doreen Stabinsky, Valuing Local Knowledge, Indigenous People and Intellectual Property Rights, Island Press, Washington DC, 1996.

PAUL KURUK, Protecting Folklore under Modern Intellectual Property Regimes- A Reappraisal of Tensions between Individual and Communal Rights in Africa and the United States, 48 American Law Review.769, 1999.

PAUL KURUK, Bridging the Gap between Traditional Knowledge and Intellectual Property Rights, Is Reciprocity an Answer? The Journal of World Intellectual Property Volume 7 No. 3 May, 2004.

POSEY, D.A, Selling Grandma: Commodification of the Sacred through Intellectual Property Right, in claiming the stone/naming the bones: cultural property and the negotiation of national and ethnic identity 201 (elazar barkan & ronald bush eds., 2002)

POSEY D.A, International agreements for protecting indigenous knowledge in Biodiplomacy Genetic Resources and International Relations edited by Vicente Sanchez and Calestous Juma, African Centre for Technology Studies Nairobi, Kenya 1994.

POSEY, D.A, International Agreements for the protecting indigenous knowledge in Vicente Sanchez and Calestous Juma in Biodiplomacy Genetic Resources and International Relations, African Centre for Technology Studies Nairobi, Kenya.

POSEY, D. A, Indigenous Peoples and Traditional Resource Rights: A basis for Equitable Relationship. Green College Centre for Environmental Policy and Understanding Conference Paper 17, 1995.

POSSEY D.A AND DUTFIELD G, Beyond Intellectual Property; Ottawa: International Development Research Centre, 1996.

QUIAMBAO, C, Good medicine, bitter pill? United Nations Educational, Scientific and Cultural Organisation, Paris, France. Newsletter of the Regional Network for the Chemistry of natural Products in Southeast Asia, 1992.

REID, W.V. Sorcerers and Healing Spirits, 1983, cited in Michael J. Huft. Indigenous Peoples and Drug Discovery Research: A Question of IPRs, 89(4) Northwestern University Law Review 1678, 1995.

REID, W *et al.* Biodiversity Prospecting Using Genetic Resources for Sustainable Development. Washington DC: World Resources Centre Institute (WRI), 1993

REYES V, The Value of Sangre de Drago. *Seedling* 13(1) March, 1996

RICHARD EPSTEIN, Steady the Course: Property Rights in Genetic Material, in Perspectives on Properties of the Human Genome Project 153 (F.Scott Kieff ed.) 2003

RICHTER R.K, *et al.*(undated) Mutualism: An ethnomedicinal research collaboration between Sharma Pharmaceuticals and the Institute of Traditional Medicine in Tanzania. Draft article for *Journal of Ethnobiology*. Withdrawn from publishing.

REICHMAN, J. H, Saving the Patent Law from Itself, in Perspectives on the Genome Project. 153(Scott Kief ed) 2003

REICHMAN, J. H, Legal Hybrids between Patent and Copyright Paradigms, 94 COLUM.L.REV. 2432 (1994)

REICHMAN, J. H, OF GREEN TULIPS AND LEGAL KUDZU: Repackaging Rights in Sub-patentable Innovation, 53 VAND.L.REV. 1753 (2000).

RINGO F.S, The Trade-Related Aspects of Intellectual Property Rights Agreement in the GATT and legal implications for sub-Saharan Africa-Perspective Policy issues for the world Trade Organization Journal of WTO Vol. 28 No. 6, Geneva December, 1994.

RINGO, F. S, Global Economic Politics and Developing Countries; Trade-Related Intellectual Property Rights Agreement in GATT, 19 Eastern Africa Law Review 2 (1992)

RINGO, F.S,The Creation of an enabling legal climate for the transfer of technology in the Preferential Trade Area for the Eastern and Southern Africa (PTA) PhD thesis, Hartung-Gorre Verlag Konstanz.

ROBERT E. EVENSON, Economic Valuation of Biodiversity for Agriculture, in Biodiversity, Biotechnology, and Sustainable Development in Health and Agriculture: Emerging Connections 153, 162 .1996.

SAMPATH, P.G, 'Intellectual Property Rights on Traditional Medicinal Knowledge: A Process- Oriented Perspective' The Journal of World Intellectual Property Vol. 7 No. 5.

SHELTON, D. Legal approaches to obtaining compensation for the access to and use of traditional knowledge of indigenous Peoples. Santa Clara Scholl of Law, University of California, Berkely, CA, USA, 1993.

SILLITOE, P. What Know Native? Local Knowledge in Development, 6 Soc. Anthropology 203, 207-09 (1998)

STEPHEN B. BRUSH AND DOREEN STABINSKY (Eds), Valuing Local Knowledge, Island Press, Washington D.C, 1996.

SURENDRA J. PATEL, Can the Intellectual Property Rights System Serve the Interest of the Indigenous Knowledge? In Stephen B. Brush and Doreen Stabinsky (Eds), Valuing Local Knowledge, Island Press, Washington D.C, 1996.

SUSY FRANKEL AND GEOFF MCLAY, Intellectual Property in New Zealand, Lexis Nexis Butterworth, New Zealand, 2002.

SUMAN SAHAI, Indigenous Knowledge and its Protection in India. Trading in Knowledge, Development Perspectives on TRIPs, Trade and Sustainability, International for trade and sustainable development earthscan Publications Limited, London, 2003.

SVARSTAD H.AND S.S. DHILLION (Eds), Bioprospecting, from biodiversity in
the South to medicines in the North, Spartacus Forlag AS, OSLO 2002

TANSEY, G. A, Discussion Paper: Trade, Intellectual Property, Food and
Biodiversity; Key Issues and Options for 1999 Review of Article 27.3(b) of
the TRIPS Agreement. Quaker Peace & Service, London, 2000.

THOMAS L. BREWER AND STEPHEN YOUNG, The Multilateral Investment
System and Multinational Enterprises, Oxford University Press, Newyork,
2000.

THOMAS COTTIER & MARION PANIZZON, Legal Perspectives on Traditional
Knowledge. The Case for Intellectual Property Protection in Keith E. Maskus
and Jerome H. Reichman (Eds) International Public Goods and Transfer of
Technology under a Globalized Intellectual Property Regime, Cambridge
University Press, Combridge, 2005.

THOMAS O. BAYARD AND KIMBERLY ANN ELLIOT, Reciprocity and
Retaliation in U.S. Trade Policy, 1994.

VISSEER COENRAAD, A study manual for University of South Africa-World
Intellectual Property Organization Centre for Business Law – WIPO
Worldwide Academy for a Diploma in Intellectual Property offered jointly by
UNISA and WIPO through the WIPO Worldwide Academy.

WCMC, Global Biodiversity. Status of the Earth's Living Resources. London: Chapman and Hall, World Conservation and Monitoring Centre, 1992.

RAFI, Conserving Indigenous Knowledge: Integrating Two Systems of Innovation. A study prepared for United Nations Development Programme (UNDP), New York, 1994.

RAFI, 1996 Biopiracy Update: A Global Pandemic, RAFI Communiqué September/October 1996

RAFI & Cultural Survival Canada, Sangre de Drago.*Bio Pirates* Logo No.4.The Rural Advancement Foundation International (RAFI) and Cultural Survival Canada.

RICHTER R.K, *et al*,(undated) Mutualism: An ethno medicinal research collaboration between Sharma Pharmaceuticals and the Institute of Traditional Medicine in Tanzania. Draft article for *Journal of Ethnobiology*.Withdrawn from publishing.

WIPO, General Assembly, Twenty-Sixth (12th Extraordinary) Session, Geneva, 25th September to 3rd October 2000, WIPO Doc.WO/GA/26/6, 25th August 2000.

WIPO Doc. WIPO/GRTKF/IC/4/8, 30 September, 2002.

WIPO, Intellectual Property Needs and Expectations of Traditional Knowledge Holders, WIPO Report on Fact-Finding Missions on IPR and TK, WIPO, Geneva, 1998-1999.

WIPO, Intellectual Property Needs and Expectations of Traditional Knowledge Holders (1998- 1999), WIPO, Geneva, 2001.

WIPO, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, Fifth Session, Geneva, 7 to 15 July 2003. WIPO Doc.WIPO/GRTFK/IC/5/9,31 March 2003.

WIPO, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC), Fourteenth Sessions on July 3, 2009.

Websters Ninth New Collegiate Dictionary, 1987.

YUSUFU, A. A, 'Developing Countries and Trade – Related Aspects of Intellectual Property Rights' UNCTAD, Technology, Trade Policy and the Uruguay Round 1990.

UNITED NATIONS. The Role of Patents in the Transfer of Technology to Developing Courtiers. New York: United Nations, 1964.

UNESCO (United Nations Educational, Scientific and Cultural Organization). N1985. UNESCO/WIPO model provisions for national laws for the protection of expressions of folklore against illicit exploitation and other prejudicial actions, Paris, France.

UNDP'S Human Development report in African Recovery, September, 1999

WIPO, Intellectual Property Needs and Expectations of Traditional Knowledge Holders, WIPO Report on fact-Finding Missions on Intellectual Property and Traditional Knowledge, World Intellectual Property Organization, Geneva, 1998-1999.

WIPO, Consolidated Survey of Intellectual Property Protection of Traditional Knowledge and Folklore, delivered to the Intergovernmental Committee on Intellectual Property and Generic Resources, WIPO/GRTKF/IC/IC/5/7 (July 7-15, 2003)

WIPO Draft Report on Fact Finding Missions on Intellectual Property and Traditional Knowledge (1998-1999) - Draft for Comment-July 3, 2000.

APPENDICES

Appendix 1

COMMUNITIES' RIGHTS IN NATIONAL CONSTITUTIONS AND LAWS*

The Constitution of the Philippines of 1987 says: “The State shall recognize, respect and protect the rights of the indigenous cultural communities to preserve and develop their cultures, traditions and institutions,” (section 17, Article XIV).

Thailand’s Constitution of 1997 states: “Persons so assembling as to be a traditional community shall have the right to conserve or restore their customs, local knowledge, arts or good culture of their community and of the nation and participate in the management, maintenance, preservation and exploitation of natural resources and the environment in a balance fashion and persistently as provided by law.” (Section 46).

The Constitution of Ecuador of 1998 recognizes “collective intellectual property rights” on communities’ ancestral knowledge (Article 84). The Intellectual Property Law (No. 83, 1989) establishes a *sui* generic system of collective intellectual property rights of indigenous and local communities (Article 377).

According to the Constitution of the Federal Republic of Brazil of 1998: “The Indians shall be accorded recognition of their social organization, customs, languages and traditions and the original rights in the lands that they occupy by tradition, it being the responsibility of the union to demarcate them, protect and ensure respect for all their property.” (Article 231).

The Constitution of the Republic of Venezuela of 1999 says: “The collective intellectual property rights of indigenous knowledge, technology and innovations is guaranteed and protected. Any work on genetic resources and the knowledge associated therewith shall be for the collective good. The registration of patents in those resources and ancestral knowledge is prohibited.” Article 124).

The Costa Rica Biodiversity Law establishes that: “The State expressly recognizes and protects, under the common denominations of sui generic community intellectual property rights, the knowledge, practices and innovations of indigenous people and local communities related to the use of components of biodiversity and associated knowledge. This right exists and is legally recognized by the mere existence of the cultural practice or knowledge related to genetic resources and biochemicals; it does not require prior declaration, explicit recognition nor official registration; therefore it can include practices which in the future acquire such status. This recognition implies that no form of intellectual or industrial property rights protection regulated in this chapter, in special laws and in international law shall affect such historic practices.” (Article 82)

In Brazil, the Provisional Measure 2.052-6 of 21 December 2000 provides that the State recognizes the indigenous and local communities’ rights to decide on the use of traditional knowledge associated with genetic resources. This knowledge is protected against “illicit exploitation” and other unauthorized uses Article 8(1) and (2). This measure has been subsequently renewed (and partially amended) by acts of the Brazilian Executive Power (Provision Measure No. 2.126-11, 26 April 2001).

Decision No. 391 of the Andean Group of 1996 recognizes the rights of indigenous, Afro-American and local communities to decide on their knowledge, innovations and traditional practices associates with genetic resources and derived products.

* This Annex is sourced from Carlos M. Correa, Traditional Knowledge and Intellectual Property: Issues and Options Surrounding the Protection of Traditional Knowledge, Discussion Paper, The Quaker United Nations Office, Geneva.

Appendix 2

THE ORGANIZATION FOR AFRICAN UNITY (OAU) MODEL LAW*

The OAU Model Law is based on two principles. In the first place the Model Law seeks to maintain the status given, in so far as the traditional communities and their rights and responsibilities over their genetic resources are concerned. Secondly, the Model Law provides guidelines for access to genetic resources, which includes provisions requiring prior informed consent of the communities that have traditionally used those resources.

An important objective of the Model Law is to ensure the maintenance and protection of the open system of exchange and reciprocity that have been the underlying strength of traditional systems of access to and the use and exchange of biological diversity, knowledge, innovations and practice. This system has evolved, accumulated and has been refined over time by the traditional communities in accordance with their environment and biodiversity. The Model Law seeks to provide support to this system by upholding the customary rights of farmers to save, use, exchange and sell seed and other planting material, as these have been the cornerstone of agricultural practices of the farming communities.

The OAU Model Law is based on the premise that biodiversity- related knowledge, innovations and practices of local communities are a result of the tried and tested practices of the past and present generations. Keeping in view the need to maintain the continuity of their system, the Model Law has emphasized that no one has the right to appropriate, sell or monopolize any component of biological resources and

the associated knowledge, innovations and practices of the local communities. Community rights are considered inalienable and imprescriptible.

Flowing from the understanding of community rights, the OAU Model Law has provided a framework for regulating access to biological diversity and to community knowledge and technologies. This has been proposed as the duty of the State and its people.

The provision on prior informed consent of the local communities forms the basis of the access regime proposed in the OAU Model Law. Specific provisions for consultation with the communities on applications being made for access have been provided for. A competent national authority has been identified for undertaking the consultation process. . Access to biological resources would be considered invalid if no prior informed consent has been granted.

The OAU Model Law recognizes that the local communities have a right to fair and equitable sharing of benefits arising out of any commercial exploitation of the genetic resources, knowledge, technologies, innovations and practices which they have customarily used over generations. Towards this end, the Model requires that a minimum of 50 percent of any financial benefits returns to be left to the local community. The benefits that would thus accrue would be deposited in a community Gene Fund, which would be establish as an autonomous trust.

* This Annex is sourced from John Ekpere, *The OAU's Model Law: The Protection of the Rights of Local Communities, Farmers and Breeders and for the Regulation of Access to Biological Resources*, available at: www.ictsd/dlogue/2002-07-30/docs/EKPERE1.pdb,2000.