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Benefits and Risks of Sharing Local and Indigenous Knowledge in Tanzania: *The Legal Aspects and Challenges*

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LIST OF ABBREVIATIONS AND ACRONYMS

CBD	:	Convention on Biological Diversity
CGRFA	:	FAO Commission on Genetic Resources for Food and Agriculture
COP	:	Conference of Parties
GATT	:	General Agreement on Tariffs and Trade
IK	:	Indigenous Knowledge
IKS	:	Indigenous Knowledge System
IPR	:	Intellectual Property Rights
LK	:	Local Knowledge
LKS	:	Local Knowledge System
OUA	:	Organisation on African Unity
PIC	:	Prior Informed Consent
SADC	:	Southern African Development Community
STRC	:	Scientific, Technical and Research Commission of the Organisation of African Unity
TKS	:	Traditional Knowledge System
TNC	:	Transnational Corporations
TRIPS	:	Trade-Related Intellectual Property Systems
UNCED	:	United Nations Environment and Development
UNEP	:	United Nations Environmental Programme
UPOV	:	International Convention for the Protection of New Varieties of Plant
WIPO	:	World Intellectual Property Organisation
WTO	:	World Trade Organisation

1 INTRODUCTORY REMARKS

Local knowledge (LK) is indisputably important as an integral part of knowledge systems. This is mainly due to the positive impact recorded in many fields of medicine, agriculture, food and nutrition, just to mention a few. Any discussion on LK would normally be less controversial and not as complex if not juxtaposed with the recent trends and developments within the intellectual property regime. The misuse of LK through privatisation and commercialisation under the Intellectual Property Rights (IPR) led to the necessity of measures that still avail LK for wider use, but at the same time protect the inventor's interest.

The international community realizes a range of benefits that derive from LK, as well as the risks that may occur for the communities that generate such knowledge where both legal and institutional framework lack protection.

The value of LK to modern science and technology is indisputable. Scientists, medical researchers, nutritionists and pharmaceutical companies are exploiting their knowledge of plants, animals and the environment in most cases for commercial gain. This has enabled companies to save research time and money by using LK about the therapeutic properties of plants collected from local healers.

LK, which in a traditional property system is considered to be a common property restricted to a particular class of people, was appropriated by scientists. They copyrighted the knowledge or patented the active properties collected. This led to a concern in some literature defined as biopiracy or gene hunting.

Herbal practice, meaning the plants or animal resources with the traditional curative knowledge, is popular and used in Africa. This is not the case only in the rural areas but, also increasingly in the urban areas. It is estimated that 80% of the population in Africa depends solely on traditional medicine for disease treatment. In the case of Tanzania it is estimated that about 66% of the people rely only on traditional medicine, due to its low cost.

Trade of medicinal plants and genetic resources is a high trend in Western Europe and USA. It is estimated that 79% of all U.S. drugs originate from natural products and 25% are derived from plants. Large pharmaceutical companies such as Monsanto, Novartis and Aventis are investing many resources in analyzing plant genome in order to isolate few useful genes.

It is the focus of this paper to address the benefits obtainable in knowledge sharing and the inherent risks. The presentation based on the Terms of Reference (TOR) will discuss both national and international strategies adopted in addressing issues of sharing LK.

2 DEFINITIONS OF LOCAL, TRADITIONAL AND INDIGENOUS KNOWLEDGE

It is imperative to understand the definition of LK and the holders of such knowledge before embarking on the discussion of its enhancement and protection. Various authors attempted to define LK, but there is no single universal definition. There was a proliferation of terms such as Traditional Knowledge, Indigenous Technical Knowledge and Indigenous Knowledge Systems. This paper will confine itself to the use of LK as proposed in the terms of reference. Some scholars like Hilde van Vlaenderen attempted to provide a working definition of LK to be:

“A collection of ideas and assumptions that are used to guide, control and explain actions within a specific setting, based on particular value system (religious and mythical beliefs) and epistemology”.¹

The same scholar defines traditional knowledge to be that which comprises of proven ancient, original and distinctive customs, conventions and routines. It also embodies a static view of culture having its origin in ancient history.² According to Van Vlaenderen the difference between traditional knowledge (TK) and local knowledge (LK) is that the first is static, while the SECOND is dynamic in nature. This means that LK continually changes and is re-interpreted and modeled by the contemporary daily experiences and activities.³ The same scholar defines indigenous knowledge (IK) as that which tends to emphasise the knowledge internal to a particular setting differing from LK, which focuses on the locality in which the knowledge is used and embraces exogenous knowledge, which entered into the local community over time.⁴

The type of knowledge called Indigenous Technical Knowledge was defined by Kajembe, as people's knowledge of tools and techniques for the assessment, acquisition, transformation, and utilisation of resources which are specific to the particular location.⁵ The Indigenous Technical Information includes:

- *Vernacular*: Technical knowledge held by all or most individuals in a specific locality e.g. knowledge of crop rotation, pests and weed control;
- *Specialised*: The technical knowledge of certain skilled “resource persons’ e.g. medicine, charcoal making, blacksmithery and varietal testing;
- *Controlled*: Knowledge held by a dominant group in the society such as a specialised knowledge referred above, or skills in animal breeding, hunting or water diving; and,
- *Social*: Knowledge belonging to a group (clan or tribe) or community e.g. grazing rights, fishing control and tenure regulations.

¹ Vlaenderen, H., van, Local Knowledge: What is it, and why and how do we capture it?, in: Kauzeni, A.S., Selected papers from the First National Workshop held in Morogoto, 22-23 June, 1999, Gender, Biodiversity and Local Systems (LinKS) to Strengthen Agricultural and Rural Development, LinKS Report No. 2, February 2000, p.1.

² Ibid.

³ Ibid.

⁴ Ibid.

⁵ Kajembe, G.C., Zahabu, E., and Mwenduwa, M., Indigenous Technical Knowledge as Reflected in the Management of Natural Resources in Tanzania, in: Kauzeni, A.S., Selected papers from the First National Workshop held in Morogoro, 22-23 June, 1999, Gender, Biodiversity and Local Systems (LinKS) to Strengthen Agricultural and Rural Development, LinKS Report No. 2, February 2000, p.12.

According to Mugabe TK is the totality of all knowledge and practices, whether explicit or implicit. TK is used in the management of socio-economic and ecological facets of life.⁶ Referring to how TK is created he states that:

“This knowledge is established on the past experiences and observations. It is usually a collective property of society. Many members of the society contribute to it over time, and it is modified and enlarged, as it is used overtime. This knowledge is transmitted from generation to generation.”⁷

LK forms a part of local or indigenous cultural and intellectual property. Intellectual property means the property for the intellectual creations, particularly technological inventions, literary and artistic works. The term “property” means that protected inventions and works under the copyright protection can be used only with consent of the creator’s or another property rights owner. Intellectual property rights exist also in protected marks.

In brief IK includes nutritional knowledge, medicinal knowledge, agricultural knowledge, environmental knowledge and spiritual knowledge. This system of knowledge is intertwined with indigenous resources, such as human genetic materials and species of plants and animals. These contribute to the biotechnological industry (drugs and pharmaceutical products). It is a part of their heritage and it comprises all objects, sites and knowledge. IK also includes the nature, use of such objects and knowledge that was transmitted or still is transmitted from generation to generation. As it relates to its creation and utilisation it includes the following:

- Literary, performing and artistic works (including songs, music, dances, stories, ceremonies, symbols, languages and designs);
- Scientific, agricultural, technical and ecological knowledge (including cultigens, medicines and the phenotypes of plants and animals);
- All items of movable cultural property;
- Human remains and tissues;
- Immovable cultural property (including sacred and historically significant sites and burial grounds); and,
- Documentation of indigenous peoples’ heritage in archives, film, photographs, videotape or audiotape and all forms of media.

Linking it with Intellectual Property Rights is inescapable, since one cannot discuss protection and dissemination of knowledge in current period without referring to them.

⁶ Mugabe, J. Intellectual Property Protection and Traditional Knowledge: An International Policy Discourse, Biopolicy International No. 21, Nairobi, ACTS, 1999, p.3.

⁷ Ibid.

3 HOLDERS OF LK OR IK

The definition on Indigenous Technical Knowledge by Kajembe, et. al. already mentions a group in society, resource skilled individuals, clan or tribe and community related to LK. One of the problematic issues is the question of ownership of LK, which is assumed to be communal, as opposed to the western individualistic concept of ownership.

The term local people, community or indigenous people is also defined differently in social sciences. In Tanzania the term indigenous varies from its recent political accentuation. It may refer to minority indigenous native ethnicities that were marginalised, since their culture and lifestyle were different from standards. They are those who have retained cultural values and lifestyle, and are considered to be backward by the majority of indigenous African natives. These may include the Hazadble and Barabaig. They are subjected to double marginalisation or denudation both at the national and global levels. The term "indigenous people" excludes non-native minorities in the case of both Tanzania and Kenya, because of their economic power at the national level. They are not marginalized and that applies to their culture, which includes music, art, etc.

4 INTERNATIONAL LEGAL REGIME ON LK OR IK

The appreciation of the international legal regime governing LK comprises both soft and hard international law. Soft law is contained in declarations and resolutions passed by the different international organisations that are not binding to the Member States, but nevertheless provides guiding principles. In that meaning soft law includes the Rio Declaration, which was adopted by the United Nations Environment and Development Conference held in Rio de Janeiro, Brazil in 1991. It includes Agenda 21, which is the basic text of the Rio deliberations guiding the implementation of what was agreed in that meeting. Hard law is found in the treaties or conventions, as well as agreements and protocols that are binding to the Member States. This includes the international instruments relevant to this paper such as the Convention on Biological Diversity and the Trade Related Intellectual Property Rights Agreement (TRIPS). There are other international instruments such as the Convention on Combating Desertification and the Malmo Declaration, adopted by the first Global Ministerial Environment Forum held in May 2000 which are relevant to this topic, but are not discussed in this paper.

At the international law level there are many multilateral conventions adopted to deal with one or more environment aspects. Recently, especially after the United Nations Environment and Development (UNCED) Convention held in Rio de Janeiro more environmental conventions have been adopted. The most relevant to our discussion is the Convention on Biological Diversity (CBD). The Convention that was negotiated under the auspices of the United Nations Environmental Programme (UNEP) and opened for signature on June 5th, 1992. It entered into force on the 29th of December, 1993. All three East African Countries, that is Kenya, Tanzania and Uganda, have ratified the Convention.

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs) was negotiated under the auspices of GATT (General Agreement on Tariffs and Trade) and

concluded when GATT got replaced by the World Trade Organisation (WTO) and began to provide somewhat monopoly rights to Transnational Corporations (TNCs). These TNCs from developed countries are a disadvantage for the vast majority of farmers in the developing countries. Therefore the CBD and TRIPs agreement, their objectives and goals seem to be diametrically opposed to each other. This presentation will discuss the differences between the two and attempt to explore areas which can be reconciled or harmonised in their operationalisation.

4.1 Convention on Biological Diversity

The Convention on Biological Diversity is the first international instrument with elaborate provisions that are favourable of the rights of local communities to their local knowledge. The Convention on Biological Diversity has several provisions which recognise and protect LK. The major commitments made by the parties to the Convention, inter alia, include to preserve, maintain knowledge and practices of indigenous and local communities embodying traditional lifestyles. The preamble of the convention recognises:

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

The same is given a legal effect in the binding provisions of the convention. It is Article 8 (j) which provides the framework for the protection and regulation of the use of LK. The article stipulates that:

“Subject to its national legislation, respect, preservation and maintenance of knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promotion of their wider application with 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.”

The article subjects LK and IK to national legislation of each contracting party, that is in our case the laws and regulations of Tanzania. There are three main components of obligations in this provision that are provided for and the laws are required to reflect them. These are:

- respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant to the conservation and sustainable use of biological diversity;
- promote the wider application of TK, innovations and practices with the approval and involvement of the holders; and,
- encourage the equitable sharing of benefits arising from the use of traditional knowledge, innovations and practices.

Article 10 (c) which provides for sustainable use of components of biological diversity states that each participant of the contracting party shall as far as possible and as appropriate:

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

This provision has a bearing to LK, since TK, innovations and practices of the indigenous and local communities are also derived from the customary use of resources. This provision provides the nexus between conservation and utilisation of resources and the creation and use of knowledge. Therefore should be read in tandem with article 8 (j) which specifically deals with LK.

Another provision which needs to be read together with article 8 (j) is article 12 (b), which states that the contracting parties taking into account special needs of developing countries need to:

“Establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components and provide support for such education and training for the specific needs of developing countries.”

What this article provides includes the training and research in the identification, conservation and sustainable use of LK.

Article 17 (2) on facilitation of exchange of information from all public available sources relevant to the conservation and sustainable use of biological diversity is another provision of the Convention on LK. The provision provides that:

“Such exchange of information shall include exchange of results of technical, scientific and socio-economic research, as well as information on training and surveying programmes, specialized knowledge, indigenous and traditional knowledge as such and in combination with technologies referred to in Article 16, paragraph 1. It shall also, where feasible, include repatriation of information.”

The exchange of information envisaged under this provision may extend to LK. The information to be exchanged is relevant to the conservation of biodiversity and the sustainable use of its components. What is significant in this provision is the question of repatriation of information. It is assumed that this covers LK, which is being held ex-situ. The provision encourages the holders of such information in museums and research institutes in developed countries to share that information by returning it to their respective countries.

4.2 International law regime on plant & animal breeders' rights and farmer's rights

International conventions use the classical approach in tackling intellectual property rights issues. These are much influenced by capitalist development and attendant individualism as opposed to the socio-economic setting of rural African communities, where things such as plants are considered to be a common property. This brings

problems in applying such framework to African communities still premised on communal ownership of medicinal plants, and that ownership being perpetual as opposed to the state law is recognised and protected.

The classical or traditional approach on intellectual property is based on the notion that innovation is the product of creative, intellectual and applied concepts of individuals. There main focus is that specific economic rights are granted to inventive persons as a reward for sharing their contributions; and stimulate inventive activities. Generally, intellectual property refers to the current system of laws, which provide exclusive moral and economic rights in:

- Artistic and literary works by virtues of the copyright system;
- Inventions by virtue of the patents system;
- Trademarks identifying the origin of the goods and services under the trademark system;
- Registered designs for an article's appearance by virtue of the industrial designs system; and;
- Certain developed species and varieties of plant breeder's' rights system.

International intellectual property is mainly composed of conventions under the World Intellectual Property Organisation (WIPO). These instruments include the Paris Convention for the Protection of Industrial Property of 20th March, 1883. The convention applies to industrial property in the widest sense, including inventions, marks, industrial designs, utility models, trade names, geographical indications and the repression of unfair competition. Trade marks and service marks are covered by the Paris Convention of 1883, Lisbon Act of 1958, Trade Mark Registration Treaty and the Vienna and Agreement Establishing an International Classification of the Figurative Elements of Marks, 1973. Copyrights and neighbouring rights are governed by the Berne Convention for the Protection of Literary and Artistic Works of 1886 and the WIPO Copyright Treaty of 1996.

4.3 TRIPS Agreement and its implications to farmer's rights

However, the Trade-Related Intellectual Property Rights (TRIPS) concluded under the World Trade Organisation (WTO) are controversial and have brought in a discussion on patentability of living forms. It has been a long established legal consensus that nobody should be allowed to patent living forms.

Article 27.1 of the TRIPS Agreement sets the conditions for an invention to qualify to be patented. The invention must be new, it has followed an inventive step and is capable of industrial application. There is a list of inventions that are excluded from being patented. They are enumerated in article 27.2 to include invention that is contrary to the public, morality, are dangerous to human, animal or plant life, health or seriously prejudicial to environment. The list includes diagnostic, therapeutic and surgical methods of treatment of humans or animals. It further includes plants and animals other than micro-organisms and essentially biological processes for their production.

There is also the avenue of developing a *sui generis* system under article 27.3 (b) of the Trade-Related Intellectual Property Systems (TRIPS) Agreement. The article provides that:

“Members may also exclude from patentability – plants and animals other than micro-organisms, and essentially biological and microbial processes. However members shall provide for the protection of plant varieties either by patents or by effective sui generis system or by any combination thereof. The provisions of this sub-paragraph shall be reviewed four years after the date of entry into force of the WTO agreement”.

Trade Related Intellectual Property Rights (TRIPs) Agreement under the World Trade Organisation (WTO) leads to the protection of the rights of commercial breeders and biotechnologists in most cases assigned to companies through patents, plant breeders’ rights or *sui generis* systems.

It is the threat, perceived or real, for the farmers losing rights on what has been traditionally their property for generations that has turned into an international concern. However, that is not the case as a result of high concentration of stored genetic resources in developed industrial countries and lack of recognition of the developing countries and their farmers on the issue that requires urgent remedial measures among others by the Food and Agriculture Organisation (FAO).⁸

4.4 Areas of conflict between the Convention on Biological Diversity and the TRIPS Agreement

The following table summarises some of the provisions of the Convention on Biological Diversity and the TRIPS Agreement that are in conflict.

CBD	TRIPS	CONFLICT
States have sovereign rights over their biological resources.	Biological resources should be subject to private intellectual property rights.	National Sovereignty – right to prohibit IPR on life forms. TRIPS provides for life form patents or sui generis protection on plant varieties.
The use or exploitation of biological resources must give rise to equitably shared benefits.	Patents must be provided for all fields of technology. Use or exploitation of biological resources must be protected by IPR. No benefits sharing between a patent holder in one country and a donor of material in another country.	CBD gives developing countries a legal basis to demand a share of benefits. TRIPS negates that legal authority.
The use or exploitation of traditional knowledge, innovations and practices relevant to use of biodiversity must give rise to equitably shared benefits.	- do -	- do -
Access to biological	There is no provision	CBD gives states legal

⁸ Brush, S., Providing Farmers’ Rights Through in situ Conservation of Crop Genetic Resources, FAO Background Study Paper No. 3, November 1994, p.5.

resources requires the prior informed consent of the country of origin. It also requires the 'approval and involvement' of local communities.	requiring prior informed consent for access to biological resources which may subsequently be protected by IPR.	authority to diminish the incidence of biopiracy by requiring Prior Informed Consent (PIC). TRIPS ignores this and thus promotes biopiracy.
States should promote the conservation and sustainable use of biodiversity as a common concern of human kind taking into account all rights over biological resources.	The safeguarding of public health and nutrition shall be a subject for the private interest of IPR holders as reflected in the provisions of the TRIPS agreement.	CBD places the public interest and common good over private property and vested interest. TRIPS does the opposite.

Source: GAIA Foundation and Grain: TRIPS versus CBD, 1998

The option that may be the most appropriate for Tanzania to be pursued is to co-operate with other developing countries to develop a sui generis system. The Southern African Development Community (SADC) countries are involved in a discussion on how to develop a sui generis system. The South Centre in 1998 recommended the use of UPOV 1978 as the model for developing a sui generis protection system. The Centre states that:

"In relation to protection of plant varieties, the Agreement requires either patent or an effective sui generis system. Developing countries have wide range of options in evolving their own protection system. One example of such a system is the International Convention for the Protection of New Varieties of Plant (UPOV) 1978. UPOV 1991, which has recently been ratified, comprises a revised version of UPOV 1978. This revised version tilts the balance much more in favour of the breeders' rights than those of the farmers, hence those developing countries wishing to protect their farmers can adopt the UPOV 1978 Model as their sui generis system".⁹

The fourth Conference of Parties (COP IV) stressed that the CBD's provisions and the TRIPS Agreement should be mutually supportive. To facilitate that the conference established an ad hoc Open Ended Intersessional Working Group. As a result of the recommendations of the working group COP V emphasised the need for case studies to enable a meaningful assessment of the effectiveness of existing legal order and other appropriate forms of protection for TK.¹⁰

4.5 FAO efforts on protection of farmers' rights

Issues of farmers' rights in this presentation are those connected with plant genetic resources for food and agriculture. As most such resources are now in the gene banks of the developed countries, it is legitimate for the developing countries to demand access and more equitable sharing from the use of genetic resources. In 1983 a non-binding agreement styled as the International Undertaking on Plant Genetic Resources was adopted under the auspices of FAO. The Undertaking was adopted in order:

⁹ South Centre, WTO Multilateral Agenda and the South, 1978.

¹⁰ UNCTAD, Systems and National Experiences for Protecting Traditional Knowledge, Innovations and Practices, Draft Version, August 07, 2000, p.6.

“to ensure that plant genetic resources of economic and/or social interest, particularly for agriculture, will be explored, preserved, evaluated and made available for plant breeding and scientific purposes”.

The undertaking despite of its non-binding nature due to the opposition from industrialised countries was a significant breakthrough. For almost a decade it was the only international agreement that articulated the desire of access to these resources. Article 1 of the Undertaking clearly states that it was based on the “universally accepted principle that plant genetic resources are a heritage of mankind and consequently should be available without restrictions”.

However, it needs to be pointed out that even in the Undertaking free access was ambiguous, as it was to be done on the basis of mutual exchange or mutually agreed terms. The Undertaking was a subject to revision as part of the recommendations of Agenda 21 which called for the strengthening of the FAO Global System of Plant Genetic Resources and its adjustment in accordance with the Convention on Biological Diversity, as well as the realisation of Farmers’ Rights.

The concept farmers’ rights is an FAO concept and as an international issue was prompted by appropriation for privatisation and patenting of plant genetic resources by individuals or companies. FAO Conference Resolution 5/89 states that:

“Plant genetic resources are a common heritage of mankind to be preserved and to be freely available for use, for the benefit of present and future generations”.

These genetic resources, concentrated in tropical and sub-tropical areas were available to all for free. It is undisputed fact that the modern plant breeding is built on plant germplasm resources traditionally developed and donated by farmers. FAO Conference Resolution recognises this fact by recognising *“the enormous contribution that farmers of all regions have made to the conservation and development of plant genetic resources, which constitute the basis for the concept of Farmers rights”.*

Farmers have been effective in the conservation of biological diversity. They have continuously modified the rich genetic resources available to them from nature. As pointed out by David Cooper farming communities have developed complex farming systems based on thousands of years of experience almost all of which maintain genetic diversity.¹¹

It is the limitation of these long recognised farmers’ rights to freely exchange and access plant genetic resources that necessitates the need to articulate and defend their rights. The concept is a result of debates that started in 1979 in FAO concerning the asymmetric benefits derived by the donors of germplasm and the donors of technology. Farmers’ rights have been defined by FAO Resolution 5/89 to be:

“rights arising from the past, present and future contribution of farmers conserving, improving, and making available plant genetic resources, particularly those in the centers of origin/diversity”.

¹¹ Cooper, D., Farmers’ Strategies for Maintaining Diversity, *Appropriate Technology* (1992), 18 (4).

The resolution recognised the concept of inter-generational equity, which is a part of the sustainable development principle when it states that:

“These rights are vested in the International Community, as trustee for present and future generations of farmers, for the purpose of ensuing full benefits to farmers, and supporting the continuation of their contributions, as well as the attainment of the overall purposes of the International Undertaking”.

It has been explained by Barbara Laine Kagedan¹² that the implementation of farmers’ rights fulfils a dual role. That is:

- Ensuring that farmers, farming communities and their countries receive a just share of the benefits derived from plant genetic resources that they developed, maintained and made available; and,
- Provide incentives and means for the conservation and further development of these resources by farmers and through international cooperation between farmers, breeders and scientific communities.

The Chairperson of the FAO Commission on Genetic Resources for Food and Agriculture (CGRFA) issued during an informal expert meeting in January 1999 what have come to be known as “Montreux Elements”. The elements, which are supposed to be a basis for negotiations for establishment of a multilateral system, clearly provide that it is the responsibility of national governments to take measures to protect and promote Farmers’ Rights. These elements include:

- Protection of TK relevant to plant genetic resources for food and agriculture;
- The right to equitably participate in sharing benefits arising from the utilisation of plant resources for food and agriculture; and,
- The right to participate in making decisions at the national level, on matters related to conservation and sustainable use of plant genetic resources for food and agriculture.

As recommended above in the case of plant breeders and farmers rights the best available options are those contained in the UPOV Act 1978. Both do recognise the right and contribution of farmers in the development of a vast portfolio of genetic diversity within crops and other plant species. This forms the raw material for all agricultural activity and modern plant breeding has enormously tapped from this resource base.

4.6 Organisation of African Unity (OAU) on LK and IK

The Organisation of African Unity (OAU) has taken the issue of local and indigenous knowledge seriously. It has endeavoured to develop a system and model legislation which builds on existing international agreements and the African experience of exploitation and marginalisation. In March 1998 the Scientific, Technical and Research Commission of the Organisation of African Unity (OAU/STRC) came out with a declaration on Community Rights and Access to Biological Resources. The objective of the OAU/STRC was to develop a draft model legislation on community rights and access

¹² Kagedan, B.L., The Biodiversity Convention, Intellectual Property Rights, and Ownership of Genetic Resources: International Developments, 1998, p.12.

to biological resources to ensure the continuing control by local communities of their natural resources, knowledge and technologies.

In the deliberation of the Task Force it was argued that it is a smaller part of humanity represented by 40 states which concluded the World Trade Organisation (WTO) negotiations with grave consequences. It was pointed out that this dilutes the achievements of the Convention on Biological Diversity which was adopted by 150 states.

The African Model legislation for the Protection of the Rights of Local Communities, farmers and Breeders, and for the Regulation of Access to Biological Resources has been developed by OAU. The model legislation recommends to the Member States to enact national legislation with the following specific objectives:

- recognize, protect and support the inalienable rights of local communities including farming communities over their biological resources, knowledge and technologies;
- recognize and protect the rights of breeders;
- provide an appropriate system of access to biological resources, community knowledge and technologies subject to the prior informed consent of the State and the concerned local communities;
- promote appropriate mechanisms for a fair and equitable sharing of benefits arising from the use of biological resources, knowledge and technologies;
- ensure effective participation of concerned communities, with a particular focus on women, in making decisions as regards the distribution of benefits which may derive from the use of their biological resources, knowledge and technologies;
- promote and encourage the building of national and grassroots scientific and technological capacity relevant to the conservation and sustainable use of biological resources; and,
- provide appropriate institutional mechanisms for the effective implementation and enforcement of the rights of local communities, including farming communities and breeders, and the conditions to access to biological resources, community knowledge and technologies.

Several forums were organised by the SADC to discuss the OAU Model and to deliberate on developing guiding principles for sui generis national policies and legislation on plant and animal genetic resources. One such regional workshop was held in Zimbabwe between October 30th and 1st November 2000, which focused also on defining specific terms such as farmers rights, community resource rights, benefit sharing and intellectual property within the context of SADC and in conformity with the major international instruments such as Convention on Biological Diversity, TRIPS, International Undertaking and Convention to Combat Desertification.

5 NATIONAL POLICIES RELEVANT TO THE PROTECTION AND USE OF LK AND IK IN TANZANIA

The Tanzanian government has not promulgated a specific policy which deals with LK or IK. However, LK and IK are covered both in biodiversity and in intellectual property rights systems. This is why it is, inter alia, important to discuss other national sectoral policies to see whether they implicitly or explicitly provide the answers for the policy objectives and strategies on the mainstreaming, utilisation and protection of LK or IK.

This chapter examines the National Environment Policy, the National Science and Technology Policy for Tanzania, Sustainable Industrial Development Policy (1996 - 2020), the National Forestry Policy, the National Beekeeping Policy, the Wildlife Policy of Tanzania and the National Fisheries Policy in relation to LK and IK.

5.1 National Environmental Policy

The Government promulgated the National Environmental Policy in December 1997, which among other things reflects on the outcome of the United Nations Conference on Environment and Development. It recognises the Rio Declaration and Agenda 21. The policy reiterates that:

“In Agenda 21 the need to move from a development model in which sectors act independent of each other, to a model in which there is integration across sectors, where decisions take into account intersectoral effects, to improve intersectoral coordination. This involves the integration of policies, plans and programmes of interacting sectors and interest groups to balance long-term and short-term needs in environment and development.”

The National Environmental Policy contains no specific paragraph on LK or IK. However, this is implied by the fact that the policy imbues the spirit of the Rio Conference and this can be inferred in other parts of the policy. The relevant parts of the National Environmental Policy to local/indigenous policy are those dealing with technology, biodiversity and public participation. The paragraph on biodiversity provides that:

“Strategic measures shall be put in place for the development of biotechnology, especially to ensure fair and equitable sharing of the results and benefits arising out of utilisation by foreign recipients, of genetic resources originating from Tanzania, and biosafety.”¹³

Biotechnology is one of the areas that benefits enormously from LK and from the biological and genetic resources. Thus the principle of article 8 (j) of the Convention on Biological Diversity on equitable benefit sharing arising out of genetic resources originating from Tanzania. This impliedly includes genetic resources from Tanzania that are held ex-situ in museums and research institutes outside the country.

Paragraph 33 of the policy discusses biodiversity and particularly biological and genetic resources. It states that:

¹³ URT, National Environmental Policy, Dar es Salaam, Vice President's Office, 1997, p.14.

“Biodiversity policies, strategies and programmes are only meaningful in relation to other national policies, strategies and programmes. Therefore, policies, strategies and programmes for the conservation of biological and genetic resources shall be integrated into relevant sectoral/cross sectoral policies, strategies and programmes.”

This is one of the reasons why it may be advisable in Tanzania to discuss the issue of local/indigenous knowledge in tandem with access to genetic resources.

5.2 Sustainable Industrial Development Policy 1996 – 2020

The Government in October 1996 promulgated the Sustainable Industrial Development Policy-1996 – 2020 after the expiry of the Basic Industry Strategy in 1995. The policy is relevant in the discussion of LK as it deals also with issues of Intellectual Property Rights. The Policy states that:

“Tanzania has adequate intellectual property laws to regulate intellectual property. There are legislations to regulate of acquisition of patent rights in new inventions and innovations, and assurance of effective protection of all such patent rights, as well as to protect the right to use trade and service marks, the right to sue for infringement and pass-offs as well as legislations for copyrights and neighbouring rights. Tanzania being a signatory to the World Trade Organization will bide by the trend of protection within the Trade Related Aspects of Intellectual Property Rights (TRIPS).”¹⁴

The Policy does not expressly mention either knowledge, but that does not mean it is not covered. The mention of copyright and neighboring rights, patents, trademarks and services covers knowledge as well as its protection and application. However, taking into account that traditional IPR systems have proved to be problematic when dealing with local knowledge, innovations and technologies under the Convention on Biological Diversity and TRIPs there is a need for the policy addressing the issues and provide or indicate the position that Tanzania favours and how it will be achieved.

5.3 National Science and Technology Policy of Tanzania

The National Science and Technology Policy of Tanzania was proclaimed by the Government in April 1996:¹⁵

“Thus one primary function of a National Science and Technology Policy is to establish relative priorities of programmes for generating new knowledge and to determine strategies for the application of science and technology for development.” [p.5]

The general objectives of the National Science and Technology Policy include the need to:

“Establish appropriate legal framework for the development and transfer of technology including intellectual property rights, monitoring and controlling of the choice and transfer of technology, as well as biosafety.”[p. 9.]

¹⁴ URT, Sustainable Industrial Development Policy – SIDP (1996 – 2020), Ministry of Industries and Trade, Dar es Salaam, October 1996, p. 21.

¹⁵ URT, The National Science and Technology for Tanzania, Ministry of Science, Technology and Higher Education, April 1996.

On agricultural research the policy provides sectoral objectives under agricultural research to include:

- *“identification, collection and preservation through gene bank of various indigenous food crop species, with view to improving their nutritive value”, and,*
- *“breeding higher yielding and more nutritious strains of staple food such as maize, banana, rice, wheat, sorghum, millet, tropical roots and tubers, as well as other high protein crops and vegetables” [p. 13]*

On intellectual property, particularly patents the policy provides that:

“There should be judicious and informed use of patents and licenses for industrial products and processes with a view to encouraging and activating Tanzanians to be innovative and inventive.” [p. 18]

On Environment – the major sectoral objectives include:

“preservation of the biological diversity, cultural richness and natural beauty of Tanzania” [p.25]

Also the Science and Technology Policy does not expressly provide for IK that indisputably contributes immensely to science and technology.

National Forest Policy:

National Forest Policy was promulgated in March 1998 makes extensive reference to biological diversity issues. It mainly deals with flora and it has an express provision on IK in relation to sustainable forest management. The Policy states in 2.4 that:

“That there have been inadequate consultations to encourage grassroots participation in forestry planning and the potential of indigenous knowledge has not been fully utilised. This is partly due to limited resources for participatory consultations.” [p.13]

National Beekeeping Policy:

The National Beekeeping Policy was prepared and issued at the same time with the National Forest Policy in March 1998. Although both policies come from the Forestry and Beekeeping Division, the National Beekeeping Policy has no provisions recognizing the potential of indigenous knowledge in beekeeping management and the use of honey and its products. Honey is widely used in traditional medicine alone or together with other herbs and this knowledge needs to be shared and protected.

Wildlife Policy of Tanzania:

The Wildlife Policy of Tanzania was adopted in March 1998 and it emphasises among other things the ensuring the participation of the people through community based natural resource management. Under the part dealing with recognition of intrinsic value of wildlife to the rural people the policy states under 3.3.8 9 (viii) that:

“enhancing the use of indigenous knowledge in the conservation and management of natural resources”.

Agricultural and Livestock Policy, 1997

The Government has promulgated an Agricultural and Livestock Policy of Tanzania in 1997.¹⁶ The new policy replaced the Agricultural Policy of Tanzania which was issued in March 1983.¹⁷ The policy recognised the importance of TK in relationship with agricultural research and it states that:

“The need to apply appropriate scientific and technical knowledge to local conditions especially if modern knowledge is married effectively with the accumulated experience of the local farming and livestock keeping community.”[p.26]

National Fisheries Sector Policy and Strategy Statement:

The National Fisheries Sector Policy and Strategy Statement recognises TK in the part dealing with improved knowledge of the fisheries resources base. One of the strategies to achieve that policy objective is to:

“Facilitate and promote acquisition and documentation of traditional fisheries knowledge.”

As much as the policies recognise the usefulness and the potential of LK that is not followed up with strategies and activities to effectively share and protect it. There is a need to review the policies and come out with policy strategies and action plans on the development and protection of LK.

Legal Framework Relevant to the Protection of Local/Indigenous Knowledge in Tanzania

The following pieces of legislation are relevant in a discussion of intellectual property protection in Tanzania:

Copyright and Neighbouring Rights Act, 1999
Trademarks and Services Act, 1986
Patents Act, 1987

Copyright and the Protection of Local/Indigenous Knowledge

Copyright is one form of intellectual property rights that is relevant to local/indigenous knowledge. However it needs to be pointed out that the international conventions and national laws do not protect ideas which are usually embodied in knowledge. What is protected is the expression of those ideas in different forms such as through literary works, musical works, choreographic works, artistic works, etc.

In Tanzania copyright issues are governed by the Copyright and Neighbouring Rights Act, 1999¹⁸ which repealed the Copyright Act, 1966.¹⁹ The Act provides for both economic and moral rights to a holder of a copyright. Section 5 of the Act enumerates

¹⁶ URT, Agricultural and Livestock Policy, 1997, Ministry of Agriculture and Cooperatives, Dar es Salaam, January 1997.

¹⁷ URT, The Agricultural Policy of Tanzania, Ministry of Agriculture, Dar es Salaam, Government Printer, 1983.

¹⁸ Act No. 7 of 1999

¹⁹ Act No. 61 of 1966

works in copyright may subsist. These include literary and artistic works as well as derivative works. Section 5(2) lists literary and artistic works to, inter alia, include books, pamphlets and other writings including computer programs as well as lectures, addresses, sermons and other works of the same. Section 5 (3) stipulates that these works will be protected irrespective of their form of expression, their quality and the purpose for which they were created.

As pointed out derivative works are also protected by the Copyright and Neighbouring Rights Act, 1996. The protection covers under section 6 (1) (a) are protected original works which are rendered in translation, adaptations, arrangements and other transformation of literary and artistic work. It includes under 6 (1) (b) collections of literary and artistic works, such as encyclopaedia and anthologies. It includes collection of expressions of folklore and compilation of data or data bases which by reason of selection and arrangement of their contents constitutes intellectual creation. The protection includes works inspired by expression of folklore.

The new Act has a whole part dealing with protection of expression of folklore against illicit exploitation. Folklore links with local communities because they are the creators of folklore, which has been exploited by other people economically without their permission or any, benefits returning to the creators. Section 24 stipulates that protected expressions of folklore are:

- folk tales, folk poetry, riddles;
- folk songs and instrumental folk music;
- folk dances, plays and artistic forms of rituals;
- production of folk art, in particular drawings, painting, carvings, sculpture, pottery, terracotta, mosaic, wood work, metal ware, jewellery, baskets, costumes; and,
- traditional musical instruments.

The Act is categorical under section 26 that utilization of the expression folklore is subject to authorization of the competent authority when they are made both with gainful intent and outside their traditional or customary context. The competent authorities are mentioned in section 29 (a) to be the National Arts Council of Tanzania established by the National Arts Council of Tanzania Act, 1984.²⁰ The Minister responsible for copyright is referred to under 29 (b) as the supervisory authority.

As much as the inclusion of folklore among the protected areas under copyright laws in Tanzania is a commendable step that aspect needs to be expanded to cover local/indigenous knowledge which is not expressly mentioned by the Act.

Ownership of copyright is regulated under section 15 (1) which states that the right in a work protected under the Act shall be owned by the author or authors who created the work. Where the work is a result of joint authorship then the authors shall be the co-owners of the rights. These rights can under section 16 (1) and (2) be assigned by the owners in writing signed by the assignee. The authors can also under section 17 (1) grant non-exclusive or exclusive licences to others to carry out, or to authorize the carrying out of certain specified acts covered by his moral rights or economic rights. Economic rights are elaborated in section 9 as the exclusive right to carry out or to authorize the reproduction of the work; distribution of the work; the rental of the original;

²⁰ Act No. 23 of 1984.

public exhibition of the work; translation of the work; adaptation of the work; public performance of the work; broadcasting of the work; other communication to the public of the work; and importation of copies of the work. Moral rights under section 11 constitutes the claim to authorship of work and to object and seek relief in connection with and infringement of the rights or any act to the works which is prejudicial to the honour or reputation of the author.

Unlike traditional concept of perpetual communal ownership of a right in the Act copyright ownership has a limitation of duration as is usual in Western capitalist approach. Section 14 (1) provides that economic and moral rights shall be protected during the life time of the author and fifty years after his death. In the case that there is a joint authorship section 14 (2) states that the economic and moral rights shall be protected during the life of the last surviving author and fifty years after his death.

6 PATENTS AND THE PROTECTION OF LK AND IK

In Tanzania patents and related issues are governed by the Patents Act, 1987²¹. The Act is further supplemented by the Patents Regulations, 1994.²² The Tanzanian legislation follows the classical approach to patents which are rigorous and restrictive.

In the classical approach a patent is essentially a right to protect inventions. The patentee is granted the exclusive right, during the term of the patent, to exploit and to authorise another person to exploit the invention. The following are the criteria to be fulfilled for an invention to be accorded protection. It needs to be new or novel compared to prior art base, it must involve an inventive step; and capable of industrial application.

Section 8 of the Patent Act, 1987 requires that an invention is patentable if it is new, involves an inventive step and it is industrially applicable. The Act gives a narrow definition of an "invention". It defines it under section 7 (1) stating that:

"For the purposes of this Act 'invention' means a solution to a specific problem in the field of technology and may relate to a product or process".

Other items that are regarded as inventions elsewhere have been specifically excluded under the Act. Section 7 (2) lists the excluded items as follows:

- discoveries, and scientific and mathematical theories;
- plant or animal varieties or essentially biological processes for the production of plants or animals, other than microbiological and the products of such processes;
- schemes, rules or methods for doing business, performing purely mental acts or playing games;
- methods for the treatment of the human and animal body by surgery or therapy, as well as diagnostic methods; but shall not apply to products for use in any of those methods; and,
- mere presentation of information.

It should, however, be noted that under section 10 of the Patent Act, 1987 it is possible to apply to be granted a patent in respect of an invention the exploitation of which is prohibited by law.

There is also a provision on temporary exclusion from patentability of certain kinds of products, or processes for the manufacture of such products. This general exclusion may be for a period not exceeding 10 years.

Section 14 (1) provides that the rights to a patent rest with the inventor, i.e. the person who made an invention or under section 14(2) of joint inventors. According to section 14 (4)(a) an owner of a patent can transfer or assign her or his right.

However, that right is not automatic. One has to lodge an application for patent. Under section 18 (1) application for a grant of a patent is to be made to the Registrar of

²¹ Act No. 1 of 1985

²² GN 490/15/9/95

Patents. The application must contain a request for a grant of a patent and a description of the invention. The information must disclose the invention in a manner which is sufficiently clear and complete for the invention to be evaluated and carried out.

The application can be made by the inventor or joint inventors or through an agent (section 18(2)).

It is imperative to note that to be patentable, an invention must be a manner of manufacture. A good idea or mere discovery is not patentable. The discovery of existing, naturally occurring substance cannot be patented unless invention is found in some new method of using the material, or some new adaptation of it to serve a new purpose.

Invention of a way of extracting an active element within a plant or development of a new use for a natural organism may be eligible for patent protection.

Another element required is novelty. This is when it is compared with prior art base. Prior art is defined under section 9(2) (a) of the Patents Act to be:

“Everything made available to the public anywhere in the world by means of written disclosure (including drawings and other illustrations) or by oral disclosure, use, exhibition or other non-written means shall be considered prior art provided that such making available occurred before the date of the filling of the application, of priority date, validly claimed in respect thereof.”

This brings complexity to patent traditional uses of biological resources and knowledge held by different communities in Tanzania and which is available and owned in common. This is partly because such knowledge is available in the prior art base. The problem is further compounded by publishing accounts for example of the uses of medicinal plants by indigenous people by ethnobotanists and ethnopharmacologists. Once that is done then it becomes public knowledge and therefore part of prior art base.

6.1 Trade and Service Marks

In Tanzania trade and services mark is governed by the Trade and Service Mark Act, 1985.²³ A trademark may also offer protection of rights to medicinal plants and traditional medicinal knowledge. A trademark is a sign used to indicate the trade origin or source of goods or services. A sign includes any letter, word, name, signature, numeral, device, brand, heading, label, ticket, and aspect of packaging, shape, colour, sound or section. However, trademarks as means of protecting medicinal plants and knowledge are limited by the fact that trademarks are basically there to:

- Protect the public – preventing mistake, deception and confusion with regard to origin;
- Protect sellers – good will;
- Indicate origin;
- Guarantee equality; and,
- Serve as a marketing and advertising device.

²³ Act No. 1 of 1985.

Legal Options in Intellectual Property Rights Regime

There are other legal options available in protection, which are not as rigorous as the patent system. These include, inter alia, trade marks and utility models.

Utility models are known as weaker patents. This may be granted even where what has been done is a modification of what exists. The question of novelty and therefore the question of prior art do not arise.

7 CONCLUDING REMARKS & RECOMMENDATIONS

There are several options that could be adopted to help in the minimisation of risks that are imminent in sharing of LK. These options include:

- Preparation of a National Local/Indigenous Knowledge and Access to Biological and Genetic Resources Strategy or Discussion Paper;
- Review of the legislation on intellectual property, science and technological research, culture as well as land and natural resources in relation to local/indigenous knowledge and access to genetic resources;
- The review and later harmonisation of laws and regulations in order to guarantee and help individuals and local communities maintain their knowledge, innovations and practices, clarify control over such information and help to ensure that those who profit from using the information equitably share the benefits from that use;
- Enact legislation requiring approval of and benefit sharing with local communities through appropriate governmental institutions. It is advisable that this legislation should include also another crucial issue the access to genetic resources;
- It is better to have a legislation that covers the access to both the knowledge and the genetic resources which are now been taken away and patented ex-situ. The OAU “African Model Legislation for the Protection of the Rights of Local Communities, farmers and Breeders and for the Regulation of Access to Biological Resources” may be a starting point in developing a Tanzanian legislation;
- Enacting special legislative or other measures to better enable local communities to protect and control their knowledge, innovations and practices such as plant varieties;
- This is may be necessary due to the inherent problems of classical intellectual property rights laws. Intellectual property rights regime available in Tanzania serves to protect the rights of inventors and scientists and commercial breeders and biotechnology companies but are inadequate for the protection of traditional knowledge of local communities. This is because it is usually considered not “new” and lacks novelty and its attendant components. Moreover, in many instances the knowledge is held in what is characterised as the “public domain”. The knowledge is commonly held and shared by the community and therefore part of the prior art;
- Establish together with national research institutes and professional associations ethical guidelines and codes of conduct for the collection and dissemination of, as well as benefit sharing for, traditional knowledge, innovations and practices. This may be a legislative requirement contained in the piece of legislation on local knowledge and genetic resources;

- Universities and research institutes should be encouraged to initiate programmes funded by public funds to collect, document and validate LK as a national asset for commercial use. They should also adopt intellectual property policies and guidelines that will include provisions on fair and equitable sharing of benefits with the creators and the knowers of local knowledge;
- Implement Farmers' Rights as part of the FAO Global System for the Conservation and Utilisation of Plant Genetic Resources instead of UPOV 1991 Act;
- Establish outreach programmes intended at capacity building of the local communities on how to legally protect their knowledge and resources, as well as on how to negotiate benefit sharing agreements;
- Identify together with national institutions and NGOs potential benefits and appropriate direct benefits that need to be given back to the community; and,
- Raising awareness of the values of local knowledge, innovations and practices.

ANNEX 1

Terms of Reference

For this study the consultant is to prepare a short paper which outlines legal, institutional, economic and other issues related to the local knowledge systems (LKS) in Tanzania. The paper is required to emphasize on the rights of local and indigenous people as owners of the knowledge and rights of national plant and animal breeds, as they relate to the benefits and risks of sharing such knowledge. The specific aspects to be discussed are enumerated in the TOR as follows:

- Review critically existing national policies, laws, rules, regulations and mechanisms governing acquisition, storage and dissemination of local/indigenous knowledge and how they relate to chapters 26, 14 and 15 of Agenda 21 on Environment and Sustainable Development; article 8 (j) of the Convention on Biological Diversity; and Article 27.3(b) of the Trade-Related Intellectual Property Systems (TRIPS) agreement on *sui generis* systems;
- Identify gaps in the legal regime, especially regarding the enhancement of positive elements of knowledge sharing within the local and indigenous communities, reducing risks of piracy and other such risks related with knowledge-sharing; and,
- The relevant national policy objectives should be pursued, such as those of the National Environmental Policy, 1997, and on the basis of existing knowledge and extensive local consultations with relevant institutions both public and private propose legal and other actions and strategies for:
 - The enhancement of such knowledge-sharing; and,
 - Reducing substantially risks of piracy and other risks associated with such knowledge sharing.

LinKS Project
Gender, biodiversity and local knowledge
systems for food security



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