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REVISION OF THE SECOND PHASE OF THE COMPOSITE REPORT - AFRICA

Note by the Executive Secretary

The Executive Secretary is circulating herewith, for the consideration of participants in the Second meeting of the Advisory Group on Article 8(j) and Related Provisions, the above-mentioned comments, which will be used as input to further develop the second phase of the composite report on the same subject.

The report is being circulated in the form and language in which it was received by the Secretariat.

REPORT ON THREATS TO THE PRACTICE AND
TRANSMISSION OF TRADITIONAL KNOWLEDGE
REGIONAL REPORT: AFRICA

Phase II of the Composite Report on the Status and Trends
Regarding the Knowledge, Innovation and Practices
Of Indigenous Peoples and Local Communities
Relevant to the Conservation and Sustainable Use of Biodiversity

Prepared for the Secretariat of the Convention on Biological Diversity

by

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2005

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CHAPTER 1

INTRODUCTION

“The earth is not ours to keep; it is a treasure we hold in trust for our children”.

-Old African Proverb-

Africa is a continent endowed with a wealth of unique and diverse genetic resources, species, ecosystems and an immense range of climates. With a total area of 30,244,050 sq km (11 677 298 Sq Miles) Africa is the second largest and second populous continent after Asia. It covers approximately 20.3 percent of the total land area on earth. With 800 Million People, it accounts for about one seventh of the world's population (Wikipedia 2005). It is also the largest projection from the main mass of earth's surface. It is estimated that Africa has about 30,000 sq km (7 197 cubic miles) of water in large lakes (Anon 1978, WCMC n.d.) which is the largest volume of any continent. In addition, Africa is also blessed with an equal number, if not more, of diverse peoples and cultures. This diversity provided the cradle for humanity or in other words the origin of humanity (Abbate et al. 1998) and, for millennia, has sustained the peoples of the continent (Nnadozie et al., 2003). The African countrymen and women have a high and widely shared level of traditional knowledge, innovations and practices about wild foods, crafts, and medicinal plants as well as knowledge about other natural resources and their uses (UNEP, 2002; Wynberg, 2003).

Africa is also a continent of extremes, both in terms of physical features and climatic conditions and therefore, in terms of the life support systems. The region contains a quarter of the world's biodiversity, encompassing a wide range of habitats from vast savannah, plains and tropical forests, through to coral reefs, the world's largest desert region, and some of the most spectacular freshwater systems in the world (Beentjie et al., 1994). These habitats are repositories for an extraordinary range of animal and plant species. According to Beentjie et al. (1994) up to 60 000 plant species occur on the continent, including 35 000 endemic species that occur nowhere else on Earth. The region is home to three of the most biologically diverse countries in the world (Madagascar, South Africa and the Democratic Republic of the Congo, three of the world's biodiversity “hotspots” and one of the world's eight major centres of crop diversity, the Ethiopian Highlands (UNEP, 2002; Wynberg, 2003; Fenta, 2004; Twarog and Kapoor, 2004).

Biological resources are the backbone of the African economy as well as the life-support system for most of Africa's people, especially the marginalized rural communities. A variety of resources, both plant and animal, are used for food, construction of houses, carts, boats, household utensils, and clothing and as raw materials for manufactured goods. Many resources, such as timber and agricultural produce, are traded commercially, and others are used in traditional crafts such as basket weaving and carving, in addition, many species with medicinal properties are harvested by local communities and pharmaceutical multinationals alike. (UNEP, 2002; Nnadozie et al., 2003; Shikongo, 2000; Wynberg, 2004). The wealth of African natural resources also has global importance, for the world's climate and for the development of agriculture or industrial activities such as pharmaceuticals, tourism or construction, to name but a few of the most important areas.

Unlike many other regions of the world where traditional knowledge, innovations and practices about biodiversity are held by geographically distinct indigenous groupings, in the African region such knowledge is intrinsic to the daily functioning of most rural households (Wynberg, 2004, Nnadozie et al., 2003). Rural households depend on the continued use of their knowledge of natural resources for their sustained survival on a daily basis. This finds expression in the enormously diverse cultures of the more than 2000 ethnic groups that inhabit the continent, and in the central role played by plants and animals in African indigenous systems of medicine and agriculture.

Africa's biodiversity is under threat from six main sources (UNEP, 2002):

1. Loss of species or subspecies;
2. Invasion by alien (non-native) species;
3. Natural habitat destruction, degradation and loss¹;
4. Erosion and loss of traditional knowledge innovations and practices relevant to biodiversity conservation;
5. Human population growth, pollution and economic expansion (Unsustainable development); and
6. Lack of recognition of indigenous knowledge and indigenous property rights;

Wynberg (2004) argues that perhaps the most pervasive factor is that the livelihoods of Africans are in danger of being profoundly impacted by the intensifying control over food, agriculture and healthcare by a diminishing number of large profit-driven corporations. This issue has serious implications for the maintenance of African biodiversity and the traditional knowledge that relates to it.

Africa does not exist in a vacuum and there are of-course also global drivers that may contribute to African biodiversity loss. The global factors that may contribute to the loss of African biodiversity (McNeely, 1988 and Wilson, 1988) include:

1. Effects of global market forces and market failures that undermine or undervalue natural resources;
2. Separation of environmental conservation and economic development which leads to a decline of indigenous systems of resource management and unsustainable levels of resource demand on a global scale;
3. Lack of ethical commitment to sustainability;
4. The inequities in the distribution of power, information and resources, locally and internationally;
5. Lack of appropriate technology transfer;
6. Lack of national and international recognition of the traditional knowledge holders; and
7. Lack of awareness of the importance of protecting and preserving the traditional knowledge.

These issues or factors, individually and in combination, constitute forces that are restricting the full realization of the value of Africa's biodiversity and use of the resources it provides for Africa's own development (UNEP, 2002).

The above factors have led to a perverse situation where nations, which may be rich in biodiversity, often also contain local and indigenous communities, (often the custodians of biodiversity), who are amongst the poorest of the poor. While everyone benefits from the conservation of biodiversity it is mostly the lower income countries which bear the bulk of the costs. Today it is widely recognized that while the vast potential of these resources has yet to be fully tapped, or discovered, the benefits accrued from these resources, including human resources, have primarily flowed to states, enterprises, institutions, and individuals outside the region of origin (Nnadozie *et al.*, 2003). This situation also holds true for Africa. In many cases these benefits from African natural resources, have been derived to the loss or detriment of Africa and its peoples.

As is the case in many other regions of the world, natural resources, such as food crops, useful plants, wild and domestic animals and land, that form the foundation of the livelihood of most Africans are being squandered or rapidly lost to outside interests.

¹ Habitat destruction and degradation which lead to frequently irreparable impoverishment of nature and might eventually undermine the very foundation of humankind's future existence.

Many conservation efforts in the past have often excluded local communities from their considerations, denying them access to natural resources, depriving them of goods and services which they depend on for their livelihood (McNeely, 1988; Balmford *et al.* 2001, ACHPR, 2005, Gray, 1999). With the awareness that biodiversity is diminishing also came the recognition that people's sustained existence is threatened and the global community has realized that it is essential to start conserving and managing the biological diversity of the world for the current as well as future generations. It is now also widely recognized that *in situ* conservation is more desirable than *ex situ* and this requires with the full and effective participation of local and indigenous communities.

An in-depth description of African biodiversity found across the five regions of Africa and of the causes of biodiversity loss in Africa are beyond the scope of this paper. The focus of this paper is on indigenous knowledge systems within the African region in general with a specific focus on the barriers that prevent African people from continuing to use and apply their traditional knowledge innovations and practices that are relevant to the conservation of African biological diversity.

It has to be recognized that the value of African Indigenous Knowledge systems is not simply with regard to the maintenance of biodiversity and how to manage ecosystems sustainably, but also and more importantly with its significant contribution over the centuries to the world's reserve of clinically useful plants, food crops, animal genetic resources, and increasingly, also industrially useful resources such as enzymes (Nnadozie *et al.*, 2003, Ekpere, 2004; Shikongo, 2000)

Another concern, that warrants further discussion is the barriers to the use of traditional knowledge, as this is linked directly to the loss of biodiversity. It may result in the extinction of species, both of fauna and flora and, is caused by the decrease in the use of some aspects of indigenous knowledge innovations and practices of the African people.

It has to be made clear that there are different types of indigenous knowledge systems within Africa governing various disciplines, from ethics, spirituality, geography, ecology and natural resource management. It is of-course difficult to make an arbitrary division between the various types of knowledge systems, given their integrated nature. This paper however, will focus on the indigenous knowledge, innovations and practices in Africa that are relevant to the conservation of biological diversity.

For Africa, the prevailing trend of biodiversity loss is a major concern since the continent's economies, cultures and political systems are heavily dependent, albeit precariously, on the conservation, management, and sustainable use of biological resources (Nnadozie *et al.*, 2003).

CHAPTER 2

WHAT IS TRADITIONAL KNOWLEDGE? WHO IS INDIGENOUS TO AFRICA?

- *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 'traditionality'. Much of this knowledge is actually quite new, but it has a social meaning, and legal character, entirely unlike other knowledge.- (Four Directions Council, 1996)*

It is important for the purposes of this paper to try and define the concept of “traditional knowledge”. In the past decade international legal instruments have increasingly used terms such as “traditional knowledge, innovations and practices (Convention on Biological Diversity, Article 8(j), UN Convention to Combat Desertification, Articles 16(g), 17 (c)), or “indigenous knowledge, cultures and traditional practices” (Draft UN Declaration on the Rights of Indigenous Peoples, Preamble) to refer to the subject matter of Traditional Knowledge (WIPO, 2000). The WIPO (World Intellectual Property Rights Organization) Programme for the 2000-2001 biennium uses the term “traditional knowledge, innovations and creativity to make clear that the scope of inquiry extends to all tradition-based creativity and innovation of human beings, irrespective of existing terminology or definitions (WIPO, 2000). To establish an authoritative definition of “traditional knowledge” WIPO maintains that traditional knowledge is a multifaceted concept which is not limited to any specific field of technology or the arts. The entire field of human endeavor is open to inquiry by traditional methods and all forms of human expression are available for its transmission.

Box:1 African voices² in New York on Traditional Knowledge

African Voices in New York on Traditional Knowledge

- The concept TK brings to mind images of traditional arts items, traditional foods, traditional clothing, traditional resource management practices, cultural performances, music, poems, proverbs, song, dance, the elders, the ancestors, wildlife and landscapes, traditional healers, traditional medicine for both human and animal. It is a body of knowledge that encompasses the original African way of life, portraying man in harmony with nature.
- TK is know-how of people about how to use natural resources held by individuals or by communities. It is a form of knowledge that is under represented, under estimated,

² At the African Regional Workshop on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities relevant to biological diversity held in New York, USA 21-22 May 2005, participants were asked to consider the issue of TK individually. The question they had to answer was: What comes to mind when one is thinking about Traditional Knowledge? These are their responses amongst others.

under valued, ridiculed and suppressed in modern times. Through the ages western civilization has used patronizing language against it. There is therefore a need to change the way we talk about TK, we need to change the discourse on TK especially with regard to Traditional Medicine vs modern medicine.

- TK is a body of knowledge transmitted from the ancestors across generations through proverbs, prayer, song and dance. Culture houses TK. It also provides a link to traditional spiritual and cultural practices and ways of managing and using natural resources. It is important for the day to day existence of many communities across Africa. African communities have been administered through traditional and cultural institutions such as traditional councils who regulated discourse in village life as well as religion and spirituality of the community. This aspect of cultural and traditional life has been disrupted by modern influence, technologies and globalization.
- Traditional knowledge has significantly been eroded by modern religion as many of the traditional cultural and spiritual practices were labeled as evil and paganistic by the first missionaries in Africa.
- Traditional knowledge is important for the wellbeing of the individual, communities and mankind in general.
- TK adds value to the living standards of communities, when TK is in use people have secure livelihoods.
- Community members themselves under estimate and under value the value and contribution of their traditional knowledge, innovations and practices.

According to WIPO (2000), a fundamental aspect of traditional knowledge is that it is “traditional” only to the extent that its creation and use are part of the cultural traditions of communities. “Traditional”, therefore, does not necessarily mean that the knowledge is ancient though it is often rooted in the past. Thus “traditional” knowledge is being created every day. It is evolving as a response of individuals and communities to the challenges posed by their social and natural environment. In its use, traditional knowledge is also contemporary knowledge³.

It is important to consider the link between “indigenous knowledge” and “traditional knowledge”. Certain legal instruments use the divergent terms i.e. “indigenous knowledge” (Draft Declaration on the Rights of Indigenous Populations, Preamble) and “traditional knowledge, innovations and practices” (Convention on Biological Diversity, Article 8 (j), 10 (c); UN Convention to Combat Desertification, Articles 16(g), 17 (c)). “Indigenous knowledge” is a term used to identify the knowledge held by “indigenous peoples,” as defined in Article 1 of the International Labor Organization (ILO) Convention 169.

Although indigenous knowledge is generally considered traditional knowledge, not all traditional knowledge is indigenous knowledge (WIPO, 2000). Since indigenous knowledge is otherwise similar to traditional knowledge in its transmission, scope, and diversity, it is appropriate to consider indigenous knowledge as overlapping with, rather than being a subset of traditional knowledge. For example, information passed down by traditional means amongst the San people in southern Africa (Table 1:

³ This paper however will not focus so much on the contemporary knowledge of TK rather on the knowledge that has been passed on by the African Elders to their generations as contemporary knowledge derives from the adaptation of older knowledge. This knowledge has been the basis of much of the management and use of biodiversity through the ages.

provides examples of hunter-gatherer, pastoralists and agro-pastoralists communities per region in Africa) may be referred to as “indigenous knowledge” or “traditional knowledge”; however, the information passed down by early South-African whites through traditional means would be “traditional knowledge” but not “indigenous knowledge.”

The above definition may present an interesting distinction within Africa, given the African Diaspora as well as the intra-continental migration of people within the continent. Many communities have moved from their original lands either in search for better grazing, fertile land, displacement, or as a result of war and conflict. This means that some people in Africa are local as opposed to indigenous. To illustrate this fact, one can argue that the San people of southern-Africa are indigenous to southern-Africa as they are the original or first people, where as all the other groups are local. Therefore knowledge of the San can be considered “indigenous” and that of the other groups as “traditional”. This situation may be the same for many of the other African regions. It can however be maintained that all knowledge systems on the African continent are indigenous to Africa. Therefore, in this paper traditional knowledge would be used to mean the same as indigenous knowledge.

Box.2 addresses the definition of the term indigenous and the issues that surround it within Africa and Box 3 outlines a summarised attempt to look at the characteristics of indigenous peoples in Africa.

The Indigenous Peoples of Africa Co-ordinating Committee (IPACC) provides an interesting view on the issue of who is indigenous to Africa. This view complements some of the arguments already put forward in this paper. During the consolidation of IPACC there was a creative and important process where different peoples claiming rights as ‘Indigenous Peoples’ from around Africa came together and explored what it was that they had in common (Crawhall, 2005). It was an important process of letting go of the international criteria and trying to make sense of the *de facto* mobilization of certain people from very different political, economic and cultural contexts (Crawhal, 2005). IPACC maintains that the concept of and criterion of “who is indigenous?” in Africa can be seen as a set of concentric circles: with a core group who indisputably represent “first peoples” of Africa. These are the people who experience marginalization and discrimination for being so called “primitive” and are at the same time rich in knowledge and skills related to biological biodiversity. The outer circles represent degrees of relevance, to which different types of policy awareness can be applied as suitable. Box 4 explores this view of a set of concentric circles further.

Table 1: Example of hunter-gatherer, pastoralists and agro-pastoralists communities in Africa

Region	Hunter Gatherers	Pastoralists and agro-pastoralists
Southern Africa	San (Xu, Khwe, Nama, Nharo,!Kung, Kxoe, !Xoo)	Himba, Nama,
West Africa	X	Mbororo (Jafun, Woodabe and Aku) , Fulani, Tuareg, Ogoni
North Africa	X	Tuareg, Imazighen, Berbers (Kel Adagh, Kel Ahaggar, Kel Tadamakat, Oulliminden, Tagaraygarayt)
Central Africa	Batwa ⁴ /Pygmy (e.g. Baka, Bambuti, Bayaka, Yaka)	X

⁴ The Batwa/Pygmy people live in the equatorial forests of Central Africa and the Great Lakes Region. They have different names that correspond to the specific regions of the forests in which they live. They speak different languages depending on the geographic location of their area. Note that the term “San” is a derogatory Nama term for hunter-gatherers-and Batwa is the Bantu plural for hunter-gatherers and not the word the people have for themselves.

East Africa	Hadzabe, Ogiek, Awer, Waata, Sengwer, Yakuu, Batwa, Ike, Malakote, Munyoyaya	Pokot, Samburu, Maasai, Turkana, Rendille, Orma, karamojong, Barabaig, , Borana
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Box 2. Defining the concept of “Indigenous Peoples as it relates to Africa (Adapted from ACHPR, 2005)

Defining the concept “indigenous peoples’ as it relates to Africa

Due to past and ongoing processes (discrimination, colonialism, and post-colonial projects of nation-building, development and modernization) some minority groups of peoples in Africa and elsewhere have become marginalized in their own countries and they need recognition and protection. Many of these groups have started to organize themselves at local and national level and they are also reaching out to other groups around the world who are facing similar forms of marginalization and human rights violations (African Commission on Human and Peoples’ Rights, (ACHPR) 2005, Colchester *et al.*, 2001). The kind of human rights protection they urgently need is reflected in the international law regime on the rights of indigenous peoples and many of the groups concerned are now taking part in the international movement for the rights of indigenous peoples (Colchester *et al.*, 2001). There is no internationally accepted definition of the term “Indigenous Peoples’. The term has gained international currency in the context of international debates about the rights of ‘ethnic minorities’, ‘tribal people’, and ‘natives ‘aborigines’ and ‘indigenous populations’. The term ‘Indigenous Peoples’ has been adopted by a large number of governments, international agencies and, most significantly, by a broad movement of self-identified peoples as the best catch-all term available to insert consideration for their rights into international law. Despite or rather because of, growing acceptance of the phrase and a growing recognition of Indigenous Peoples’ inherent rights, its use has been objected to by a number of governments (Colchester *et al.*, 2001).

There is a need, however, to recognize that the term ‘indigenous peoples’ has negative connotations in Africa as it has been used in derogatory ways during European colonialism and also been misused in chauvinistic ways by post-colonial African governments (ACHPR, 2005). It has also been made more complex by some misconceptions in terms of the understanding of the term.

The common misconceptions on the term ‘indigenous peoples’ in Africa are:

1. to protect the rights of indigenous peoples would be to give special rights to some ethnic groups over and above the rights of all other groups within a state
2. the term indigenous is not applicable in Africa as ‘all Africans are indigenous’
3. talking about indigenous rights will lead to tribalism and ethnic conflicts

The important issue that needs to be recognized regarding these misconceptions and the use of the term ‘indigenous people’ is that the attempt is not to question the identity of other groups. When the term is used for marginalized groups it is not used to deny all other Africans their legitimate claim to belong to Africa and to identify as such (ACHPR, 2005). It is being used under the present-day understanding of the term because it is a term by which they can very adequately analyze the particularities of their sufferings and by which they can seek protection in international human rights law and moral standards.

Box 3: The characteristics of Indigenous Peoples in Africa, adapted from ACHPR (2005)

The Characteristics of Indigenous Peoples in Africa

An excellent summary of the characteristics of indigenous peoples in Africa is provided by the ACHPR (2005). The characteristics are as follows:

- Their cultures and ways of life differ considerably from the dominant society and their cultures are under threat, in some cases to the extent of extinction
- A key characteristic for most of them is that the survival of their particular way of life depends on access and rights to their traditional land and the natural resources thereon

- They suffer from discrimination as they are being regarded as less developed and less advanced than other more dominant sectors of society.
- They often live in inaccessible regions, often geographically isolated and suffer from various forms of marginalization, both politically and socially.
- They are subject to domination and exploitation within national political and economic structures that are commonly designed to reflect the interests and activities of the national majority.
- This discrimination, domination and marginalization violates their human rights as peoples/communities, threatens the continuation of their cultures, traditions and ways of life and prevents them from being able to genuinely participate in deciding on their own future and forms of development.
- These are groups of people who could lead a good life –based on their own visions of a good life –and who could contribute considerably to the development of the states within which they live – if they were given the same opportunities ⁵as other more dominant groups.
- These groups are not problematic categories in themselves. They are produced as problematic categories by certain political and structural factors: factors that must be looked at critically in order to allow these presently marginalized groups to live in a dignified way and to fully realize their potential to make positive contributions to the larger society.

Box 4: The concept and criteria of who is Indigenous in Africa seen as a set of concentric circles: with a core group who indisputably represent “first peoples” of Africa

The concept and criteria of who is Indigenous in Africa seen as a set of concentric circles: with a core group who indisputably represent “first peoples” of Africa

Hunter-gatherers at the core

At the core of the definition of indigenous peoples in Africa are the hunter-gatherer peoples. Although once all humans lived from hunting and gathering, for various ecological reasons, some people have maintained this form of economy right up into the 21st century. There are several reasons why we argue that the hunter-gatherer peoples are at the centre of any description of criteria. Firstly, they are the oldest continuous cultural collectivities on the continent. Recent genetic research has confirmed that modern day peoples, including the various San peoples, the Hadzabe and Sandawe of Tanzania have maintained their distinctiveness for up to 90 000 years (Knight et al 2003)

The dramatic inferences arising from the Hadzabe research by Knight et al 2003, not only confound assumptions made in anthropology that culture is constantly undergoing rapid changes, but the fact that the three oldest genetic clusters on the African continent all share click languages, suggest that language and cultural practices, including hunting-gathering economies are the glue that have held these civilisations together for so long.

Though the research is not as up to date, the next greatest genetic antiquity is applied to the various ‘Pygmy’ peoples of Central Africa. It is expected that improved genetic research will confirm that the Pygmies are not only the first peoples of Central Africa but have maintained a genetic and hence cultural stability over vast periods of time in a particular ecological context. (Cavalli Sforza 2001).

⁵ Opportunities that may come about only through the recognition of their particular situation and needs, and through the granting of fundamental collective rights

Genes are not a basis for arguing for a particular set of civil and human rights. But they are part of the evidential base. When traveling through rural Africa, it is common knowledge that Bantu and other neighbours of indigenous peoples recognise hunter-gatherers as being in a particular social category. Typically, agricultural peoples see hunter-gatherers as extremely knowledgeable both in terms of the biological diversity and spiritual knowledge. Hunter-gatherers are famous as rain makers, spirit mediums, magicians, ‘astral travellers’, and healers.

In some situations, such as in the Tutsi courts in the Great Lakes, certain Pygmies had special protection from the king and were controlled as a powerful spiritual resource. In other cultures, such as Xhosa culture in South Africa, the inter-marriage between San and Bantu people helped reinforce diviner traditions in the dominant culture that absorbed the knowledge and ways of the first peoples (Prins 1996).

It was with the advent of colonialism that the hunter-gatherers of Africa became completely marginalised from what emerged as state institution building. Europe’s colonisation of Africa was primarily driven by the need to feed their rapidly growing and industrialising economies. Mercantile capitalist economies required access to natural resources and agricultural produce. Europe focused its attention on the colonisation of Africa’s food producing territories.

Europe developed its most intimate relationship with Africa’s agricultural peoples. Though colonialism was often brutal, racist and cruel, it created a situation where the only possibly inheritors of the newly formed state systems had to be the people who were primarily involved in the colonial economy, namely the agriculturally productive peoples.

This trend was evident in French colonialism where the concept of ‘*indigène*’ only applied to those agricultural peoples who had to render ‘*corvée*’, rather than nomadic and transhumant peoples (Crawhall, IPACC Mission to West Africa 2004).

As Africa came into the period of decolonisation, two groups found themselves outside the newly established state system: the hunter-gatherers and the transhumant pastoralists. In some countries, the question of the citizenship of hunter-gatherers remains in doubt to this day. It is not unusual in the western parts of Central Africa for people to refer to ‘*citoyens*’ and ‘*Pygmées*’ as distinct categories. Many if not most Pygmies in Cameroon, Gabon, Congo Republic and the DRC are without the most basic forms of documentation necessary for full citizenship, i.e. national identification documents and birth certificates.

Hunter-gatherer peoples fit all of the possible criteria for speaking about indigenous peoples. They are almost always the first occupants of their current territories. They have a wide spread use of the natural resources of the area, and their cultures and economic practices are intimately connected with the sustainable use of these natural resources. They are systematically marginalised from the state, including such basic areas as citizenship and education. They are seen as culturally ‘*Other*’, as well as seen by their neighbours as *autochthonous*. Where the traditional economy has collapsed (usually related to environmental devastation) hunter-gatherers are universally relegated to the very bottom of the cash economy and are extremely vulnerable to all forms of human and civil rights abuses, as well as the scourge of poverty and all its ills.

Transhumant Pastoralists

The next ring of the circle of criteria neatly includes the millions of transhumant pastoralists in Africa. It is not by accident that two of the leading cultural forces in the indigenous peoples’ movement in Africa include the Maasai and the Tuareg. In our dialogue with African governments, though there may be initial resistance to the idea that some people are more indigenous than others, when attention turns to nomadic peoples, many Africans voluntarily recognize that they fulfill the criteria of Indigenous Peoples.

Like hunter-gatherers, transhumant pastoralists were left out of the state formation process during colonialism and the postcolonial period. In many parts of the continent they were left in conflict bound situations that were politically and economically untenable. The spiteful actions of the French authorities lead to the division of the Sahara into different administrative units, putting the majority of pastoralists under the control of agricultural governments to the south. With the struggle for access to power and resources, the relationships between herders and farmers, between those on the outside of governance and those holding the reins of power soured to the point of civil war. Both Mali and Niger plunged into grim periods of violence during the 1990s which are primarily unresolved.

On the other side of the continent, herders in Kenya, Tanzania and northern Uganda found themselves struggling to survive. At independence, all economic power was held by agricultural ethnic groups in the south. All definitions of economic development required the herders to surrender meat to cash markets from which they were lucky if they could benefit at all. Though groups like the Maasai managed to negotiate some accommodation with the state, they constantly lost territory to agricultural peoples backed by the state.

It is important to recognize that the post-colonial African states have an ethnic and economic character that is antithetical to hunters and herders. As hunters and herders survive on the basis of a delicate co-existence with the use of natural resources it is small wonder that the main interface of conflict for indigenous peoples in Africa is precisely over land management and conservation.

In Southern Africa, the dynamic was somewhat different. The in-migration was not by agricultural peoples, but rather by agro-pastoralist Bantu speaking peoples. They came to occupy lands already occupied by transhumant pastoralist Khoekhoe and by hunter-gathering San peoples. There was likely some interface between these different groups, in marriage, exchange of foods, genes, customs, and even language characteristics, but in the end, the division between the cultures and economies are still visible (Barnard 1992).

The outer rings

If hunter-gatherers and transhumant pastoralists are in the two central concentric circles in our definition of indigenous peoples, this is not the end of the African analysis. There are agro-pastoralists, hunter-horticulturalists, pastoralist-horticulturalists, agro-pastoralists, agriculturalists, and those who are part of the post-agricultural industrial and service sectors of the so-called ‘modern economy’.

It is our experience, that even though politicians and civil servants may be well educated and dress in a manner associated with European value systems and norms, they may themselves come from rural backgrounds where their kinsfolk were healers, familiar with animal husbandry, and used traditional methods for land conservation and natural resource management. Though fully part of the elite, they too have a stake in policy considerations related to indigenous and local knowledge systems.

The application of legal and policy mechanisms may be applied in such a manner that they recognize the continuum of the concentric circles. There can be a balance between the need to define fairly accurately who should be consulted and involved in processes such as 8j, that require the involvement of indigenous peoples (i.e. hunter-gatherers, post-hunter-gatherers, and transhumant pastoralists), and those who will also benefit from involvement (i.e. ‘local’ communities including economically and culturally dominant peoples with access to the state system.)

Source: Crawhall, 2005

The above illustrate very important human rights issues are at stake. The main issue has to do with the discrimination of some of the most vulnerable groups within African States whose situation has continued to be very critical even after de-colonialisation. These issues also have significant implications for the preservation of the traditional knowledge, innovations and practices of these groups as well as the transmission of such knowledge

Having considered the African internal search for a definition for African Indigenous Peoples it is appropriate to consider the international thinking and evolution on the concept of Indigenous Peoples. As Africa does not exist within a vacuum the international evolution in the thinking of regarding the definition of the concept of “Indigenous” Peoples did have an impact on the African view on this concept. Box 5. attempts to summarise the international evolution in the thinking regarding the definition of the concept “indigenous” peoples.

Box 5: International evolution of the definition of Indigenous Peoples (Mulenkei, 2005 pers comm)

In 1971, the UN Human Rights Sub-Commission on the Prevention of Discrimination and Protection of Minorities appointed a special Rapporteur on Indigenous Populations, Jose Martinez Cobo, to carry out a study on the problems of discrimination against indigenous populations. In 1986 he produced a definition dating back to the thinking of fifty years earlier and clearly emphasising the criterion of original occupancy compared with recent settlers as follows;

Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of societies now prevailing in those territories, or part of them. They form at present a non-dominant sector of society and are determined to preserve, develop and transmit to the future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal system.

This historical continuity may consist of the continuation, for an extended period reaching into the present, of one or more of the following factors;

- a) *occupation of ancestral lands, or at least of part of them;*
- b) *common ancestry with the original occupants of these lands;*
- c) *culture in general, or in specific manifestations (such as religion, living under tribal system, membership of an indigenous community, dress, means of livelihood, lifestyles)*
- d) *language (where used as the only language, as mother tongue, as the habitual means of communication at home or in the family, or as the main, preferred, habitual, general or normal language)*
- e) *residence in certain parts of the country or in certain regions in the world; (United Nation 1986)*

It has to be recognized that the Cobo report was criticised by many because it did not bring out effectively the importance of self-determination. This issue was however given prominence and some light was shed on it by Erica-Irene Daes, the chairperson of the UN Working Group on Indigenous Populations established by the UN Human Rights Sub-Commission on prevention of Discrimination and Protection of Minorities in 1982, takes a broader, practical view, arguing that although there is no need for formal definition of the concept “indigenous” it is important to recognize a number of factors that are relevant for developing an understanding of this concept. Based on a review of the evolution of the concept of indigenous from the 19th century, previous definitions and international instruments, Daes identifies four elements which can bring clarity and better understanding on the concept “indigenous”

- a) *priority in time, with respect to the occupation and use of a specific territory*
- b) *the voluntary perpetuation of cultural distinctiveness, which may include the aspect of language, social organization, religion and spiritual values, modes of production, laws and institutions;*
- c) *self-identification, as well as recognition by other groups, or by state authorities, as a distinct collectivity, and*
- d) *an experience of subjugation, marginalization, dispossession, exclusion or discrimination, whether or not these persists, (Daes 1996:22).*

As mentioned before, despite the reference to traditional knowledge, the Convention on Biological Diversity (CBD)⁶ does not define traditional knowledge; it however, makes reference to the knowledge, innovations and practices of indigenous and local communities, embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity which should be promoted for wider application. Such application should be done with the approval and involvement as well as the prior

⁶ One of the major international instruments to acknowledge traditional knowledge and its value is the United Nations (UN) Convention on Biological Diversity (CBD), one of the major environmental conventions resulting from the UN Conference on the Environment and Development, held in Rio de Janeiro in 1992. The CBD recognises the importance of indigenous and local communities to the conservation and sustainable use of biological diversity through the use and application of the traditional knowledge they possess in several ways.

informed consent of the holders of such knowledge, innovations and practices. It should encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices (Article 8(j) CBD text, 1992).

In this context, traditional knowledge is defined as a body of knowledge, which has been built by a group of people through generations, living in close contact with nature. This knowledge would include systems of classifications, sets of empirical observations about the local environment, and systems of self-management governing resources use (Ekpere, 2004, Davis and Wagner, 2003). The African traditional knowledge, like any other body of knowledge, is living and evolving. Its continued practice is vital to the identity and cultural survival of the local communal life support systems.

In terms of biodiversity, traditional knowledge can be seen as the “knowledge, innovations, and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity”.

It is essential and imperative to recognize the importance of traditional knowledge across the globe. In order to do this, the CBD therefore provides that we:

1. Respect, preserve and maintain the traditional knowledge of the Worlds indigenous and local communities who are often the most marginalized and disadvantaged of groups even in their native lands;
2. Recognize that the use of such knowledge should be promoted for wider application with the approval, involvement and prior informed consent of the holders of such knowledge;
3. Recognize that the creators, owners and holders of such bodies of knowledge should equitably share in all the benefits, which arise from the use of their knowledge.

There are concerns, however, that Article 8 (j) of the CBD does not explicitly recognize the rights of local and indigenous communities to their knowledge. It also does not link traditional knowledge with the territorial and resource rights, some very important aspects of traditional knowledge. Furthermore, it has the qualifier which says ‘subject to national legislation.’ What if there is no existing national legislation which recognizes indigenous people’s rights? Most countries, which have indigenous peoples, do not have such legislation.

According to Tauli-Corpus (2003), to understand traditional knowledge one has to consider heritage, given that knowledge is inherited or passed on from one generation to another. Tauli-Corpus views heritage as “everything that defines our distinct identities as people. This is bestowed upon us by our ancestors and endowed to us by nature. It includes our socio-political, cultural and economic systems and institutions; our worldview, belief systems, ethics and moral values; and our customary laws and norms”. Tauli-Corpus maintains that this includes traditional knowledge which is the creative production of human thought and craftsmanship, language, cultural expressions which are created, acquired and inspired. These creative productions are for example songs, dances, stories, ceremonies, symbols and designs, poetry, artworks, scientific, agricultural, technical, and ecological knowledge and the skills required to implement this knowledge and technologies.

She points out that heritage cannot be separated into component parts. It should be regarded as a single integrated, interdependent whole. One cannot award different values to different aspects of the heritage; it cannot be classified into different categories such as scientific, spiritual, artistic or intellectual, nor separate elements such as songs, stories and science. All aspects of this heritage which include traditional knowledge are equal and require equal respect, safeguarding and protection. Heritage and traditional knowledge are inextricable linked to peoples’ territorial and resources rights as well as their cultural rights. It is important to understand that this forms an indivisible whole which cannot be fragmented. There is a responsibility upon indigenous and local communities across the globe to safeguard, develop and protect their heritage from misappropriation, loss and erosion so it can be passed on to future generations.

The erosion and loss of the heritage, traditional knowledge, cultures and biodiversity in Africa, as elsewhere on this planet, has been mainly caused by colonization and its consequent result of fragmenting and/or eradicating the history, customary laws, social and economic, political and traditional knowledge systems of the colonized through super-imposing the predominantly reductionist economic, cultural and political systems of the colonizer. In more recent times a new form of colonialization in the form of globalization is having a similar homogenization effect. Through this process the relationship of communities across Africa to their ancestral lands, the natural world, their ancestors, the spirits and gods and goddesses, and with their neighbors were severed. This relationship based on the customary laws, social, economic and political systems predate the laws and systems of the colonizers and the post-colonial-states and have sustained the African people and their ancestors over centuries.

It is important to note, that in spite of all these attempts by the colonizers to eradicate the customary laws and practices through means of religion and formal education, many of the African customary laws and practices still persist.

These include amongst others:

1. Laws pertaining to the regulation, safeguarding, protection and use of the African heritage and knowledge;
2. Administration of justice;
3. Customary laws on land and land tenure systems;
4. Laws which govern the relationship of African peoples and the earth;
5. The relationship between the ancestors and with each other; and
6. Systems of conflict resolution when there are disputes arising between communities or tribes.

Despite the prevalence of some of these traditional knowledge systems, they are being eroded at an alarming rate and are being lost daily and falling out of use. In other words “having survived the initial colonization process, these (weakened) systems are once again under threat from globalization.

CHAPTER 3

THE IMPORTANCE OF TRADITIONAL KNOWLEDGE FOR AFRICAN COMMUNITIES

It has to be recognized that the value of African Indigenous Knowledge Systems/ Traditional knowledge is not simply with regard to the maintenance of biodiversity but also and more so importantly with its significant contribution over the centuries to the world's reserve of clinically useful plants, food crops, animal genetic resources, and increasingly, also industrial useful resources such as enzymes

The creative and innovative traditions of African cultures have been masked by historical misrepresentations from outsiders as well as by pedagogic and policy-induced blinders domestically. From an early age students learn that major inventions were made by Europeans, and rightly so, but seldom do they learn about grassroots or higher level institutions and innovations developed by local individuals, institutions or communities within their respective cultures and countries (Gupta 2003). In the rare cases when local contributions are indeed taught, these are recalled with terminology, which may generate disdain rather than respect for the native genius and the traditional knowledge, innovations and practices of local and indigenous communities around the world. In the last decade there has been an increased awareness and recognition of the value and contribution of traditional knowledge innovations and practices globally.

It is now increasingly recognized that traditional teachings and practices have played and continue to play an important role in decision-making, and serve as a foundation for the survival of indigenous and local communities not only in Africa but also elsewhere. Their ancient relationship with the land has given indigenous peoples a profound knowledge of the living Earth. From an indigenous world view, all parts of the universe are interconnected. Every living creature, whether bird, animal, tree or plant, lives according to the instructions it was given by the creator (Posey, 1999). The conservation of biological diversity is an integral part of indigenous teachings (Blanchet-Cohen, 1996). It has to be noted though that this is not true in all cases as there are strong evidence for human induced extinctions of large mammal faunas in North America, Australia and New Zealand by indigenous people (Cunningham, 2005, pers. comm).

Although local and indigenous communities the globe over have made important intellectual and technical contributions to society in such areas as food, economy, science, medicine and politics, these have gone largely unrecognized and certainly unrewarded. It is only recently that the international community has begun to accept that these people possess unique and invaluable knowledge about the environment, resource management in general and biodiversity in particular (Blanchet-Cohen, 1996). This recognition now widely underpins the contribution to community-based natural resource management (CBNRM) as one of the approaches for effective biodiversity conservation and sustainable use.

This recognition is further fueled by the realization that traditional knowledge is an important cultural resource that guides and sustains the operation of traditional community-based management systems, especially for agriculture, animal husbandry, forestry and agro-forestry, medicine, technology, and biological, physical and geographical phenomena.

Thus local knowledge of the environment and resources used, as well as of the society within which the resultant goods and benefits are distributed, is fundamental to the continuity of sound community-based management practices and to the design of new systems of sustainable resource management (Ruddle, 1994a; 1994b; 1994c: Roe and Jack, 2001). This knowledge is best served by the local and indigenous communities who have lived and interacted for millennia with that particular environment and the ecological services it provides.

African traditional knowledge is a source of important information for local resource management and biodiversity conservation. It provides a shortcut to pinpoint essential scientific research needs. However, traditional knowledge first has to be systematically collected and organized, and then evaluated and scientifically verified, before being blended with complementary information derived from e.g. western-based sciences, so as to be useful for resources management (Pauly *et al*, 1993, cited by Ruddle, 2001). This claim however is questionable as the collection of traditional knowledge still remains a controversial issue especially as it raises issues of intellectual property rights.

The last decade has shown that there is an increasing interest primarily by corporations of the North in the knowledge of indigenous peoples, primarily from the South, including Africa. This interest has been fuelled by the development of new technologies in genetic engineering and modern biotechnology and the realization that industrial products of great commercial value can be identified using the knowledge of indigenous peoples and local communities.

The value of this knowledge has long been known, for example, of the 120 active compounds currently isolated from the higher plants and widely used in modern medicine today, 75 per cent show a positive correlation between their modern therapeutic use and the traditional use of the plant from which they were derived. The use of traditional knowledge reportedly increases the efficiency of screening plants for medicinal properties by more than 400 percent (Singh Nijar, 2004, Mugabe *et al*, 1997).

The current value of the world market for medicinal plants derived from leads given by indigenous and local communities is estimated to be US\$43 billion (Singh Nijar, 2004,). The value of crop varieties improved and developed by traditional farmers to the international seed industry is estimated to be US\$ 15 billion. Other natural products developed from the knowledge of indigenous and local communities, e.g. sweeteners, perfumes, fabrics, and cosmetics, are expected to be commercially lucrative. This situation also has implications for Africa as it contributes significantly to the value and importance of African traditional knowledge and the related biodiversity.

Today, in Africa, biological resources are collected throughout the continent for commercial purposes, to be screened for potential therapeutic or other benefits, or to be packaged and marketed as herbal drugs, cosmetics or other natural products. According to Wynberg (2004) without doubt such collections are on the increase as reports from as far a field as Senegal, Namibia, Uganda, Kenya, South Africa, Mauritius, Madagascar, Zimbabwe, Cameroon and Ethiopia indicate. It has to be noted that in most of these screening traditional knowledge and ethno-botanical knowledge plays an important role. These plants are collected without the Prio informed consent of the communities concern,

Another important aspect to consider is that African traditional knowledge was and remains of fundamental socio-cultural importance to African society. During knowledge transmission to and the socialization of children over several generations African social institutions are gradually crystallized (routine or habitual ways of doing things gradually become the customary way that things are done) and social roles become defined. These processes therefore result in Africa's diverse and unique cultures, traditions and societies. According to Ruddle (2001) referring to the pacific region, just as local knowledge and its transmission shape society and culture, so too, does culture and society shape knowledge this is equally true for African society.

Throughout the world, traditional and indigenous knowledge systems are changing. This sometimes happens rapidly, owing to the pressure of globalization, westernization, urbanization, commercialization, and monetization, among others, as well as to the elitist values often engendered by non-traditional education. The above issues already present some of the barriers that prevent the use of traditional knowledge but they will be explored in more detail under Section 6.

In Africa some specialist traditional knowledge is disappearing while other knowledge remains resilient. Fortunately there has been a welcome burgeoning of interest in the subject globally and efforts to address this loss of traditional knowledge especially as it relates to biodiversity loss are on the increase (Ruddle, 1994d).

Land and language and the rural urban migration

Given that most of the inhabitants of Africa are living in rural settings, thus depending directly on what nature has to offer in terms of natural resources for their livelihood, it can be inferred that the indigenous knowledge systems which relate to such resources are still very much in use and remain important to African communities.

a) Traditional Medicine in Africa: the case for medicinal plants

Pythomedicine is an integral part of traditional medical practice in Africa. Today two systems of medicine co-exist in Africa – one based on traditional medicine and the use of biodiversity, and the other on western approaches to healthcare and the use of pharmaceutical products (Wynberg, 2004, Shikongo, 2000). In general, western approaches to medicine are dominating most national health systems in the region, but slowly this is changing, and numerous countries are integrating traditional medicine into their official healthcare programmes. It is estimated that up to 80 % of the African population use traditional medicine for their health needs, including those who also visit modern health facilities (Makhubu, 1998, Wynberg, 2004).

Despite the prevalence of many western medical facilities across the African region, rural and urban people continue to make use of traditional medicines (Cunningham, 1993). It is therefore likely that most people in rural areas are primarily dependent on traditional medicines, at least for primary health care. Most traditional medicines are derived from species of wild plants and animals. While many common species are used, many protected, specially protected, generally rare and uncommon species are also involved in the trade and use of traditional medicine in Africa. Utilization and harvesting of traditional medicinal herbs and plants can result in genetic depletion and in an often rapid downward trend of the plant and herb population status. Owing to the intensive use of medicinal plants and the heavy exploitation of natural populations (especially when large scale export trade develops around some species), a number of medicinal plants have become rare and it has become necessary and imperative to put them under protection. Conservation is critical not only to protect biodiversity, but also to meet the health needs of the continent. For both rural and urban Africans, traditional medicine is a form of healthcare that is more available and often cheaper than western medicine (Wynberg, 2004). It embodies an integral part of a spiritual healing process, environmental ethic and ancestral belief system that is uniquely African (Iwu, 1993). Knowledge, experiences and observations are handed down from one generation to another, resulting in a health system that is tribally and culturally specific, but also continuously changing and strongly influenced by social, economic and political factors.

The benefits of integrating traditional healers into the health-care systems in Africa are (Shenton, 2004):

- i) Traditional healers in general are enthusiastic to collaborate and also willing to learn to perform a wide array of primary health-care tasks;
- ii) Involving traditional healers is a cost-effective way of providing health care to poor communities especially for diseases associated with HIV/AIDS infection; and
- iii) The health status of the affected communities generally improves.

While Africa has only 13 percent of the world's population, over 50 per cent of the people infected with HIV live on this continent. HIV/AIDS has become the primary cause of death in Africa (King 2000 cited by Shenton, 2004). Southern Africa and East-Central Africa, which are some of the poorest areas in the world, are also the most seriously affected by HIV/AIDS. In Zimbabwe, for example, more than a quarter of the adult population is infected with HIV, but the country has less than \$US40 available to treat each case (Wechsler 2000, cited in Shenton, check latest data from Unaid)

2004). HIV is a serious issue of concern for African governments as well as for indigenous communities as it impacts on the very ability of nations and government to work towards sustainable development. It is disrupting social and cultural coherence in many rural villages and as such also has an impact on the transmission of traditional knowledge in general. This issue has to be considered also in relation to traditional medicine. There is therefore, a critical need to look at innovative approaches for preventing and managing HIV in Africa. The traditional healer and herbalist in Africa certainly have a role to play in these innovative approaches. They can fulfill numerous tasks such as stopping rituals (e.g. circumcision rituals using the same razor blade for the group) that spread HIV. This should include harmful healing practices that they themselves also perform (Shenton, 2004).

The role of traditional healers in the treatment of HIV/AIDS in Africa has been very controversial. Some traditional medicines have proved of real benefit in the treatment of some symptoms related to AIDS, such as fever, skin rash and diarrhea. Some healers, however, have claimed to have found the cure for AIDS. These claims were not substantiated and have undermined the credibility of the traditional health-care systems in the countries concerned. Despite these set-backs the value of the use of traditional medicine in the fight against AIDS has been demonstrated. A survey conducted in Uganda showed that traditional treatments of patients suffering from chronic diarrhea and herpes was found to be as effective as, or slightly more effective than, conventional modern treatments (Panos 1996:2 cited in Shenton, 2004).

It is, however, also worth noting that Africans also have extensive knowledge on traditional animal medicines especially for livestock and African Indigenous Nomadic Pastoralist groups such as the Ovahimba in Southern Africa, the Mbororos and the Fulani of West Africa the Masaai and other Nomadic people of East Africa still have traditional veterinary knowledge which they utilize very often to treat their livestock. The African Pastoralists have developed sophisticated techniques to maintain stock health. Ethnoveritinary studies have documented elaborate classifications of cattle diseases and their remedies among East African Pastoralist. In Nigeria, one survey identifies some 92 herbs and plants used in ethnoveritinary medicine. Fualni, Wo Daabe and the Masaai vaccine against borin pleuropneumonia and against the rinderpest is good example to see the success of traditional knowledge and even more is the knowledge of the Tuareg of the sahel timing of the sheep reproductive cycle and its relationship to their control over stock breeding. They are able to selectively use penil sheaths on rams to ensure that lambs are not born at the end of the dry season when the nutrition ststus or ewes is very poor.

b) Biotrade and Bioprospecting in Africa

Plants, and their extracts have been and remain essential and important elements of day to day existence in Africa, especially in rural Africa. Africans use plants for food, medicine, clothing and feeds for animals on a daily basis. Other plant-derived products include perfumes, spirits, detergents and cosmetics. It is therefore not surprising that the first formal expedition for the collection of useful plant species was commissioned some 3,500 years ago by the Egyptian Pharaoh, Queen Hathshepsut (Nnadozie *et al*, 2003).

Over the past decades, biotechnology, pharmaceutical and human health care industries have increased their interests in natural products as sources of new biochemical compounds for drugs, beauty products, chemicals and agro-products development. As a direct result of this, there has been a surging interest in traditional knowledge and medicine and an intensified pressure to collect and privatize interesting biological material. This interest has been stimulated by the importance of traditional knowledge as a lead in new product development (Shikongo, 2001).

In the last few years, developing countries have felt the increasing pressure of what has now become known as bio-prospecting (the search for interesting biological resources) and bio-piracy (the unlawful taking and privatizing of biological materials). This pressure has increased especially within the area of traditional medicine. Given the fact that in most countries very little legislation is in place to govern

access to genetic resources and the associated traditional knowledge, civil society groups and governments have reacted strongly and are asking for appropriate measures to be put in place.

This pressure has been greatest in Asia and Latin America whereas Africa has only recently begun to feel the pressure. Communities have refused access to collectors; civil society groups and governments have legally challenged patents; and governments are attempting to monitor and control resources more effectively. As a result of bio-prospecting, more and more wild species will come into the lime light and will be considered as having potential pharmaceutical value and might thus be considered for commercial exploitation.

The link of bioprospecting to the importance of traditional knowledge is that most of the top 150 plant-derived prescription drugs correlate with knowledge about traditional medicine that has been derived from communities throughout the world. Traditional African knowledge has been used to develop numerous commercial products, or potential products with medical, cosmetic, food or agricultural value, and the raw material for their manufacturing continues to be sourced from farms and forest today (Wynberg, 2004). According to Wynberg (2004), many examples abound of patents -from sweeteners through to appetite suppressants, cardiotonics, and treatments for cancer, diabetes, rheumatism and mental disorders – all of which have their origins in African species and traditional use by African communities.

It is clear that the tremendous biological resources and human innovations of the African continent have huge potential to benefit the region. If the sustainable use of natural products is an important but underdeveloped area in most of Africa, it follows that the traditional knowledge that pertains to the natural products is also important. As stated before, these natural products often contribute in informal ways to local food security, primary health care and livelihoods of poor rural communities on the continent. But their potential to enhance rural livelihoods, as well as national economic development, through private sector involvement and commercialization, while maintaining the resource base by way of sustainable use of the products, is currently virtually untapped. Box 6 is an example of a recent biotrade activity in southern Africa; it highlights the complexities of such endeavors but also that regulated bioprospecting is important. The *Hoodia* case is significant as a best case scenario, but also speaks to the value of positive policy environment that encouraged the parties to go through an out of court negotiated settlement. There is widespread interest in Africa about how to reproduce the *Hoodia* model to help fight rural poverty and increase profit sharing from pharmaceutical developments.

It is important to recognize that bioprospecting and biotrade have the potential of generating significant economic benefits to African countries if properly controlled, communities are fully involved and are important potential components of an integrated sustainable development strategy. In the absence of appropriate policy and watertight legislation, however, Africa as a continent stands to lose its share of the potential millions of dollars in revenues from renewable plant, animal, fungal and microbial resources exploited by international pharmaceutical, medical and agro-chemical interests. Just as importantly, rural African indigenous and local communities, individuals and institutes stand to lose considerably from the uncontrolled exploitation of intellectual property rights (IPR) related to these resources.

Box 6 Case-Study: The San, Hoodia and CSIR: Possible Best Practice

Case-Study: The San, Hoodia and CSIR: Possible Best Practice

The *Hoodia* plant occurs widely in Namibia, South Africa and Botswana. It looks like an ordinary cactus, thin, thorny fingers growing less than a metre tall in the reddish sands of southern Africa's Kalahari Desert. For centuries the San people of southern Africa treated hunger, fever, eye allergies and stomach pain with the *Hoodia* plant. In 1996 scientists from the South-African parastatal the Council for Scientific and Industrial Research (CSIR) isolated the *Hoodia*'s hunger-suppressing chemical component which they code

named P57, and patented it. In 1997, CSIR licensed the UK-based firm Phytopharm to further develop and commercialise P57. The following year, Phytopharm licensed drug giant Pfizer to develop and market P57. Throughout the process CSIR retained the patent. It may be worth billions of dollars. The market for a natural appetite-suppressant drug is huge. In the United States alone there are between 35-65 million clinically obese people. Worldwide, obesity is rising fast. The problem with this story is that the San, who had generously shared their knowledge with CSIR scientists, were out of the picture. To the extent that, in mid-2001, when a Pfizer spokesperson in Britain described P57, the San were said to be extinct. The San peoples of Southern Africa were furious and complained angrily because of the misappropriation of their knowledge without any benefits accruing to them. The timing was right. Back in 1996, indigenous knowledge was an abstruse issue and the CSIR is an institution still shaped by the apartheid regime it had served well for 40 years. Five years later, protection of indigenous knowledge is debated at the World Trade Organisation (WTO) and promoted by the post-apartheid CSIR. It was a thorny issue at the 2002 Earth Summit in Johannesburg because indigenous knowledge systems clash with Western intellectual property (IPR) rules. The later view knowledge as the property of an individual or a company, while traditional knowledge is collectively owned and handed down through generations. Under pressure from the developing world, WTO is reviewing the IPR system. Buoyed by international agreements like the 2000 Cartagena Protocol on Biosafety, an addenda to the 1992 Convention on Biological Diversity, countries in the South are passing laws to prevent biopiracy. In 1999, the Organisation of African Unity (OAU) approved an African Model Law that comprehensively covers IPR issues for biodiversity and indigenous knowledge. African countries must now pass domestic laws that comply with it. Few have done so. The South-African and the Namibian governments are considering draft bills that require proof of prior informed consent of communities before granting patents for products or elements derived from their traditional knowledge. Good practice in this regard was illustrated by the Hoodia Case. The South African San Council and the CSIR signed an agreement that recognizes and rewards the San as holders of traditional knowledge. The San will get up to eight percent of profits from a diet drug derived from Hoodia. For three years, the South African San Council negotiated with the CSIR on behalf of the San in Angola, Botswana, Namibia, Zambia and Zimbabwe. In a unique novel agreement the San will now share profits across borders. The CSIR will pay the San eight percent of milestone payments made by its licensee Phytopharm during the clinical development over the next 3-4 years. If and when the drug is marketed, possibly 2008, the San will get six percent of royalties.

The deal however still presents some difficulties which have to be dealt with as time progresses. This relates to the fraught questions of administering the funds, of determining beneficiaries and specific benefits across geographical boundaries and within different communities, and of minimizing the social and economic impacts and conflicts that could arise with the introduction of large sums of money into impoverished communities. A critical moral dilemma relates to the patenting and privatization of knowledge. In communities such as the San, the sharing of knowledge is a culture and basic to their way of life. The patenting of active compounds of Hoodia by the CSIR runs counter to this belief, yet brings with it greater financial returns? And higher risks? than the commercialization of a non-patented herbal medicine. Despite these flaws there is no doubt that the agreement has set important international and national precedents. For the CSIR, this case is set to change the way in which the institute approaches benefit-sharing and its recognition of holders of traditional knowledge, a matter of particular importance given its primary involvement in bioprospecting in South Africa and the region. For the San, the potential injection of substantial amounts of money will bring risks, but also profound opportunities in the form of secure land ownership, increased political muscle, improved livelihoods and a wide suite of development options. For both parties, the agreement represents only the start of a longer-term bioprospecting collaboration based on the San's extensive knowledge of biodiversity. Getting it right has never been more important.

Source: UN Integrated Regional Information Networks, "Marginalised San Win Royalties from Diet Drug" Nairobi, 26 March 2003. <http://allafrica.com/stories/200303260557.html>
 Mariette le Roux, "San to get millions from unique plants" SAPA, 24 March 2003. <http://iafrica.com/news/sa/222007.html>

c) *The debate on access and benefit-sharing*⁷

According to Laird and Wynberg (2003), for much of human history, genetic resources⁸ have moved around the world, passed between traders and been provided as gifts. Most of our crops are now grown in regions far from the plant's origin. Although germplasm of valuable species has long been smuggled to and from different parts of the world, until recently there did not exist formal international recognition of the rights of countries, or indigenous peoples holding traditional knowledge about useful species, to control and benefit from their genetic resources. According to Mugabe *et al.* (1997), despite the economic significance of these resources, the countries, communities and individuals providing either genetic resources or the traditional knowledge about the use of those resources have typically received little, if any, benefits. Mbeva (2004) and Mugabe *et al.* (1997) maintain that local and indigenous communities who, in many cases, are the custodians of much of the wild and domesticated biodiversity (including the farmers who have developed new varieties of genetic resources through their own in-village or on-farm breeding and plant selection), rarely receive a fair share of the benefits derived from this expanding commercial and industrial use.

When new plant varieties are genetically engineered through biotechnological processes, often in the North, this process does not start from scratch. Rather it builds upon the accumulated traditional knowledge innovations and practices of local and indigenous peoples passed on from generation to generation. Biotechnology companies claim "inventive step/s" that constitutes their genetically engineered organisms or new pharmaceuticals. It can be argued that in reality, they are fine-tuning and modifying plants that were developed by African traditional rural farmers and improved by the more recent contributions of institutional breeders. Therefore to claim exclusive monopoly control of these plants, genes or traits is unjust and immoral.

The issue of access to genetic resources, benefit-sharing and biotechnology are of great significance to the maintenance and use of traditional knowledge. The inequitable sharing of benefits arising from the use of genetic resources and the associated traditional knowledge undermines efforts to conserve biological diversity and ensure sustainable use of its components. If the local custodians, in the context of this paper the African people obtained equitable benefits from the use of their genetic resources and their associated traditional knowledge, they would have greater incentive to help ensure its conservation.

⁷ The issue of access and benefit-sharing is now receiving a high priority within the CBD. Despite its relevance to traditional knowledge, innovations and practices of local and indigenous communities the two issues are being addressed in two separate forums within the CBD. An international regime for access to genetic resources and the related benefit-sharing is now being negotiated within the CBD. If this process is carried out successfully it will have potential positive ramifications for the survival of traditional knowledge related to biodiversity conservation.

⁸ The CBD defines "genetic resources" as genetic material of actual or potential value and "genetic material" as any material of plant, animal, microbial or other origin containing functional units of heredity.

CHAPTER 4

CHARACTERISTICS OF TRADITIONAL KNOWLEDGE

-To understand the barriers to the use of traditional knowledge and resulting loss of biodiversity related traditional knowledge, it is important to consider the characteristics of traditional knowledge and the way in which traditional knowledge in Africa is transmitted from generation to generation-

It is important to consider the characteristic and other aspects of traditional knowledge to understand the barriers to the use and application of traditional knowledge, innovations and practices of local and indigenous communities in Africa. According to Ekpere (2004) any attempt to understand traditional knowledge must recognize its:

- Holistic nature;
- Mode of transmission;
- Communal ownership and collective intellectual property construct (it is important to note that communal ownership does not always apply e.g. to some traditional medicines;
- Responsibility and custodianship to ensure true conservation and effective transfer from one generation to another; and
- Non-fixation in time frame.

Ruddle (1993, 1994a; 1994c) gives a very comprehensive overview of the common characteristics and design principles of local coastal marine knowledge systems. Although, these are the characteristics for coastal marine local knowledge, they may be applied to local knowledge across the world and therefore are also of relevance to traditional knowledge systems of African communities. According to Ruddle (2001) the principle characteristics of traditional knowledge systems are:

1. They are based on long-term, empirical, local observation, adapted specifically to local conditions, embracing local variation, and are often extremely detailed;
2. They are practical and behavior-oriented, focusing on important resource types and species;
3. They are structured, which makes them somewhat compatible with Western biological and ecological concepts through a clear awareness of ecological links and notions of resource conservation. However, indigenous logic is essentially inductive, with conclusions based on

many prior observations and hypotheses not always verified or refuted by systematic observation. Theory is developed by producing new *post hoc* explanations or by dropping current explanations; and

4. They are dynamic systems capable of incorporating awareness of ecological perturbations and of merging this awareness with an indigenous core of knowledge.

More specifically, the admittedly often fragmented and cursory data on subsistence-level societies throughout the world yield remarkably consistent generalizations about certain structural and process characteristics of local knowledge systems (Ruddle, 2001, Simpson, 1997, Gupta, 2003).

These include:

1. There exist specific age divisions for task training in economic activities;
2. Different tasks are taught by adults in a similar and systematic manner;
3. Within a particular task individual skills are taught in a sequence ranging from simple to complex;
4. Tasks are age and gender specific and are taught by members of the appropriate sex;
5. Tasks are site specific and are taught in the types of locations where they are to be performed;
6. Fixed periods are specifically set aside for teaching;
7. Tasks are taught by particular kinsfolk, usually one of the learners' parents; and
8. A form of reward or punishment is associated with certain tasks or task complexes.

a) Transmission of traditional knowledge

To understand the barriers to the use of traditional knowledge and resulting loss of biodiversity related traditional knowledge, it is important to consider the way in which traditional knowledge in Africa is transmitted from generation to generation.

It is most regrettable that the African tradition lacks early written records such as those found in China, India and other countries. In Africa, valuable information is transmitted from generation to generation, usually within the same family, through the oral tradition, a practice that holds the inherent danger of loss or distortion of critical information (Makhubu, 1998). Despite this constraint African knowledge of biodiversity has survived through the ages.

Elders especially grandmothers and anties transmitted the knowledge to the children through songs, riddles, stories, and poems. Girl child had extra education by learning to collect and gather in the wild accompanied by the older women, Boys accompanied the men and had the opportunity to learn a great deal as they went to the wild. To date in most parts of Africa indigenous communities are rich in the knowledge they have carried on for centuries from these elders.

Children are educated in traditional food procurement tasks via an informal system which is sequential, additive and follows a structured curriculum (Ruddle and Chesterfield, 1977; Ruddle, 1993). Emphasis is placed on learning by doing, through repeated practice over time rather than by simple observation and replication.

One can assume that the sons of fathers who excel in a particular art or craft should also excel in that field. Occupational identity and skill can be accounted for and reinforced by the actions of those who went before. The transmission and possession of knowledge and skills in Africa is thus not simply a question of learning but also has the vital element of membership of a community (Simpson, 1997). Today one can argue that in African society there are fewer adults who possess the skills that need to be

passed on, at the same time, the move among young people away from hereditary activities is more pronounced not only in the African region but also elsewhere in other regions.

Simpson (1997) maintains that the process of knowledge transmission can be better understood if it is envisaged that the knowledge and skills transmitted are a kind of property: an incorporeal property (Lowie⁹ 1921 cited by Simpson, 1997). Knowledge as a form of property is crucial in establishing its owners' identities and maintaining social relationships within the community. Knowledge and skills can thus be used as conventional property. For example those who are particularly rich in traditional knowledge and skills, e.g. traditional healers in Africa, use them as a means of livelihood. Parents have therefore to decide who of their children will inherit their knowledge. It is important to find heirs worthy of their teachers as traditional knowledge could easily be lost when over-retentive teachers die (Simpson, 1997).

One of the main reasons why certain aspects of traditional knowledge in Africa are not being transmitted is that Elders may not want to subject their children to the ridicule and prejudice that they had suffered in their professional lives. Children may be consciously diverted away from interest in the occupations of their forebears because these activities may be seen as a source of shame by some of the community members e.g. for reasons of modern religion.

It may also be seen as a protection of their children from humiliation in ways which suggests a loss of confidence in, or at the very least a questioning of, the validity of the professions associated with traditional knowledge, innovations and practices of communities (Simpson, 1997). It can also be argued that new technologies of communication have penetrated the social and geographic margins of rural African societies. Television and other mass media have given many villagers ready access to stereotyped images of traditional rural society and provide a powerful basis for conformity perceptions. To engage in activities that require traditional knowledge and skills in the present may lead one to be identified with popular constructions of the past that might well risk ridicule and shame. Consequently, Elders may judge it better to encourage their children to rather acquire formal education and not traditional knowledge and skills. In effect, this amounts to the next generation having to take their chances in a world increasingly structured by the vagaries of capitalism and the market, rather than remain fixed in traditional roles and activities based on traditional knowledge, innovations and practices.

Simpson (1997) maintains that another process that lead to the decrease in transmission of knowledge may be found in the attitude of the teachers to their constituency of potential pupils. One of the reasons why traditional knowledge, innovations and practices are not being passed on is the lack of appropriate candidates to receive such knowledge. Young men may be seen as not worthy of their teachers and of the knowledge they wished to impart. The young members of African communities may refuse the discipline and dedication required to serve an apprenticeship of the kind that the Elders have undergone. Today's young people also may not have gone through the rites of passage that further strengthen the relationship of the person with his environment, community, ancestors and the ways of old. Of course young people may also blame the Elders as over-retentive in some instances and motivated by jealousy and therefore more concerned with maintaining their own status as respected healers in the community than sharing their knowledge.

In Africa, the prejudice against Western education is no longer there. Many governments, in line with international pressures and internationally agreed targets such as the Millennium Development Goals, have targets for seeing all children go through the formal education systems and today heavily promote formal education systems.

⁹ It is remarkable that Lowie had this notion already in 1920's.

A few decades ago school attendance in Africa, within rural communities, was expected, but it came second to the needs of the informal system of teaching through apprenticeship. Children were taken out of schools as they grew older to participate in the traditional life of the community where they learned the skills and knowledge of the old ways, which were essential for survival in rural Africa.

Whereas the community was once a major educational resource for children, the growth of formal education systems across the African region has led to de-skilling of the African child from the knowledge of his forebears. Thus knowledge is passed on less and less in the context of personal relationships active in a total environment of day to day interaction with the natural environment and activities necessary for survival. Education is now increasingly located in specialized institutions in which the transmission and impartation of knowledge is impersonal and disembodied from context and were the “traditional African professor” and “African scientist” the village Elder, traditional healer and other knowledgeable community members have no place and perhaps will simply be ridiculed despite the richness and wealth of the knowledge they possess.

Another important factor linked to the transmission of traditional knowledge is language. Language is one of the key tools for transmitting knowledge. A major problem that African indigenous and local communities are facing is the alarming rate at which languages are disappearing. This is being caused by assimilation to other tribes and communities as most of the minority indigenous tribes are discriminated and prefer to remain hidden in other larger Indigenous communities they live with. Encroachment to their lands causing conflict, displacement and rural urban migration due to poor services and unemployment in the rural areas had had its share for the loss of indigenous languages. [If you lose your land you lose your identity and the language goes easily with the identity.](#)

b) The functions of traditional knowledge in Africa

i. Social role of Traditional Knowledge in Africa

According to Ruddle (2001) traditional knowledge assumes a pivotal role in any community: integration. Its institutional order is understandable only in terms of the ‘knowledge’ that its members have and share. Such knowledge underlies institutionalized conduct and defines its areas, as well as both defines and constructs the roles played by individuals in the context of institutions. By definition then it also controls and predicts all conduct by the operators of a resource system.

Role analysis is thus of paramount importance in the understanding of traditional knowledge and resource management. It is the main means of understanding the dynamic linkages among sectors of a society and of the ways in which a collective worldview becomes manifested in the consciousness of individuals, like traditional healers, through their regular performance of healing activities. Immediately relevant to traditional knowledge is the role that its performance mediates in appropriate parts of the overall stock of common or basic knowledge (Ruddle, 2001 and Gupta, 2003). To be a traditional healer naturally demands a firm grasp of the arcane knowledge of traditional healing. At the same time it also requires an equally firm understanding of the general knowledge of any given society regarding how a traditional healer should ‘be’ and behave within that society. Thus traditional knowledge is stratified into branches directly relevant to specific roles; and general local social knowledge.

The Elders have a role to play, even in old age, within the community. This role is, amongst others, defined by the knowledge they have over natural resources and other aspects of their community. Young children are thus exposed to their Elders (grandparents) from a very young age and even up to the stage of being young adults in the community. Through this exposure to the Elders they learn valuable knowledge and skills about everyday life in the community but also specialized knowledge about resource use, management and conservation. The break up of the extended family to the nuclear family becomes a major barrier to the transmission of traditional knowledge.

Another role of traditional knowledge is its conservation role. Through instructions by means of traditional knowledge, children learn about taboos in the village. Some of these taboos pertain to the use of natural resources. Such taboos contribute to the maintenance and conservation of such resources. When these traditional taboos disappear so does the protection of the related resources. It can thus be argued that traditional knowledge also plays an institutional function in that it provides rules coded in rituals and/or other cultural and social sanctions (Gupta, 2003).

ii. Modern Practical Usefulness

Although it would seem an obvious thing to do, traditional knowledge of resource management and environments in Africa is rarely used to assist the design of development projects or management systems. Although the tendency to disparagement has changed interrelated economic, ideological, and institutional factors are still combined to perpetuate the marginalization and neglect of traditional knowledge and, therefore of participatory approaches to development and management (Ruddle, 1994b).

It is only recently that the denigration of traditional knowledge in Africa as backward, inefficient, inferior, and founded on myth and ignorance has begun to change. This is due to the evidence from numerous studies across the world that traditional knowledge often has rational bases. This means that many such practices represent logical, sophisticated and often still-evolving adaptations to risk, based on generations of empirical observations that are radically different from those prevailing in Western scientific circles, and hence all but incomprehensible to them (Ruddle, 2001).

As a backlash to decades of denigration, there has been a tendency by some researchers to idealize, romanticize and attribute superior capacities to indigenous communities. This also is unhelpful, misleading and inappropriate. The types, sophistication and distribution of local knowledge throughout the tropics are immensely varied, as are the capacities of individuals within societies to both comprehend and utilize their own group's knowledge base (Ruddle, 2001).

Further, historically, once well-adapted and effective knowledge quickly becomes inappropriate when external factors cause massive and rapid changes in the local social, biological or physical environments. This may have implications for local and indigenous communities in terms of e.g. adapting to climate change and global environmental change. Southern Africa for example is inherently dry and therefore people may not have adapted to wet conditions which may constitute a challenge should the region become wetter due to global climate change.

iii. Political Issues: Traditional Knowledge and Empowerment

It has to be understood that the African political reality has an impact on the use of traditional knowledge. This is because traditional knowledge can be understood as a system of power, and thus can provide a basis for the empowerment of African rural communities to undertake community-based resource management.

The issue that may be regarded as highly political is the claim by indigenous and local communities to the right to control and manage their heritage, knowledge and biodiversity which is based on their inherent right to self-determination (Box 7 takes a closer look at the concept of self-determination). Generally governments are not pleased with this claim; this may be a very powerful barrier to the perpetuation of traditional knowledge systems in Africa. However, indigenous and local communities further believe that the success of their struggle to have their right to self-determination and to their territories, ancestral lands and resources recognized will ensure the perpetuation, safeguarding, protection and further development of their heritage (Tauli-Corpuz, 2003). There is a need to caution though that the request or demand for self-determination may result in indigenous people being discriminated against. They may for example be alienated from mainstream national development e.g. access to the national education system and other development opportunities.

The dismemberment of their rights and the way that their heritage has been broken up, folklorised and wrenched away from their territories, ancestral lands and resources to which it was intrinsically linked, is a major threat to its continuing existence not only in the African region but also in other parts of the world. Therefore, according to Tauli-Corpuz, 2003, the seamless relationship of the rights of local and indigenous communities to their heritage of their economic, social, cultural, civil and political rights and the indivisibility of all these rights must be acknowledged and mechanisms should be put into place to protect these rights as an integrated whole.

Management involving government personnel and local people working together helps strike a balance between the formers' desire for self-determination and the latter's need for assurance that renewable natural resources are well managed (Ruddle, 2001).

Box 7:. A closer look at the concept of self-determination

A closer look at the concept of self-determination

Self determination includes the right of indigenous Peoples to their cultural heritage:

“Heritage is everything that belongs to the distinct identity of a people and which is theirs to share; if they wish, with other peoples. It includes all of those things which international law regards as the creative production of human thought and craftsmanship, such as songs, stories, scientific knowledge and artwork. It also includes inheritances from the past and from nature, such as human remains, the natural features of the landscape, and naturally-occurring species of plants and animals with which a people have long been connected” (Daes, cited by Simpson,1997:20).

iv. Gender issues in traditional knowledge

Traditional knowledge is ‘engendered’ (Warren, 1988:10). This is also true for Africa as elsewhere because men and women usually have different and often complementary economically productive roles, different resource bases, and face different sets of social constraints. Both consideration of logical structures of total systems of local knowledge and an awareness of gender and age roles in rural society makes it self-evident that gender considerations are important in understanding local knowledge in communities that use natural resources.

Because gender roles are so different in these traditional societies, the traditional knowledge that each gender holds is unique and in some ways independent of the other. In fact, it has been found that cultural awareness of men's traditional knowledge is actually declining in Kenya, whereas women's is in fact growing, in addition to their wealth of knowledge involving food, culture, medicine, health and craft, in some areas they are accumulating part of the dissipating male traditional knowledge about natural resources (Rocheleau 37). This is perhaps a positive indicator of slowly changing gender roles within the traditional social fabric. In itself, this also proves that these cultures are not static, but move with time as all cultures do, and are able to absorb and adapt to outside forces, without losing the essence of what is of value in their culture.

Women gather firewood and other bush products for food, medicine, paint and house-building. It is in their best interests to keep that supply sustainable. Because women rely on diverse biological resources to provide food and income for their families, they are reservoirs of indigenous knowledge, on where useful species are found, and how they should be used. Indigenous Women make extensive use of wild patches and

marginal areas where they gather traditional vegetables, condiments and medicinal plants that are crucial for the nutrition health for the families and communities in general. (Mulenkei 1998) Over 800 species of edible wild plants have been catalogued across the Sahel alone (Mulenkei, 2005 pers.comm.). Climate change is both a cause and a consequence of this, and thus a vicious cycle is created. Women are aware of the changing environment and in some instances have been able to harness alternative sources of energy or put in place effective and sustainable measures to halt or reverse these trends through reforestation.

There are at least four main types of gender differences in local knowledge systems (Norem *et al.*, 1989).

1. Different knowledge about similar things;
2. Knowledge of different things;
3. Different ways of organizing knowledge; and
4. Different ways of preserving and transmitting knowledge

Some bodies of knowledge may have complementary male and female components.

That there have been few studies of women's traditional knowledge in Africa and other regions is a consequence of deeply entrenched stereotypes held by men of women, which have inhibited both understanding and practical application of women's knowledge of resources and environments (Ruddle, 2001). Thus over much of the world, regardless of their major and often dominant contribution to household economies, women are perceived as having few or any economic roles. As a result, centrally-based resource managers and development practitioners are usually either totally unaware of it, or are unwilling to countenance the empowerment of women that would result from the application of their knowledge in development projects and resource management. The consequence of this for the formulation of 'development' and 'assistance' projects is often disastrous (Nauen, 1989). The transfer of traditional knowledge held by women is also an important issue to consider in African society as children spend a long time with their mothers. During this time children learn from their mothers about the environment, plants, animals as well as other aspects of the social norms of the particular society. As children spend more and more time away from their mothers due to formal schooling and the day care systems that have been introduced in some villages, this transmission of knowledge may no longer take place.

v. **Continuity and adaptation of traditional knowledge**

Through contact with the greater society beyond a small community traditional knowledge can become delegitimised and lost entirely. This can have either beneficial or detrimental results, depending on context and perspective, or contact can result in the hybridizing of local knowledge with extra-local elements.

The reaction of individuals to new external knowledge varies considerably. In Costa Rica, for example, Thrupp (1988) found five overlapping categories of responses among rural people. Although these responses are from rural communities in Costa Rica, they are also relevant to the context of the African region and are listed as:

1. Increased pride in their local knowledge and methods;
2. Openly-expressed rejection of Western innovations and related knowledge as disruptive of local knowledge and resource management;
3. Skepticism of introductions but hesitancy to express it;
4. Embarrassment and shame regarding their local knowledge and techniques; and
5. Idolization of the introduction and concomitant rejection of local knowledge and techniques.

It is worth noting that, as many of the African people start to realize the value of the African traditional knowledge, innovations and practices (not only that which relates to biodiversity but the entire plethora of knowledge systems), Africans are starting to take pride in their heritage. Africans are starting to demand

protection of their knowledge systems; Africans are becoming skeptical of the intentions of ethno-botanical research. Africans are starting to shake off the blanket of shame that has been created by western religion and ideologies with regard to the practices of traditional ways; the African traditional healer is starting to take his rightful place besides the Western trained healer. This realization will be a powerful tool in overcoming the barriers to the use and application of traditional knowledge.

CHAPTER 5

BARRIERS¹⁰ TO CONTINUATION OF THE USE OF TRADITIONAL KNOWLEDGE, INNOVATIONS AND PRACTICES OF LOCAL AND INDIGENOUS COMMUNITIES IN AFRICA

- Knowledge erosion is a threat as serious as resource erosion itself. The reasons are obvious. If there is no knowledge about given resources, plants become weeds. (Gupta, 2003) -

1. The barriers

Throughout the various regions of the world that have local and indigenous communities that maintain traditional community-based resource management systems as well as the knowledge systems that sustained them, these are increasingly affected by external factors that cause stress and often lead to radical change in systems, including their demise.

There is nothing new about this, except that the intensity of impacts and diversity of their sources has increased in recent decades. Contemporary systems exist under environmental, social, ecological, political, and demographic circumstances that are often very different from those of even the recent past. Nowadays such systems are swept-up in the global processes of modernization (Ruddle, 2001).

Among all the principal, all-pervasive external forces are the legacy of colonialism, contemporary government policy and legal change, the replacement of traditional local authorities, demographic change, urbanization, changes in education systems, modernization and economic development, commercialization and commoditization of living resources, technological change, the policies of external assistance agencies and national policies for economic sectors (Ruddle, 1994, Gupta, 2003). Such external forces rarely act in isolation, but rather as a mutually reinforcing and potentially destructive complex. These forces are forcing the world to adopt the dominant western culture to the detriment of the traditional ways and multiculturalism, Box 8 present an indigenous view on multiculturalism.

Box 8: Multiculturalism: its importance (NGLS, 2002)

“Multiculturalism is a great wealth for all of us. Our voice must be heard in all areas that affect us, especially regarding education, health, development, security and respect for our human rights. The precarious situation, the vulnerability of many indigenous peoples, is directly linked to policies of marginalization”

-Saoudata Aboubacrine, youth representative of the nomadic Tuareg people of northern Africa.-

Source: NGLS (2002): United Nations Permanent Forum on Indigenous Issues

¹⁰ (measures and process that threaten the promotion, protection, use and retention of TK)

In order to avoid repetition in this section given the fact that many of the national and local process that may threaten the maintenance, preservation and application of traditional knowledge may function at both levels and also at the regional and international levels Table 2. present the threats or processes discussed in this paper and indicates the different levels at which the may function. These processes are then discussed in more detail in the sections that follow.

Table 2:. Levels at which the barriers (measures and process that threaten the promotion, protection, use and retention of TK) may function

Measures and processes that serves as barriers to the transmission of traditional knowledge	Level at which the measures are having an impact			
	Local	National	Regional	International
Globalization	X	X	X	X
Changes in education systems	X	X		
Changing family structure	X	X		
Loss of language	X	X		
Rural/Urban migration	X	X		
Religion	X	X	X	
Deforestation and habitat loss	X	X		
Transboundary issues	X	X	X	
Climate change	X	X	X	X
Tourism	X	X	X	X
Conflict/war	X	X	X	X
Food aid	X	X		X
The use of new technologies in Africa	X	X	X	X
Lack of Constitutional and legislative recognition of indigenous people	X	X	X	
Lack of formal recognition of the value and contribution of TK	X	X	X	X
Spatial scale of TK	X	X	X	
Livelihood security and TK	X	X		
Distance from the city	X			
The use of databases	X	X	X	X
Land and resource tenure	X	X		
Impact of economic issues	X	X	X	X
Livelihood and Poverty	X	X	X	
Population growth	X	X	X	X

a) Globalization

Globalization has increased contacts among peoples and their values, ideas and ways of life in unprecedented ways (Fukuda-Parr *et al.*, 2004) People are traveling more frequently and more widely. One of the main tools of globalization the television and mobile phones now reaches some families in the deepest rural areas of Africa. Today the digital divide has become narrower with the advent of the world wide web, though we must say that among the indigensou Peoples in Africa this has not been productive yet. For many people this new diversity is exciting, even empowering, but for some it is disquieting and

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disempowering especially indigenous communities. Indigenous Communities do not understand the concept of Globalization where it is understood it is seen as an enemy that has opened door for encroachment of their resources and created more problems such as mining, displacement conflict and especially poverty. Globalization has impacted on indigenous communities in numerous ways: their values are being eroded and lost as growing numbers of immigrants bring in new customs, international trade and modern communications media invade every corner of the world, displacing local culture and traditional knowledge systems (Fukuda-Parr *et al*, 2004). It seems as if cultural homogenization will be the order of the day with diverse national and indigenous cultures having to give way to a world dominated by Western values and symbols. Technological advances make travel and communication easier, faster and cheaper.

Globalization has accelerated the flows of investment that profoundly affect the livelihood of many African Indigenous Peoples. For example, investment in mining exploration and developments in Africa doubled between 1990 and 1997 (Fukuda-Parr *et al*, 2004). Because so many of the world's untapped natural resources are located in indigenous people's lands, the global spread of investments in mining and the survival of indigenous peoples are inextricably linked. These trends have increased pressure on indigenous people's territories and lands, resulting in forcible displacement in some African countries such as DRC, Rwanda and Ghana. Globalization has also heightened demand for knowledge as an economic resource. It is therefore not surprising that indigenous peoples see globalization as a threat to their cultural identities, their control over their territories and lands and their centuries-old traditions of knowledge and artistic expression (Fukuda-Parr *et al*, 2004). They fear that globalization will be a key factor in the lack of recognition of the cultural significance of their territories and lands or that they will receive inadequate compensation for these cultural assets.

African peoples have strong spiritual connections to their lands, which is why some indigenous communities oppose any investment in extractive industries within their territories. For instance, some groups of the San in Southern Africa, Botswana oppose the exploration licenses that the government has granted to Kalahari Diamonds Ltd.

Finally another result of globalization in Africa is that many people are caught between the traditional and modern society. In some cases people have difficulty in coping with the demands and the obligations of the receding traditional society and the demands and expectations of the emerging modern society. This creates a situation of divided loyalties. Many people find it difficult to continue to identify with village life and at the same time become members of modern institutions. These interactions, between tides of modern changes as a result of globalization and the ancient customs, pose a challenge for some members of indigenous and local communities in Africa.

b) Changes in Education Systems

Education plays a crucial role in imparting knowledge and skills. The introduction of Western-based educational curricula and formal schooling has had a massive impact on the local knowledge that underpins traditional community based management (Simpson 1997, and Ruddle, 2001). The education systems do not create curiosity and an experimental ethic, instead they reinforce a culture of compliance and conformity (Gupta, 2003). The elite in African societies have been educated in major urban centers and sometimes overseas. They frequently have a greatly diminished respect for traditional systems, which are thus generally neglected and also commonly disparaged by rapidly modernizing traditional communities. Owing largely to disparagement, the usefulness of local knowledge is now neither properly acknowledged nor used to assist the design of development projects or management systems. The tendency to disparage local knowledge is not new, although the reasons for disparagement have changed. Linked to this is also the science and technology establishment which does not encourage local traditions even if they are functional and viable, whether in the past or in the present (Gupta, 2003). This situation has led to what Ruddle (2001) has called the "bias of elite professionalism".

i. The “bias of elite professionalism”

Perpetuation of the marginalization of local knowledge according to Ruddle (2001) is:

1. The ‘bias of elite professionalism’ as a result of which local knowledge lacks legitimacy in mainstream thought that regards objective Western science as superior. Western-trained scientists generally reject local knowledge which they either cannot or will not understand, which does not fit into their formal models, and which challenges conventional theories. Local knowledge is still widely belittled, at best, and projects that attempt to make use of it are frequently viewed as unscientific and therefore unacceptable. Such attitudes remain deeply embedded both in individuals and institutions, such that persons wishing to pursue unconventional projects and research often face ridicule, and, occasionally, job-loss;
2. Related is the belief that empirical methodologies in laboratory settings are the only correct procedure of knowledge generation. This ‘top-down’ approach aims at uplifting rural societies via standardized technological transfer. Such an approach is upheld and promoted by the organization and incentive structure of research institutions and professions, and the extension services that implement their findings. Former weaknesses in participatory development reinforced the conventional skepticism of individual scientists, institutions and donor agencies. This was compounded by the difficulty of showing, using conventional criteria, quantifiable results to demonstrate ‘successes’ and cost-effectiveness in participatory approaches. Innovative approaches are thereby dissuaded;
3. The private sector invariably reinforces that approach, since its continuing profits are predicated on the transfer of technology; and
4. Promotion of local knowledge and participatory development is viewed by some central governments as organizing the rural poor, and therefore subversive. (I do not agree to this)

The whole issue of universal formal education needs to be radically reconsidered in Africa. Governments with a generally benevolent approach to their citizens are not aware that their enforced educational systems create havoc in intergenerational relations of indigenous peoples (Crawhall, 2005). It is not that Indigenous Africans do not want to learn to read and write; it is rather that they want formal schooling to be an additive process, not one that undermines their food sources, knowledge sources, and social relations. Expert hunters, trackers, herders, healers, fisherfolk are cast as ignorant and uneducated by rural schoolteachers and local government (Crawhall, 2005). Even countries as sophisticated as Canada or Norway have not managed to tap the rich intellectual and scientific heritage of their first peoples to enhance public education. The two systems seem to stand in conflict with each other. In the end, these are issues about power and privilege that need reflection and dialogue (Crawhall, 2005).

It should be noted however that at the same time diversity of traditions and culture is now taken as a source of economic income as it attracts tourism in the country this is very clear in countries like the East Africa where a good example like Kenya have developed a cultural policy to promote and recognize the cultures and traditions of the Nation. If you have to sell Kenya you can only succeed by showing a picture of a traditional Indigenous Person or peoples whom many times are the Maasai and their beautiful ornaments.

c) The Changing Family Structure

Africa is also seeing a change in family structure from extended family to nuclear families, consequently weakening links between the grandparents’ generation (which holds much of the knowledge) and the grandchildren’s generation (the parents’ generation is alienated from these knowledge systems already, due to the heavy influence of modernity). HIV/AIDS in Africa is also having a significant impact on the African family structure in that it has increased the number of orphans in villages and urban centres and has left many families in the hands of the Elders. The young and middle aged members of many villages have been taken away by HIV/AIDS.

Lesser esteem for this knowledge in primary school curricula, the transition from oral to written culture, and the inability or unwillingness of many older healers and herbalists to share their knowledge or agree to transcription, or to transcribe it themselves are also observed. This unwillingness arises in many cases because outsiders (such as ethno-biologists) have extracted the local knowledge, commercialized it or published it without any attribution, reciprocity, or benefit-sharing and thus have offended local communities (Gupta, 2003).

d) The loss of language

“Any reduction of language diversity diminishes the adaptational strength of our species because it lowers the pool of knowledge from which we can draw (Bernard 1992:82;

Along with the loss of biodiversity and the erosion of traditional cultures, the world is currently undergoing a third extinction crisis: that of the diversity of human language (Maffi, 1999). The decline in linguistic diversity and cultural diversity coupled with the decline in biodiversity contributes to the loss of the traditional knowledge, innovations and practices (Gupta, 2003). It is very important to understand and to appreciate that different indigenous and local communities develop knowledge systems through a tradition of invention and also develop languages through which to articulate their knowledge. This loss in languages is also linked to the issue of formal education. In most African countries formal education is conducted in English or French. Box 9 illustrates the loss of language linked to education with regard to the case of the San in Botswana.

The use of local languages in African schools many times is restricted to the primary school years. As a result, today the younger generations are not able to articulate themselves fully in many of the local languages. Where language decline is in process, Elders who still speak their native language fluently may get upset at the imperfect learning of the younger generation, at their mixing the native language with the official language, and particularly at youngsters who use the native language to talk about non-native concepts. To make things even more difficult traditional knowledge does not translate easily into official languages. This has implications for the transmission of knowledge from the Elders to the younger generation. As languages disappear in Africa so to does the knowledge that is embedded in such languages. Consequently, such loss of language results in loss of biodiversity. If a language dies, a knowledge system partly or completely dies with it (Gupta, 2003). The conservation of languages becomes a crucial factor for conserving taxonomies because each word, conceptually speaking in the context of a natural resource, is a category (Gupta, 2003).

In North Africa, the policy of Arabisation has, since independence, been promoted by the Algerian and Moroccan governments. These policies have been considered by the Berber speaking population as a negation of their cultural and linguistic Imazighen identity. Arabic has been instituted as the official language of all Maghreb states and also as the language of the Muslim religion and of the Arab-Islamic culture. It is admitted that the Berber language (Tamazight) has been discriminated by the Arabisation policies. The key issue in North Africa is the use of Tamazight (the amazigh language) in primary schools (ACHPR, 2005). They still find that the Government is not giving enough attention and money to implement this. Therefore many Indigenous Communities have taken upon themselves to ensure that their language is taught in schools.

This situation applies equally to the Tuareg of Southern Algeria. In Tamanrasset and Tazrouk in Ahaggar, the last Tuareg language classes, using Tifinagh characters, are fast disappearing. A positive development in the region was the launch of a Tuareg section within the national Amazigh radio channel broadcasting from Algiers (Radio Tassil in Illizi and Radio Ahaggr in Tamanrasset). (The Indigenous World 2005-428,429)

In Morocco, since 2002 the Royal Institute for the Amazigh Culture, the Amazigh cultural Movements, has continued to struggle against the policy of containment adopted by the Moroccan government in relation to cultural identity of Indigenous Peoples. A positive development in for the Amazigh in Morocco has been that after 40 years of banning and harassment of the Amazigh people by the Arab dominated government, the young King, His Majesty Mohammed IV, has unbanned the Amazigh language and introduced it into schools. The Amazigh movement continues to actively lobby for other aspects of indigenous rights in that country (Crawhall, 2005).

Another issue of serious concern to the Berbers has been the prohibition of giving their children Amazigh names, which threatened the very identity of Amazigh people. The Amazigh movement protested heavily against this, and positive changes have now occurred. Thus, the registry system has now been changed to allow for the registration of Amazigh names (ACHPR, 2005).

Constitutional Protection of Amazigh identity and rights are essential to the existence of the Amazigh people and their struggle against adverse policies.

It is important to recognize the inextricable link between biodiversity and cultural diversity and at the same time the close interdependence of linguistic, cultural and biological diversity. It thus follows that the diversity of languages and culture may share much of the same nature, and serves much of the same functions, as the diversity of natural kinds in ensuring the perpetuation of life on earth (Maffi, 1999). On this basis it can be argued that the preservation of the African indigenous language diversity, and of the distinct forms of traditional knowledge that African indigenous and minority languages encode, must be incorporated as an essential goal in bio-culturally-oriented diversity conservation programmes in Africa.

Box 9: Education and the loss of language: The case of the San/Basarwa in Botswana adapted from ACHPR (2005)

Education and the loss of language: The case of the San/Basarwa in Botswana

In Botswana the language of the San/Basarwa people has not been integrated into the education systems. The effect of this is that San/Basarwa children are taught in language (Setswana) that is alien to them. The children are moved to schools with hostels in which the children stay. This makes it difficult for the children to effectively learn their mother tongue and also to learn the ways of their people given the long absence away from the village while attending school. The education system has been blamed for making the San/Basarwa children into 'the children of the government'. Though the Botswana government provides basic schooling for these San children it is done in a way that is not sensitive to their culture and way of living.

e) Movement of people from rural to urban areas

Africa has the highest rate of urbanization in the world. Many people in the rural areas of Africa hope to have better lives in urban centers and move to these areas in search of employment, formal education, and other opportunities not found in rural areas. Many of these migrants are young men and women from villages. They bring with them knowledge gained in the village which can be seen as crucial for making a livelihood in the village. This knowledge becomes obsolete in urban areas. For instance young men would have learned as boys which tubers, gums, fruits, fungi, insect and animals to eat and which to avoid, as well as where to find water, honey and so forth. In urban centers, this knowledge is no longer needed because these commodities have been replaced by other products readily available from shelves in shops. The knowledge that can still prevail and be used within urban environments is that of the African traditional healer because this knowledge remains valuable in both settings i.e. the urban centres and the village. Today this is even truer given the challenge of HIV/AIDS and its consequent opportunistic diseases.

Traditional knowledge systems are “active” and depend upon use to be maintained. The lack of appropriate nutrition is another important issue that is linked to the health of those who leave rural areas for a life in the urban centers. Traditional foods available in the villages often have a combination of necessary nutrients¹¹ for a healthy body. In urban centers these foods may not be readily available and the people may have to rely on new foodstuffs that may not necessarily have all the necessary nutrients. The problem is more a lack of knowledge on what novel foodstuffs contain and an inability to afford healthy modern food as opposed to convenience food. This has resulted in an increase of disease in Africa especially that of diabetes and obesity, as well as implications for people living with HIV/AIDS.

It has to be noted though that the issue of health is not linked only to the rural urban migration. Many of the pastoralists in East Africa and the Horn of Africa have very limited access to health facilities and their health situation is thus precarious. This is for instance, the case with the Turkana and other pastoralists groups living in the poor and remote areas of northern Kenya. The rural urban migration has great threat to the Indiegnsou Languages and disrupts the cultures. Most of the young men and women when they move to the urban marry from other communities threatening to be assimilated and therefore the disappearance of the original traditional language.

In North Africa, the Berber people live overwhelmingly in rural areas, and rural areas have the worst socio-economic situation. Current development cooperation policy involves numerous activities, which should potentially benefit Indigenous Peoples. According to ACHPR (2005), however, if one examines project reports on Morocco and Algeria, there is no reference to Berber speakers at all.

f) Religion

(Modern- Western) Religion has been one of the main drivers of destroying traditional knowledge, innovations and practices of local and indigenous communities not only in Africa but all over the world in areas that were colonized.

In some places in Africa, the loss of traditional knowledge, innovations and practices of local and indigenous communities can be attributable to the many decades of strong missionary influence that has eroded the local knowledge base through the concept of an omnipotent and omniscient but inscrutable God.

This process has been exacerbated by the misunderstanding of missionaries of traditional religions and their practices especially if viewed from the Western perspective.

According to Ruddle (2001), in New Caledonia the processes of discrediting the ‘superstitions of primitive peoples’ has been going on for generations among European colonists, administrators, educators, and missionaries (Dahl, 1989, in Ruddle 2001). This process also took place in the African region and had devastating effects on African traditional knowledge systems.

Lambert (1900) put it well in writing “...It is sufficient to say: Pity our poor natives, may we appreciate and encourage the apostolic work, which is alone capable of dispelling such darkness”. Although such an attitude culminated with colonialism and social science of the nineteenth century (Warren, 1989), it was firmly rooted in the works of historians and natural scientists of the seventeenth and eighteenth centuries (Slikkerveer, T 1989 cited in Ruddle, 2001). Today this is no longer such a real threat as many people are losing faith in Western religion and are looking for alternatives. This is stimulating the interest for instance in African traditional psychology, philosophy, healing and spiritual knowledge.

g) Deforestation and habitat loss

¹¹ One has to recognize that in some cases this situation may not be true, especially when there is hunger and famine in the land resulting in a situation where the available foodstuff may not provide for all the daily bodily needs necessary for a healthy body.

Forests, woodlands and savannas have played and continue to play a critical role in Africa and in the lives of African communities. Today, Africa is a continent scarred by desertification¹² which has mainly been fueled by anthropogenic factors; of course climatic conditions may also contribute to desertification in Africa.

The loss in forest cover has many negative effects on forest biodiversity. It is also related to the loss of traditional knowledge of Africans who live in or near these forests.

Throughout Africa, non-timber forest products (NFTPs) including plants and bush meat are in daily use, commonly providing crucial resources for local livelihoods where no other social security is provided by the state. In a typical African country, where only one person in ten has a formal job, economically important plant species provide significant sources of informal income (Cunningham, 2004). Among the many resources obtained from African forests, such as bush meat, rattan and caterpillars, trees have been important for people living in rural Africa for hundreds of years. A single tree species can be the source of various products, sometimes with dozens of different uses. Some trees that grow on sacred sites or they and their products are used in ceremonies, or in innumerable other ways, are essential to the spiritual life of African people (Lopez and Shanley, 2004). The bounty obtained from trees has endless uses as wild fruits, nuts and bush meats are eaten, leaves are used for animal food, bark for medicine, and wood for manufacturing domestic and farm utensils (Lebbier *et al*, 1995). Another great gift of trees is the shade under which people can meet and rest. It is obvious that all these uses depend on the maintenance of the extensive body of knowledge that relates to forest biodiversity in Africa.

The reality however shows that forest communities many times are not included in forest management activities. According to the Centre for Environment and Development Yaounde, Cameroon (CED) and the Forest Peoples Programme (2005) documentation by FFO and partners with other Central African communities over the past four years reveals that indigenous and local communities are often marginalized from planning for forests they use. Between 1992 and 2004 the Dja Reserve was managed by ECOFAC (Ecosystèmes Forestier d’Afrique Centrale). Work in 2002 by FPP and CED showed that after 10 years local communities were still not involved in planning for the Dja Reserve, and had almost no role in the management of the park.

The effects on local and indigenous communities of this management approach were often very severe, and included aggressive persecution of communities by ecoguards for their subsistence hunting activities, even of non-protected species collected far outside the Reserve.

In Bengbis communities also suffered at the hands of government-authorized ecoguards. Baka in particular recount a number of incidents where they have been threatened, or had game and hunting equipment confiscated by ecoguards, without any compensation, or charge. Their testimony mirrors the experience of many other forest communities elsewhere in Cameroon. Box 10 presents the case of the Baka and their forest in Cameroon while Box 11 presents the case of the Bambuti and their forest in the DRC.

Box 10: The case of the Baka and their forests (CED and FPP (2005).)

Communities and Protected Areas in Cameroon: The case of the Baka and their forests.

The first phase of the case study was carried out with indigenous Baka hunter-gatherers and local Bulu, Maka, Kaka and Badjoué communities from 15 hamlets in Bengbis Arrondissement, located in the western reaches of the Dja Wildlife Reserve, Cameroon. The Dja Reserve comprises approximately 526,000 hectares in the middle of Cameroon’s forest zone. In 1987 it became a World Heritage Site, according therefore the highest level of protection under Cameroon law. It is a key component in a planned matrix of protected areas overlapping Cameroon, Gabon and the Republic of Congo.

¹² Desertification is defined as the loss of productivity of the land.

All local communities face restrictions against the use of forests lying within the park. Baka are particularly affected due to their reliance on hunting and gathering. In general in Cameroon Baka are considered to be the original inhabitants of many parts of the equatorial forest. They traditionally exist by hunting and gathering, live in small groups, and lead a semi-nomadic forest-based life. Their presence in Cameroon's forests is well-recorded and certainly pre-colonial. In many places where Baka live it is generally accepted by other local communities that their ancestors arrived to find Baka already there. There are up to 50,000 Baka in Cameroon's forest zone.

The effect of policies by colonial and post colonial administrations, road development, and immigration by sedentary communities gradually led Baka groups all over Cameroon to establish permanent camps and villages along roads, which for many have become the base for their productive activities as well as activities in surrounding forests. In addition to working other people's fields in exchange for food, goods and occasionally money, many Baka establish and cultivate their own fields to supplement their basic hunting and gathering diet. Baka language, culture and religion are strongly allied to the forest, which remains the basis of most household livelihoods.

Bengbis Baka share all these general characteristics. Around Bengbis Baka hunt and gather using traditional methods to nourish their families, and also to harvest game, fish and other forest produce to trade locally for basic necessities. Some Baka may occasionally hunt with guns, usually provided to them by others to supply meat, in exchange for money, or more often, alcohol and tobacco. Some of those loaning firearms to Baka are part of extensive bushmeat trading networks that operate around the Dja Reserve, and who are the main cause of commercial poaching.

Baka in all of the communities involved in the Bengbis case study maintain traplines in the forests, and there is evidence that they regulate their use according to traditional knowledge of animal breeding periods, and the sustainability of the resource. Community mobility is a major tool for sustainability, as communities move from place to place in search of tubers, nuts, honey, craft materials, herbs, fruit, fish and game. There are several distinct cultural traditions amongst local Baka that tend to prevent hunting of protected animals. However, some Baka also trap using steel wires, forbidden inside IUCN Class I protected areas such as the Dja. Bengbis Baka retain strong relationships with local sedentary communities on the basis of exchange or reciprocal aid, and through these many are trapped by debt or labour bondage. Literacy rates amongst Baka around Bengbis are negligible, and communities face strong social and political marginalisation. The cost of education, combined with their social marginalisation and poverty, prevents most from attaining even basic qualifications. Most Baka households continue to rely on traditional medicines from the forest, as access to formal health services is beyond their reach. They are a vulnerable population.

Source: CED and FPP (2005). Protecting and Encouraging Traditional Sustainable Use in Cameroon: Customary Use of Biological Resources by Local and Indigenous Peoples in Western Dja Reserve, Cameroon: Case study on Indigenous Peoples and Protected Areas

Box 11: The case of the Bambuti and their forest in the Democratic Republic of the Congo (Bideri and Hergum, 2004)

The Case of the Bambuti and their forest in the Democratic Republic of the Congo (Bideri and Hergum, 2004)

Many Bambuti in Congo are now living on the fringe of the forest where they or their parents used to hunt and gather. They are so close to the forest, in fact they can touch it with their hands, but entering it could lead to arrest, punishment or even death. They have lost their "birthrights".

- "What used to be my home has now become a park and I am not allowed to live there anymore"- This is the sentiment of many of them.

It is only now that modern forestry practices are yielding ground to the invaluable repository of knowledge available from African Indigenous Peoples. There is also a growing acknowledgement, albeit slow in coming, that they are forest custodians par excellence.

This should hardly cause surprise. Traditional management practices, by definition, have stood the test of time, embodying the knowledge of a particular ecosystem accumulated over several generations. Conservation of biological diversity can be significantly stepped up by fostering partnerships between local communities and state agencies to share the responsibilities and benefits of forest produce. Cases from different parts of the world suggest that such partnerships, when invoked in their true spirit, have worked well in conservation and reforestation efforts, wildlife management and timber production (Ambasta, 1999).

It must be noted however that success requires the empowerment of local institutions to enable them to negotiate and arrive at agreements as equals. For example the Cameroon government and Ecosystèmes Forestier d'Afrique Centrale (ECOFAC) promise to initiate a new management phase soon, using new funding to be secured from the European Union (CED and FPP, 2005). In order to comply with Cameroon law and the CBD the new management plan will have to consider all relevant aspects, including new information concerning the use by local communities of forest resources. Bengbis community maps will be used to promote meaningful participation by local and indigenous communities in proposed planning discussions through their direct input to park management discussions, and the government-approved management plans (CED and FPP, 2005).

h) Transboundary issues

In any discussions on traditional knowledge innovations and practices of local and indigenous communities in Africa, it is important to consider the impact of borders in Africa on this issue, i.e. the transboundary issue. It is first important to recognize that the national boundaries in Africa are man made, derived by non-Africans; they are arbitrary and do not respect African traditional pastoral systems or the migratory routes of the African fauna or the original boundaries of the African peoples.

As a result a lot of natural resources occur across boundaries and so does the knowledge that relates to their use and management. The key point is that boundaries cut across territories and language groups, dividing communities and people. Many communities in Africa were traditionally pastoral nomads or simply nomads and the introduction of the arbitrary boundaries had a negative effect on their knowledge systems. It can be argued that boundaries may have served as a disturbance in exchange and interchange of information. Boundaries further disturbed coherent landscape unity.

i) Climate Change

Rapid, anthropogenic climate change in Africa will have significant implications on the use of traditional knowledge, innovations and practices of African local and indigenous communities. Already in sub-Saharan Africa the Indigenous Communities from Nomadic Pastoralist who mainly live in the semiarid lands, have started experiencing frequent droughts which come too frequent destroying vegetation and livestock and to a large extent the most valuable members of the communities some of them like the old who are holders of that traditional knowledge. Climate change projections indicate that some areas of Africa may become drier where as others may become wetter. This may result in some indigenous knowledge becoming irrelevant as the climate continues to change. It is therefore important that adaptation and mitigation measures for climate change take into consideration traditional knowledge, innovations and practices of African communities. The key aspect here is the pace of change – can traditional systems based mainly on trial, observation and institutionalization of rules keep up with the pace of change?

j) Tourism

For many countries in Africa, their biological wealth constitutes one of their greatest assets in terms of national income. Since the income from tourism is much higher than what rural people can earn from other sectors such as agriculture, tourism has been accepted willingly in many rural areas of Africa in

spite of its negative effects. Tourists from other regions pay significant amounts to come and enjoy the wealth of fauna and flora as well as the unique African landscapes, environments and cultures.

Poorly planned tourism can mean that villages are invaded by foreign visitors. Tourists, however, also bring with them their own cultures, traditions and world views as well as ways of doing things disrupting rural cultures. The interaction between community members and tourists many times leads to cultural erosion as many community members, especially the younger members, imitate and adopt the mannerism of their guests. In addition the younger generation may gain prestige that rivals that of their Elders as they gain experience, jobs and money from tourism.

Vulnerability has also forced Indigenous Peoples in Africa to sell their valued and culturally important art objects for a pittance, resulting in the removal of indigenous art from the communities to trade centres (curio shops, museums and other tourist centres). Some of this art is used to decorate tourist hotels, to which indigenous peoples are denied access; a passing historic relic and an object of an obscene tourist curiosity (ACHPR, 2005). Greed also fuels trade in African heritage. Many artifacts have left museums in many African countries to wealthy collectors in Europe, America and Japan.

Tourism may also contribute significantly to substance abuse by indigenous and local communities. Where the use of psychoactive substances occurs in indigenous communities it has always been constrained by ritual. There were no “social problems” as we know them today. The emergence of social problems associated with substance abuse has followed breakdown of rituals by the increasing industrialization of indigenous societies, bringing with them materialistic and corruptive forces (Gleeson, 1991). Tourists bring with them substances such as alcohol, tobacco and other drugs. The youngsters and even the Elders may “try out” these substances out of the context of ritual, which may lead to addictions and the resulting social problems such as alcohol abuse, teenage pregnancies and drug addictions. It must be noted though that tourism can be a positive drive when regulated properly as eco-tourism and can thus be used to generate needed revenue for African indigenous and local communities. It must however be ensured that such community-based tourism ventures integrally involve the concerned communities from the onset. Namibia, one of the Southern African countries, and Kenya of East Africa are good examples that have made significant progress in the development and establishment of community based tourism. In East Africa Kenya has tried to promote community

k) Conflict and War

Africa’s historical antecedents, as well as past modes of exploitation, and distribution of Africa’s natural resources have engendered many problems. The ownership, exploitation, and distribution of Africa’s natural wealth too often has fostered and fuelled civil conflicts and war, compounding the already dire situation of poor countries and rural populations (Nnadozie *et al.*, 2003).

War many times leads to virtual breakdown of societies at the hands of those who are waging the wars. This situation tends to have people withdraw into their homes for safety and there is thus no participation in normal day to day activities in the community. Many times during such periods of war, extensive curfews become the order of the day.

War negatively impacts on the transmission and practice of traditional knowledge, innovations and practices of many African people. Displacement during conflict, creation of protected areas, mining areas or in competition of scarce resources causes a great impact to the traditional knowledge when they have to leave behind their homes their treasures to new locations. Today many Africans are living as refugees in camps across the continent far away from their home countries and communities. Many of them can no longer practice their traditional lifestyles as the natural resources in their host countries may not be the same as in their home countries. Many African’s today live in western countries a safer option from their war torn countries. In these countries many forget their traditional knowledge, innovations and practices relevant to the use and management of biodiversity as it is no longer needed or of use. It is therefore imperative that repatriation of e.g. **indigenous seed from CGIAR centres be encouraged following conflict**

as happened in Iraq. (maybe it would be good to discuss this further especially in getting regional examples)

According to Crawhall (2005) it is poignant to reflect that the start of the first UN International Decade of the World's Indigenous Peoples coincided with the Rwandan 100-day genocide in 1994. Minorities Rights Group and the International Work Group on Indigenous Affairs (IWGIA) estimate that at that time 30 percent of the indigenous Batwa populations were destroyed. The tragedy of the situation was that as indigenous, first peoples, the Batwa were not recognized as victims by the international community (Crawhall, 2005). In 2005, the Rwandan state has moved to ban the Batwa community association that has helped that devastated and displaced people attempt to recover and rebuild their lives. The IPPACC assert that the UN remains ineffective at providing any real support to vulnerable indigenous peoples on the African continent. They further recognize that the UN Decades are having an impact on how the UN agencies operate in Africa and the presence of the Permanent Forum gives hope that things may be changing (Crawhall, 2005). Box 12 looks at the impact of war and conflict on the Mbororos in Central African Republic and Nigeria.

Box 12: Conflicts and wars: the case of the Mbororos in Central African Republic and in Nigeria (Haman, 2005, pers comm)

Conflicts and wars: the case of the Mbororos in Central African Republic and in Nigeria

For the past years the unstable government and the crisis situation, in the Central African Republic, which subsequently led to the toppling of the former government of ANGE FELIX Patasse has had serious implications for the Mbororos in that country. The rebels who helped topple the former regime had become a nightmare to the Mbororo population in the eastern and Adamawa province in Cameroon. Due to rebels attacks on the Mbororos in the Central African Republic many of the families have fled their homes leaving behind property and cattle wealth to seek shelter in the eastern and Adamawa provinces in Cameroon which are border provinces.

Following their preys into the two frontiers in Cameroon, the rebels intensified their actions. When the government sent units of what is called "anti-gang," a secret police force in charge of tracking armed robbers, it worsened and within three months community leaders, Elderly men were killed and about 54 children kidnapped and exchanged for a ransom of 45 million fca.

In the Adamawa province the most affected area is the Mbere division in the following settlements: Ngaoui, Mbang Yamba, Madugu and Diel, while in the Eastern province Lom and Njerem division Totoyo, Garoua-Boulai and Batouri settlements are affected by this conflict and war.

In Nigeria during 2001 in the Taraba state Mambila Plateau, about 15 000 pastoralist were displaced in one of the bloodiest ethnic wars between native farmers and Mbororo pastoralist. This conflict and war is due to the land and its resources. The grass fields are the natural habitat of pastoralist for it offers them and their animals their livelihood. Therefore the pastoralist indigenous traditional knowledge is enshrined in these fields.

With this displacement and insecurity it becomes impossible for this indigenous people to practice their traditional knowledge for it all depends on them being in their natural environment. Losing their lands means losing their means of existence, their Indigenous traditional know how which is their culture e.g. language, food, rituals, mode of dressing etc foe they come in contact in Refugee camps or in their new communities with different cultures, different life styles and languages .

Source: Jajara Haman , 8(j) Advisory Committee Member 2005

It is sometimes believed that traditional healers may be involved in protecting the enemy and this leads to their persecution. It is recognized that healers are people with specialized knowledge and can be equated to the elite intellectuals of rural communities. The killing of traditional healers is a great loss of African traditional knowledge. Another reality of war in Africa is that the social category most likely to be affected by war is that of the young men who arguably are the ones most interested in exploring and

expressing national and local collective identities (Simpson, 1997). This means that these young men will be away from their villages and community and will not be able to participate in the process of transmission of the traditional knowledge innovations and practices of their people.

l) Food aid

Africa is ravaged by war, poverty and hunger. As food security in many African countries is threatened by worsening environmental conditions, increasing human populations, desertification and other catastrophes, many communities start to rely on food aid from Western countries or the United Nations. Although this process has helped change the fate of many Africans and has helped many people to survive the inevitable death posed by hunger, food aid may have a substantial negative impact on the maintenance of traditional knowledge, innovations and practices of African local and indigenous communities. People now rely on food aid¹³ to carry them out of the fangs of hunger. In most Sub-Saharan Africa food for work is a term used for the poor to work and later paid in by being given relief food. In the past people used to rely on their knowledge of “bush taka” to help them survive. People relied on their nomadic life styles to take them to other areas where the effects of droughts were not that prevalent. Due to food aid and modern governance structures such as sovereign states’ borders, people now remain in their own places. This puts tremendous pressure on ecosystems that are pushed to the extremes and ecosystem resilience is being compromised. This affects the ability of the land to recover. As people come to depend on food aid, they forget about the plant species and other natural resources on which they normally depended. This knowledge gradually erodes and often is lost. This is a great loss indeed.

Today another eminent threat that faces Africa is food aid in the form of Genetically Modified Organisms (GMOs). Should GMO food aid come into Africa in the form of viable grains, this may have significant impacts on the biodiversity in such areas due to contamination of local cultivars by the GMOs thus affecting the biodiversity in that particular area should conditions improve (Zerbe, 2004). The local people may plant some of the seeds that are part of the GMO food aid packages. Lack of awareness on the danger and future impact of the GMOs in the rural areas has caused the increased usage to the innocent local farmers who cannot keep their traditional seeds anymore.

m) The use of new technologies in Africa

In the wake of modernization a whole suite of new technologies has been introduced in Africa over the decades. Many of these technologies do not build upon existing traditional technologies that have been employed by African rural communities. Many of these technologies e.g. rifles, motorboats, tractors, trucks, electricity, fuels, refrigerators have changed the way in which people used natural resources. In many cases these technologies are enabling people to harvest¹⁴ more than they can consume. This has led to the concerns from the World Conservation Union (IUCN) that the mandates of the CBD are potentially in conflict with Indigenous Peoples’ wishes to use modern technologies in ways that may threaten biodiversity conservation (Faust & Smardon, 2001). Increased use of modern technologies may also contribute to the loss of African traditional knowledge, innovations and practices. This is because in some cases the Africans innovations that may have been used by rural communities are increasingly becoming obsolete as new technologies are introduced. Today there is an increased call for the development of appropriate technologies that are designed based on indigenous technologies and innovations.

The example below in Box 13 illustrates how a western innovation led to the over exploitation of a resource in Central Africa; the poison was meant to be used as an insecticide but its use was extended beyond its intended use and the consequences were disastrous. More fish could be caught using this

¹³ This issue is also linked to the aid to Africa in general; the influence of aid agencies whose work often results in increased dependency rather than self-reliance has also contributed significantly to the erosion and loss of African traditional knowledge.

¹⁴ For cash income, for trade and livelihoods

ingenious method despite the fact that it is unsustainable and more destructive than traditional fishing practices. It can also be argued that the introduction of pesticides in Africa has led to the decline of traditional insect control strategies in favour of the “new ways”

Box 13: The impact of new technologies and development projects in Africa on indigenous communities

The impact of new technologies and development projects on indigenous and local communities:

1. Pesticides in Central Africa

A farmer in Central Africa recounts an example of how “new ways” penetrated and changed the relatively balanced systems of land use that had existed in the time of his father based on traditional knowledge, innovations and practices.

“This problem of poison in the waters: it came really only with this civilization of the Europeans. They have this poison to put in the soil next to the crops in order to kill pests, but crafty people have taken it and put it in the rivers and streams to kill fish. People took it for a good thing, but it is only ruining our waters, some is even killing people. These ways, they began to change...well some of it is due to the whites who came to us; it was their knowledge began to change our knowledge. We saw how much easier it was to get things with these bad ways, we see the ease and we jump into it and even though the rivers may be ruined, I get my fish and I sell it and I get wealthy”.

Elanga, 1995 cited in Gray 1999

2. The Case of the Bagyeli and Baka in Cameroon, adapted from ACHPR (2005).

In Cameroon, logging companies have a severe effect on the Bagyeli and Baka people and their economy. The introduction of new effective tools has had disastrous effects on the way of life of indigenous and local communities as well as the resources on which they depend. Tractors and machines kill animals, destroy trees and cause damage to plants. The Bagyeli and Baka watch this destruction of their forest helplessly. Road construction is undertaken in order to facilitate the construction companies’ access to the forest, and this facilitates the entry of infectious diseases. The traditional life of the Pygmies is under severe threat from the arrival of the cash economy into the forest. Another threat to the land rights and livelihood of the Pygmies in Cameroon is the planned construction of the Chad-Cameroon oil pipe-line funded by the World Bank. In the planning process for this pipeline the Pygmies were not consulted and due compensation was not considered despite the impact of these development projects on their livelihoods and way of life.

3. The case of the Ogoni people in Nigeria, adapted from ACHPR (2005)

Oil exploration in Nigeria and other African countries has seriously affected the livelihoods of indigenous communities. An example is the Ogoni people of Nigeria who have been denied rights to the rich oil resources found on their land and they have found themselves extremely vulnerable. When drilling operations started the Ogoni observed that agricultural production and fishing catches started to decline. Over the years, as Shell increased its operations so did the oil spillages, thus intensifying the environment pollution problems for the Ogoni up to present. These activities have had an impact on the way of life of the Ogoni people and presents an obstacle in terms of the continued use of their traditional knowledge, innovations and practices.

n) Lack of constitutional and legislative recognition of Indigenous Peoples

Very few Africa countries recognize the existence of Indigenous Peoples in their countries. Even fewer do so in their national constitutions or legislation. Lack of legislative and constitutional recognition of their existence is thus a major concern of Indigenous Peoples. Examples include the Tuareg in Mali who – despite the positive developments with the National Pact – encounter problems linked to lack of legislation in relation to the application of that which is stated in legal texts and to lack of recognition as a people entitled to a particular collective rights. In Southern Africa the San of Botswana also lack recognition as a people. The Constitution of Botswana does not recognize the San as one of the

tribes/communities that make up the Batswana people. It makes reference to eight main tribes of Botswana, which do not include the San (ACHPR, 2005).

The following quote describes the situation in the Democratic Republic of the Congo (DRC) as experienced by Bideri and Hergum (2004) “We visited 14 Bambuti/Batwa villages during our one and a half week stay in the Democratic Republic of Congo (DRC) and Burundi. We saw how these indigenous people-who for thousands of years had lived in harmony and symbiosis with nature – are now living on the mercy of others. Men and women who used to be proud of their identity and uniqueness have been reduced to beggars and outcasts.” The lack of constitutional recognition of indigenous communities in Africa has resulted in the situation described above for many Indigenous Peoples.

South-Africa is one of the few countries that have moved forward on the issue of recognizing its indigenous communities (ACHPR, 2005; Crawhall, 2005). In South-Africa, the Khoe and San are generally acknowledged as the aboriginal and indigenous peoples who occupied the land long before the Bantu-speaking people did so.. There is however still not consensus as to the meaning of ‘indigenous peoples’ and who qualifies for such status in South-Africa (ACHPR, 2005). Box 14 and 15 explores the impact of racism and discrimination on the Pygmy People of the DRC and the indigenous peoples of Cameroon respectively.

In Rwanda some grounds are being covered in the right direction too. Batwa organizations have met with the Constitution Commission to press for their rights in the new constitution, calling for increased representation of Batwa at all administrative levels in the country, inclusion of Batwa in land distribution, recognition of Batwa as a disadvantaged group needing particular attention, and support for Batwa education (ACHPR, 2005).

It should be however noted that in a country like Burundi, the Batwa situation is better the country has nominated the Batwa community members both to Parliament and to the senate so far (three are members of the senate, two as members of Parliament two are ladies)- confirm the number.....

In Ethiopia the establishment of the Pastoral Standing Commission within the Ethiopian Federal Parliament also signals promising development. It is being led by a prominent head of a pastoral NGO Ethiopian Pastoralist Forum and its main aim is to contribute to advance the cause of pastoralists at the level of policy formulation and legislation.

Box 14: Racism and discrimination: The Case of the Pygmy people of the DRC

Racism and discrimination: The Case of the Pygmy people of the DRC

Like their Rwandan and Burundian counterparts, the Pygmy people of Democratic Republic of the Congo (DRC) are often victims of discrimination. They are often considered immoral, dirty, deceitful and uncivilized. They are often described as creatures, not human beings. The forest-based way of life is the basis for the extreme discrimination and inhuman consideration. Some Pygmies have been victims of cannibalism in the recent past; rebel groups fighting in the forest kill and consume them. The Pygmies are neglected in all areas of development. They are treated as inferior and are hence the victims of scorn and exploitation. They are also vulnerable to HIV/AIDS due to lack of formal marriages, polygamy and little information related to HIV/AIDS. (Bideri and Hergum, 2004)

**Box 15: Lack of recognition leading to racism and discrimination: The case of the
Cameroonian Indigenous People**

Lack of recognition leading to racism and discrimination: The case of the Cameroonian Indigenous Peoples

Indigenous and tribal peoples in Cameroon are the hunter-gatherers, pastoralists, the mountain dwellers, and some creek people.

The hunter-gatherers in Cameroon survive by hunting and gathering in the forest, which is their natural habitat and the epicenter of their world, the only place in which they have always lived in peace. The hunter gatherers (pygmies) on whom I will focus this particular study are victims of discrimination and racism on daily basis.

Displaced by the Government from the forest on to the high-ways so as to benefit from national development programs, there were no special measures taken by the authorities to ensure their effective and peaceful cohabitation with the neighboring Bantu communities.

They are therefore considered as strangers in their new settlement by the neighbors who claim ownership over the lands they occupy.

Many Bantu chiefs consider them as their property and address them as their pygmies e.g `I have 20 pygmies that belong to me who are causing me more and more problems` and they don't tolerate strangers especially NGOS to contact them directly without their authorization.

They are often victims of abusive work exploitation on the farms of the Bantu's without pay. Their pay is in the form of strong alcoholic drinks, which are very harmful to their health. The Bantus consider them as inferior and bush people, given their distinct physical appearance, and will hardly get married from their communities.

The Government on its part abandoned them to themselves without making sure they have benefited from the facilities for which they were displaced. They remained the most under scolarised community second to the Mbororo people. They got no access to health services, as they can't afford the money to pay for the drugs. They live in abject poverty brought on them by the displacements.

This discrimination and racism makes all Indigenous people undervalue their Indigenous Knowledge, for it implants a kind of inferiority complex, which is so difficult to over come.

“The plight of Indigenous communities like the Baka pygmies has been acknowledged at Regional and International meetings such as the fifth Conference on the Dense Forest and Rainforest Ecosystems of Central Africa held in May 2004 in Yaounde, and the World Conference against Racism, Discrimination, Xenophobia and Related Intolerance, which took place in South Africa in 2001.” (Haman pers. comm., 2005)

**o) Lack of formal recognition of the value and contribution of traditional
knowledge, innovations and practices**

The preceding discussions have pointed out that one of the greatest barriers to the use and wider application of traditional knowledge, innovations and practices of local and indigenous communities in Africa is the lack of formal recognition of the value and contribution of traditional knowledge, innovations and practices. There is a need for greater global recognition of indigenous knowledge systems of local and indigenous communities. We have to recognize that traditional knowledge in itself is also worthy of being considered as a body of scientific knowledge. A contributing factor to this lack of recognition is that a significant number of the traditional knowledge systems in Africa have not been recorded and written down. This of course is a disadvantage compared to Western knowledge. Today's society believes in the power of the written word as opposed to the spoken word. The written word is perceived as information with high credibility and value and the opposite is true for the spoken word. Box 16 explores the case of the exploitation of the knowledge of the Mbororos and the need for measures to protect the traditional knowledge, innovations and practices of indigenous people.

Table 16: The case of the Mbororos and biopiracy and the need for National Laws**The case of the Mbororos and biopiracy and the need for National Laws**

Strangers who seek out the Pygmies, Mbororos and the mountain dwellers are usually looking to extort animal skins from them or take barks, roots and leaves they use to treat certain ailments. Even the traditional knowledge that the pygmies and Mbororos and the mountain dweller have about the forest environment is exploited. Non-Indigenous people in the name of researchers have appropriated this knowledge and have succeeded to patent it as inventions as there are no laws at national and international level, which recognize Indigenous Traditional Knowledge as an invention because it is a collective knowledge.

Emmanuel Missolo, a pygmy

“With this exploitation our traditional knowledge is fast disappearing. Very important efficient medicinal and food plants, traditional dressing, hair styles, language and rituals is fast or have totally disappeared”

Source (Haman, 2005 pers. comm.)

p) Spatial scale of local knowledge

It is important to consider the spatial scale of knowledge. Local knowledge or traditional knowledge is usually available and applied at a local scale and one needs to consider the bigger picture. Traditional knowledge or local knowledge can provide the pieces of the puzzle. It becomes important especially in terms of natural resource management. An example of this is provided by Ruddle (2001) He maintains that indigenous knowledge of living coastal resources around the world includes an intimate spatial familiarity of the physical environment, i.e. local currents, seabed conditions and other such phenomena. In addition, it contains a finely detailed mental mapping system. This submarine cartographic knowledge of local fishermen is of immediate practical importance, especially along coastlines where conditions can change dramatically in just a few years, since it can be used to update old marine charts. Another example is that local names of fauna and flora and the taxonomy they imply, as well as empirical knowledge of behavior often embodied in local nomenclature, can be of immense practical usefulness (Ruddle, 2001). Further to the example above traditional knowledge has been used to manage large areas with minimal knowledge where as modern knowledge systems require huge amounts of data in order to successfully manage an area (Johannes, 1998).

For this exchange of knowledge to take place, there needs to be a partnership between interdisciplinary scientists with knowledgeable local community members. There is also need for an increasing effort to provide practical training to both parties in order for both to understand the synergies between the two bodies of knowledge.

It is a fact that many times scientists are in a hurry whereas local people remember special events. Local knowledge can relate to ecosystem function while scientists are not at the spot when things happen given the logistical constraints that may present themselves during experiments e.g. infrastructure etc. whereas communities live in the areas. It is important to note that many environmental problems originate from the mismatch between the scale at which ecological processes occur and the scale at which decisions on them are made. Outcomes at a given scale are often critically influenced by interactions of ecological, socio-economic, and political factors from other scales. Focusing solely on a single scale is likely to miss such interactions which are critically important in understanding ecosystem determinants and their implications for human well-being (WRI, 2003).

There is a need to recognize Africa's remarkable human resources. This may include recognition of folk taxonomic systems for soils. In Africa, as in most indigenous settings, people have specific names for the resources found on their territories, and communities have specific names for the soils, fauna and flora in their areas. There is a need to find meaningful ways of merging this traditional knowledge with other

knowledge systems as these knowledge systems could be mutually supportive. Lack of recognition both of the knowledge and indigenous peoples themselves will serve as a barrier against the continued use of African traditional knowledge, innovations and practices.

q) Livelihood security of indigenous and local communities in Africa

Livelihood security is one of the utmost concerns of many communities across Africa. Their knowledge, innovations and practices that have been passed on from generation to generation have assured that their livelihoods and the bases of their livelihood are secured. The pressures of the modern world and globalization, however, have threatened the maintenance of many of the knowledge systems as well as the natural resources. It is therefore very important to recognize the critical contribution and importance of traditional knowledge, innovations and practices that are relevant to the protection, conservation, management and use of biodiversity.

Today it is recognized that there is an inverse relationship between formal education and knowledge on the traditional knowledge, innovations and practices of local and indigenous communities. Children who grow up with their grandparents in the rural villages of Africa display greater understanding and use of the traditional knowledge, innovations and practices of their respective communities. It can be argued that in such a setting the transmission and impartation of the traditional knowledge, innovations and practices takes place from the grandparents to the children. In a setting where children grow up with their parents some of the knowledge gets lost because it can be argued that the grandparents by virtue of having been around a longer time possess more knowledge about their natural heritage i.e. their biodiversity. This grandparents/children relationship holds for now. However we need also to consider the future and its implications. What will happen 20 years from now when the current mothers and fathers will themselves become grandparents? What are the implications on the future prospects for the transmission of the traditional knowledge, innovations and practices? Living with grandparents is therefore not enough to ensure the survival of traditional knowledge, there is a need to see international projects recognizing the indigenous knowledge systems at the global level as well as creation of more opportunities to use this knowledge. There is need to look at alternative livelihoods for Indigenous Communities in their own environment and involve them fully on the decision to secure those livelihoods without destroying or distracting their traditional knowledge.

r) Distance from the city

Africa today has the fastest urbanization rate in the world. Decision-makers in Africa also favor urban development as this is viewed as “development”. The farther people are away from the cities the less their voice is being heard. This lack of voice also results in the lack of recognition of the indigenous knowledge systems given that the so-called development in urban centres in Africa takes place based on the development models of the West. Therefore without a voice Africans are deprived of their own means of subsistence, as their right to free, prior informed consent and their voice that wants to cry out ‘no’ to dams, mining, oil and gas extraction, logging, bio-prospecting and research done in their communities by external entities in the name of development, modernization and urbanization.

It should be mentioned that it is exactly because of the resistance from the African ancestors to colonization that communities persist in resisting against destructive projects and programmes. Indigenous communities in Africa were able to save the remaining biodiversity in their ancestral lands and the traditional knowledge that relates to such biological resource through this resistance. Moving away from the urban and other rural areas where there was access to development and settlement of the colonizers, make the Indigenous Peoples like those of the East Africa protect their traditions and Cultures as there was no one to distract them. In some parts of Africa like the remote areas of Ethiopia and Southern Sudan there are self-isolated communities who do not want to be known as they still fear being known is development that will distract their traditions and way of life. Development has brought a significant amount of technology into Africa and these technologies have had an impact on African traditional

knowledge systems and the maintenance of biodiversity. For example some of these technologies promote excessive use of water, pesticide and other pollutants all in the name of technological change.

s) The use of data bases to document African traditional knowledge

In Africa valuable information is transmitted from generation to generation, usually within the same family, through the oral tradition, a practice that holds the inherent danger of loss or distortion of critical information (Makhubu, 1998). One way of overcoming this problem is by initiating the systematic documentation of the African traditional knowledge, innovations and practices relevant to the conservation, use and management of biodiversity. Many countries and people however have their reservations against such documentation. The issues raised are for instance, who will have access to such databases, what about sensitive information, what about benefit-sharing as such information will no longer be 'prior art' and will be in the public domain. This issue still needs further debate within the region before it can be promoted widely across the continent. In Box 17 below some of the concerns raised against the documentation of African traditional knowledge, innovations and practices are outlined. Data is still a problem in Africa especially for information on Indigenous Peoples, there is need for data be undertaken to have a clear information on Traditional knowledge

Box 17. Problems associated with the documentation and distribution of African traditional knowledge, innovations and practices

Some problems associated regarding the documentation and distribution of African traditional knowledge:

- Outside people might make commercial use of the plants, without the knowledge or permission of the communities or the sharing of benefits with the communities who have been involved;
- Outside people may publish other books based on documented information;
- Traditional Knowledge might be used in inappropriate ways;
- People might come into village areas to collect plants without the permission of the community;
- People might over-harvest medicinal plants and other resources.

t) Land and resource tenure

Tenure is an important consideration within Africa. The land and the people are one. The history of Africa is a story of the eviction and displacement of indigenous communities from their ancestral lands where they once enjoyed the fruits of the lands and lived in relative harmony with nature practicing their traditional knowledge, innovations and practices relevant to the conservation of biological diversity (Shikongo, 2001). The process of colonization of the Africans and the African continent however disrupted this harmony significantly. This was mostly done to promote the interest of a white minority and foreign investors. Evicted groups were settled in agriculturally poorer regions and were denied access to the essential natural resources that they needed for their survival.

Without the land and its resources, the knowledge of the Indigenous Peoples of Africa, about the land and the respect that they hold for the land, their communities and their way of life would not exist because the land and the people are one (ACHPR, 2005). Alienation of land has, in some parts of Africa, led to alienation of sacred sites for the indigenous peoples. Endoinyio Oolmoruak in Tanzania, where every generation of the Maasai community from both Kenya and Tanzania visited and performed an important spiritual rite, is a good example.

Given this very intricate link between people and the land and its resources, it can be argued that any intervention whether to harvest, protect or preserve biodiversity could have serious economic,

biodiversity and health impacts on local and indigenous communities. This is exactly what happened in Africa. Through interventions in the name of development the Africans have lost much of their natural habitats, and worse their biodiversity, lands and their traditional knowledge related to such biodiversity. This issue of land tenure and resource tenure also has significant impact on the issue of access to genetic resources and benefit sharing related to the related traditional knowledge.

The dilemma is how to build access to these resources and benefit-sharing into legislation. In some countries in the African region the following issues still have to be addressed with regard to land and resource tenure:

1. The lack of security of tenure on communal land;
2. No exclusivity to user rights; and
3. A lack of rights of communities to utilize natural resources other than game on communal land.

There is thus a need for countries where relevant at the national level, to initiate the process of clearly defining ownership of resources (domesticated and wild) as well as land ownership on communal land, commercial land, and state land including protected areas. Governments hold sovereignty of the countries' resources on behalf of their peoples; it is important however to recognize that it is people who have rights over natural resources not governments. Collective tenure is fundamental to most indigenous pastoralist and hunter gatherer communities, and one of the major requests of indigenous communities in Africa is therefore the recognition and protection of collective forms of land tenure. It is disturbing to see that the overwhelming paradigm of nature conservation in Africa is premised on removing indigenous peoples off their traditional lands. Even where some people are meant to benefit from conservation areas through tourism and employment, this is rarely accessible to indigenous peoples – particularly when they are hunter-gatherers (Crawhall, 2005). There are many examples, such as the Nyungwe Forest in Rwanda, Bwindi Impenetrable Forest in Uganda, the Ngorongor National Reserve in Tanzania, the forest areas of the Hadzabe Tanzania, and the Ogiek and other huntergatherers like the Boni of Kenya, Kgalagadi Transfrontier Park in South-Africa, Central Kalahari Game Park in Botswana and the Etosha National Park in Namibia to mention but a few. Box 18 takes a closer look at the establishment of protected areas and the consequent conflict with Indigenous Peoples.

Box 18: Establishment of protected areas: conflict with indigenous peoples

Establishment of protected areas: The case of the Batwa Nation, adapted from ACHPR, 2005

The establishment of national parks and conservation areas has led to severe dispossession of pastoralist and hunter-gatherer communities.

Some examples are:

In 1998 the Batwa people of *Nyungwe Forest* in Rwanda were driven out in order to establish a military zone and a national park. The Batwa of the *Parc des Volcans* have also been driven out by conservation projects desiring to make a sanctuary for the mountain gorillas. This dispossession has led to impoverishment and a host of social and cultural problems.

In Uganda, the Batwa were driven out of their ancestral land in the forests of *Bwindi*, *Mghinga* and *Echuya* by the English colonial administration in 1930 in order to create conservation zones. The establishment of the *Bwindi* and *Mgahinga* National Parks for gorillas in 1991 enabled the authorities to evict the Batwa definitively from the forest. The Batwa now have little land, and their forest-based economy and way of life has been destroyed. This separation from the land has an impact on the continued use of their traditional knowledge, innovations and practices relevant to the conservation of biodiversity.

An equally or perhaps more devastating issue has been the destruction of forests in this landscape by Bakiga farmers coupled to discrimination against the Batwa by the Bakiga.

During the 1960-1970 period, 580 Batwa families (3.000 – 6000 people) were evicted from the *Kahuzi-Biega* Forest in the Democratic Republic of Congo in order to create a 6, 000 km² gorilla reserve. Land should have been given in compensation to the Batwa, but this did not happen. Now the Batwa are forbidden to hunt in the park, and forbidden

to collect park products. They have no food resources or medicinal plants, and the forest is no longer their place of worship.

The Batwa have been culturally and psychologically shattered by the loss of their forests. The local authority do not allow them to return to the forests of *Kahuzi-Biega*, as they claim they pose a high risk to the ecosystem. However, this is only a pretext, as traditionally the Batwa have never hunted gorillas (they do hunt meat to exchange for starchy crops with local farmers and they are in fact good and very efficient hunters), nor do they destroy the forest by cutting down trees. In contrast, groups of farmers have caused great damage to the forest by destroying large sections in order to create agricultural plots and pasture.

Protected areas also pose a threat to the land rights of the Pygmies in Cameroon. Local community rights have been abolished by the *Dja Reserve*.

The area used traditionally by the Baka people in the Central African Republic (CAR) has also been affected by creation of the *Nzanga-Ndoki* National Park.

The Case of the San in Botswana and Namibia adapted from ACHPR, 2005

In Botswana, around 1,500 San people have been evicted from *the Central Kalahari Game Reserve* during the last 10 years. The case, which is now pending in court, bears witness to the refusal of the government of Botswana to recognize that the inhabitants of the area have ancestral rights to the territory. The San in Namibia are landless because of the colonial policies of apartheid government of South-Africa, which apportioned the country into freehold 'white' commercial farms' "tribal' communal land and wildlife conservation areas. A consequence of these policies was that less than one percent of the San People were able to retain limited rights to the territories that they had traditionally occupied.

The Case of the Maasai in Kenya and Tanzania adapted from ACHPR, 2005

The Maasai in Kenya and Tanzania have been and are still experiencing dislocations similar to those experienced by other pastoralists and hunter-gatherers in the region. Evictions of Maasai from their ancestral territories at both sides of the common border started during the colonial era and are still continuing to the present. The famous fake treaties signed between the British and the Maasai in 1904 and 1911 to evict the Maasai from their best land to make room for colonial settlers have never been settled. This is because, at independence, with the departure of the British, the lands were taken by the more numerous and dominant community at the expense of the Maasai. The creation of National Parks: Manyara, Tarangire, Ngorogoro, Serengeti, Mkomazi in the case of Tanzania and Amboseli, Maasai Mara and others in the case of Kenya, has led to the eviction of indigenous Maasai from their ancestral land without compensation, supposedly in the national interest.

The Case of the Ogiek People in Kenya:

Between 1935 and 1940, the then British colonial government established a commission headed by a Mr. Carter to look into land matters in Kenya. The Carter commission recommended the eviction of the Ogiek from the Mau forest and to concentrate them in European farms as squatters or in the forest department's labour camps. This effectively deprived the Ogiek of their tribal status and denied them any claims to ancestral land. This injustice against the Ogiek was perpetrated under the pretext that the Colonial government wanted to conserve the forest. The forest has been the home of the Ogiek since time immemorial. Ogiek problems were later further exacerbated by the passing of the Forest Act and the Wildlife Conservation Act. These two pieces of legislation had multiple effects on the Ogiek. They restricted access to the forest thus destroying the Ogiek gathering lifestyle and banned all forms of hunting in the name of wildlife conservation thus destroying the Ogiek's hunting tradition. In the 1970's the government allocated small portions of land to Ogieks in groups holding a single title. These were later sub-divided into individual titled freeholds in the mid 1990's. The rest of the Narok's Mau forest-Ogiek land remained as trust lands being held in trust by the Narok County Council for Maasai. In the late 90's this Council allocated Mau forest to powerful Maasai politicians, members of the Kalenjin community. As a result, the Ogiek suddenly found themselves living side by side with a powerful majority-Kalenjin community, that has money. This has had disastrous effects where for reasons of poverty, the Ogiek found themselves selling the few acres of land they owned, marrying off their girls to Kalenjins, marrying Kalenjin girls, adopting the Kalenjin language, customs and lifestyles and generally being swallowed up by the Kalenjin community. This started the systematic extinction of the Ogiek of Kenya's Narok district

Source: Kenyinke Sena (2005); Kenya report on indigenous peoples and protected areas: International Indigenous Forum on biodiversity; Submitted to the open-ended ad hoc working group on protected areas. CBD.

As long as the issue of land ownership or land tenure is not adequately addressed, benefit sharing, access and sustainable use of the components of biodiversity will be problematic. This may have an impact on the maintenance of the related traditional knowledge, innovations and practices of African peoples. Boxes 19 and 20 takes a look at the impact of World Bank Projects in Rwanda, Chad and Cameroon on Indigenous People in that Region.

Box 19: Impact of World Bank Protected Area Projects in Rwanda on Indigenous people and their forests

Indigenous Peoples, Forests and the World Bank:

Policies and Practice

Case-Study: FIRST AND SECOND INTEGRATED FORESTRY PROJECTS, RWANDA

The first Integrated Forestry Project (IFP I) ran from 1980 until 1987 and the second (IFP II) from 1987 until 1994. Both projects aimed to protect the remaining natural forest in NW Rwanda by relieving human pressure on forests by increasing the supply of wood products through industrial plantations; enhancing the value of protected forest areas and by developing a high productivity cattle and dairy industry in Gishwati using productive pastures in degraded forest areas. Implementation was severely deficient as legal covenants were disregarded and funds were used to propel deforestation to make way for pastures and plantations. Forestry staff caused "great resentment" among local people because they excluded them from their plans and expropriated their land for plantations. The project also caused the indigenous Impunyu Batwa people to be involuntarily resettled outside Gishwati forest. The Bank admits that "no resettlement program was foreseen under the project and the Batwa became internally displaced persons". This tragic oversight was probably due to the Bank's inexperience with social issues and the fact that its first safeguard policy for 'tribal peoples', known as Operational Manual Statement 2.34, only came into affect in 1982. IFP II was supposed to redress the deficiencies of IFP I through forest protection; forestry and rural afforestation; integrated forestry, agriculture and livestock land use; and the maintenance of fuelwood plantations established under the first project. Despite the requirements of OMS 2.34, social concerns were again ignored and no provision was made to safeguard the vulnerable "tribal peoples" affected by the project. The second project continued to cause widespread deforestation and the IDA finally withdrew support for the livestock component in 1989. Forest loss continued, however, and by 1994 two-thirds of Gishwati forest had been converted into pasture. The 1990-1994 civil war further intensified forest degradation as internal refugees arrived in the region to use forest resources for their survival. At the end of the projects, the Bank confirmed that both had failed and that the treatment of indigenous peoples had been "highly unsatisfactory".

In March 2000, the indigenous organisation Communauté des Autochtones du Rwanda (CAURWA) studied the impact of these Bank-financed forestry and livestock projects on the Impunyu Twa of Gishwati. The Impunyu describe how they had previously lived as nomadic hunters and gatherers procuring food and materials from the forest and trading forest products with neighbouring agricultural peoples. They complain that as a result of the projects they were obliged to leave their territories against their will and resettle on the margins of the forest. The destruction of the forest meant that they could no longer practice the forest-based livelihood that underpinned their traditional society and culture. Loss of their resource base has converted them into landless labourers who work as porters or farm workers. They must now purchase their food, while households without employment and income must beg for food from non-Batwa neighbours. Those Batwa that do have land plots cannot even afford to buy hoes to till them and so have been obliged to sell their land to Hutu or Tutsi farmers for meagre prices in order to buy food to survive (e.g., 0.5 ha is sold for as little as US\$8).

Impunyu people were not consulted during the preparation and implementation of either project. Neither had they been involved in consultations during monitoring and project follow-up. Nor had they benefited from any employment from the project that had engaged thousands of other workers in the region. Instead,

the projects have left them impoverished. They have lost their rich forest diet of fruit, honey and meat. Their children are sick and malnourished. They have little or no land to till for their own subsistence. Moreover, they now live dependent on a cash income that is very hard to come by. In 1992, support from the church and local NGOs did eventually result in the allocation of some 359 ha of land for 420 Batwa families. This land is welcome, but the Impunyu say it is "bread crumbs" compared to the extensive forested territories they lost under the World Bank-financed projects. The Impunyu therefore ask for compensation for the destruction of their way of life. They wish to know why the project failed to comply with OMS 2.34 that required "preinvestment studies" and stated that "tribal people" should not suffer accelerated assimilation; and that there should be "adjudication and redress of grievances" for tribal peoples adversely affected by loan operations (paras 6 and 7). The main lesson learned from these disastrous projects is that Bank loans to borrower countries with deeply entrenched hierarchical social and political systems can be severely damaging to indigenous peoples if proper safeguards are not adhered to. The challenge is to find mechanisms for ensuring policy adherence by both the Bank and its clients. CAURWA argues that a key step in this direction would be legal reform, training, and educational initiatives to strengthen the rights of indigenous peoples like the Batwa and change social attitudes in borrower countries

Source: Thomas Griffiths and Marcus Colchester (2000)
<http://www.wrm.org.uy/actors/WB/IPreport2.html>

Box 20: Impact of World Bank Protected Area Projects in Chad and Cameroon on Indigenous people and their forests

**Indigenous Peoples, Forests and the World Bank:
Policies and Practice**

Case Study: BOX 11: CHAD-CAMEROON PETROLEUM DEVELOPMENT AND PIPELINE PROJECT

The controversial project has a total cost of US\$3.5 billion, of which US\$1.6 billion is for the development of an oil field in Chad and a further US\$1.9 billion is for the construction of a pipeline crossing Cameroon and port facilities on the coast. The project is to be implemented through a consortium comprising Exxon, Chevron, Petronas of Malaysia and the two governments (ELF and Shell, which were members of the consortium, withdrew in December 1999). The World Bank proposes supporting the project through IBRD loans of US\$90m for the governments' stakes in the project and through IFC investment of US\$150 m. World Bank support for the project is considered fundamental to secure it against political risk.

Many aspects of the project have been the subject of controversy. NGOs allege infringements of at least five of the World Bank's policies, including the indigenous peoples policy. A persistent lack of participation has been noted throughout the project's preparation. Among the concerns about the project raised by NGOs are the following: ongoing repression and intimidation of Chadian NGOs and local communities affected by the project; likelihood that all benefits will be syphoned off by corruption; inadequate compensation and resettlement plans; excessive power given to the pipeline consortium; inadequate environmental impact mitigation measures. The pipeline will cross the forests of SW Cameroon and transect the territory of the Bagyéli, a so-called 'pygmy' people, who mainly live by hunting and gathering and as occasional labourers in Bantu villages. An initial 'Indigenous Peoples Plan' introduced to comply with OD 4.20 was deficient as it did not address fundamental issues such as the legal recognition of Bagyéli rights, Cameroonian policy on indigenous peoples and institution building. The Plan also underestimated the likely impacts of the project on forests and fauna and their potentially negative consequences for Bagyéli livelihoods. The governance structure of a proposed endowment fund to compensate affected Bantu and Bagyéli groups, does not make adequate provisions for participation or training. The probability is that benefits will accrue unequally to dominant groups.

The study prepared as part of this review, based on interviews in communities along the course of the pipeline, reveals that the Bagyéli are indeed a highly marginalised and vulnerable group. They are not recognised as Cameroonian citizens, have no identity papers, never participate in local elections, have no

recognised collective land and property rights under either national law or Bantu customary law. They are thus marginalised in all local decision-making. They have not been well informed about the implications of the project for their future. No mechanism has been established for the effective participation of the Bagyéli in decision-making and there are no state agencies actively protecting their interests or promoting their welfare. The Bagyéli feel alienated from the project, which they believe will cause a degradation and loss of their forest resources as well as immediate damage to huts and small cultivated areas. The case study recommends the creation of mechanisms for *culturally appropriate* participation of the Bagyéli in decision-making, clarification of Bagyéli rights, especially to land and provision of adequate compensation for those who will be adversely affected by the project.

IFC managers responsible for the indigenous component of the project have reacted to the Planet Survey-CODEBABIK study by claiming that IFC studies and consultations with the Bagyéli have been exhaustive. It is noteworthy, however, that the World Bank admits that the IPDP was prepared as a *preliminary* plan and that full consultation with the Bagyéli will only start during the first year of IPDP implementation. In the FPP-BIC workshop in May 2000, it emerged that the Bank intends to apply a capacity-building approach to the IPDP in order to give the Bagyéli a "leg-up" to move their own agenda over the long term. IPOs and NGOs argue that this approach alone is insufficient: the IPDP must also promote adequate institutional and legal frameworks to safeguard the land and resource rights of the Bagyéli and overcome discrimination. Despite concerted international public opposition to the project, the Bank Board approved the loan on 6 June 2000. However, the Board did admit there were high risks associated with the project and acted on civil society proposals for an Independent Advisory Group (IAG) to report regularly to the Board on project implementation. There are indications that a revised Indigenous Peoples Plan will also be elaborated. Campaign groups are pressing the World Bank to ensure that the IAG is set up as an effective *independent*, accountable and transparent tool to monitor the investment and detect violations of the Bank's operational directives.

Source: Thomas Griffiths and Marcus Colchester (2000)

<http://www.wrm.org.uy/actors/WB/IPreport2.html>

u) Impact of economic issues

The Indigenous Peoples of Africa recognize that influence over decisions concerning natural resources management and the quality of the environment in which they live is directly tied to their social, cultural and economic future. In most African countries there is a need to create further awareness on this issue as well as to create the necessary economic enabling environment. This economic enabling environment is necessary to support people to use resources maximally but at the same time having cognizance of the finiteness of natural resources. The resource users are often the best managers. Indigenous and local communities in Africa are the true custodians of biodiversity and as such are also directly dependent on the biodiversity in their territories for their sustained survival. Despite this important fact, in Africa today many of the communities have not benefited from the biodiversity under their custodianship. It is therefore necessary for policy makers in Africa to understand that, today, a prerequisite of biodiversity conservation, and with that the traditional knowledge associated with biodiversity, is the economic benefits that people derive from their resources. These economic benefits will serve as an incentive for effective and proper management and use of biodiversity taking into account the traditional knowledge, innovations and practices that relates to the use and management of such resources.

To ensure that communities derive economic benefits from the resources under their custodianship, the issue of market access needs to be considered. Market access for the goods and services coming from local and indigenous communities based on their traditional knowledge innovations, and practice, is essential. Community members do often not have an idea of the true economic value of their goods and services. Communities need access to the world markets for their products. It is also essential that access to such markets be fair.

v) Livelihoods and Poverty

Livelihood security is an important issue across Africa. Biodiversity conservation, sustainable use and management are crucial for livelihoods security in Africa. At the same time traditional knowledge, innovations and practices is also an important aspect for ensuring livelihoods security of local and indigenous communities.

Biodiversity cannot be conserved by keeping people poor even if historically biodiversity survived largely under such conditions (Gupta, 2003). Poverty in Africa has a huge impact on livelihood security of local and indigenous communities. According to Gupta (2003) many communities, which conserve diversity, have remained poor because of their superior ethical values. This happens for example when healers refuse to demand or accept any compensation or payment for their services provided to individuals within and outside their community. On the other hand there are others (including local people as well as large corporations) who have no hesitation in extracting biodiversity without taking care of regenerating the same.

Box 21: The poverty argument

The poverty argument

The concept that we use to define poverty may not be really that appropriate when it comes to indigenous peoples. We define poverty as people living with less than a dollar per day or in material terms. The question however is whether the indigenous peoples themselves consider themselves as poor? Are you poor if you live in a mud house, have no electricity, television, computer, fridge, bank account and a motor vehicle? Perhaps the impoverishment of the environment and their knowledge, innovations and practices results in them being poor and not really the lack of material or monetary means. It could be argued that the wealth, health and well-being of indigenous and local communities depends on clean water, clean air, fertile soils and other services provided by natural ecosystem of which they are part. The environmental assets and the services they provide are especially important for people living with natural resources that might or might not be construed as poverty by those concerned.

When people are poor they do not care for the environment. Conservation and management are thus not high on their agenda. Poor people take out of the environment as much as possible and as quickly as possible to meet their daily livelihood needs. Even if people have knowledge about sustainable harvesting regimes, when they are poor this knowledge is ignored. This situation is further exacerbated by the introduction of monetary systems in Africa. Today many species have been driven to extinction or near extinction through over harvesting and exploitation by poor people who are trying to meet their daily needs. Box 21 takes a critical look at the concept of poverty.

There is a need to consider how poverty drives the users of biodiversity to utilize more of the resources in their territories to the point of no return in terms of sustainability. Livelihood diversification will be a key consideration in the process of addressing people's livelihoods and its link to the preservation of traditional knowledge systems.

w) Population growth

Africa's population has been on the increase and this has put an ever increasing demand on the diminishing natural resources. In 1950, Africa's population was less than half that of Europe but 50 years later, Africans easily outnumber Europeans. At the current growth of 2.4 per cent per annum, Africa will again double its population by 2035 (UNECA, 2000). In fact the African continent has the highest population growth rate in the world.

In addition to the above, in Africa, as elsewhere in the world, the percentage of people living in urban areas has increased dramatically during the past fifty years. In 1970, only about a quarter of all Africans lived in urban centres. By 1995, the proportion (urban) had increased to over one third (35 per cent) and it is projected that over half of the population (about 51 per cent will live in cities by 2025. Most of the growth has been through rural-urban migration, reflecting people's hopes for finding urban jobs and better living conditions (UNECA, 2000, OAU, 1993).

If we exclude South-Africa from the Southern Sub-region, the Northern Sub-region, with 45 per cent level of urbanization is the most urbanized in Africa, due to the fact that many of the cities in the sub-region had been the centres of trade and civilization long before the exploration of the rest of Africa. Central Africa and Western Africa hold the second rank with 38 per cent and 33 per cent of their population living in urban centres. The least urbanized sub-region is Eastern Africa with 22 per cent aggregate proportion of urban population (OAU, 1993).

This increase in population and the increase in population living in urban centres mean that there are more mouths to feed and less people on the land tending the land. It also means that more land has to be cultivated to feed the population and therefore more land is cleared to make way for agricultural crops, timber plantations and for development projects such as hydroelectric schemes, and the establishment of protected areas to save the fauna and flora. In short much needed and vital resources like arable land, clean water, adequate energy, and abundant biodiversity are rapidly depleted in Africa.

The increase in urban centre also means that more land has to be available for these centres to grow and expand. In areas where indigenous people are found this need for land and resources to take care of the increasing population has meant that indigenous people are forced increasingly into more marginal areas as their lands are taken over by the powerful majorities in their regions. This means that there is less and less land for African indigenous people in which to live, and practice their traditional ways, innovations and cultures.

2. The threats in perspective

The threats that operate at the national level are the most serious and dangerous threats compared to those that operate at the local/regional or international levels. They are threats not only to the traditional knowledge alone but also to the very existence and livelihood of the indigenous people of Africa.

Most of these threats at the national level are imbedded in the national constitutions and other national legal instruments and policy frameworks of African governments which fail to take into account the real interest of African indigenous people and the importance of protecting and promoting the traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the well-being of indigenous people themselves.

Given the nature of national level threats, intervention measures need to focus and address them first. This is because they are the main causes of most of the local problems experienced by African indigenous communities. What is needed is political will and commitment from national governments to address these problems that are caused by national threats that are immediately affecting communities.

Even if African indigenous communities are willing to protect, promote and conserve their traditional knowledge they can not do this with out the help of their national governments. There is an urgent need for African governments to start respecting and recognizing their indigenous and local communities as well as to resolve issues of land and resource tenure in order to facilitate access to and ownership of land by indigenous communities.

There is also an urgent need for political will and commitment from African governments to reflect the concerns and needs of indigenous people in their national policies, legal frameworks as well as national development agendas. They also need to empower indigenous people and allow them to participate at the decision making level i.e. to have effective political representation.

A lot of awareness creation, mobilization of indigenous peoples, sensitization programs on the importance and value of traditional knowledge and the regeneration of the lost traditional knowledge would be

needed to redress the local threats. Box 22 below provides a summary of the reasons that contribute to erosion and loss of African traditional knowledge, innovations and practices of African communities.

Box 22: Summary of the reasons that contribute to erosion and loss of African traditional knowledge, innovations and practices of African communities

Why is traditional knowledge in Africa being lost?

African traditional knowledge, innovations and practices are being lost due to a variety of factors including:

- A lack of contact between Elders and the youth;
- Lack of respect by the youth for the Elders
- The Elders cannot find suitable students to whom they can impart their knowledge
- Influence of schools: less time spent on teaching about medicinal plants, cultural and spiritual values of biodiversity, the importance of ones own, culture, roots and tradition in the national curriculum;
- The young people do not readily see the value of traditional knowledge, regard it as backward, primitive and out modish, many of the young people today are therefore not interested in traditional lifestyles and tend to migrate away from villages;
- Hospitals and pharmaceutical medicines are easily accessible, thus replacing medicinal plants;
- Village Elders are forgetting traditional knowledge because they are not using traditional medicines, innovations and practices anymore;
- Apprenticeship systems of transmitting knowledge have disappeared in the wake of modern schooling, universities and other non-traditional trades. The traditional scientist no longer has students to whom to impart his or her knowledge and skills;
- New religions and the conventional Judea-Romanic Christian and Islam faith based religions introduced by western missionaries into Africa discourage the use, practice and maintenance of indigenous knowledge, innovations and cultures, especially or particularly in relation to taboos and magic associated with the practice of traditional medicines;
- People are losing confidence in traditional medicine;
- Children spend less time with their parents, especially in the fields, and are thus less exposed to plants, and the use of traditional knowledge in general as it relates to biodiversity;
- Forested areas in Africa are disappearing and with them the vast area of African forest biodiversity, the forest goods and services and the knowledge relevant to forest management and conservation; and
- People are more interested in modernization and the hope of enjoying the fruits of modernization, electricity, phones and food stuffs.
- Rural Urban Migration.
- HIV/AIDs taking away the elders wh have and carry archives of African Tradional Knowledge
- Conflict that caused displacement
- Recognition of both Indigenous Peoples and their knowledge in Africa.

CHAPTER 6

WHAT CAN BE DONE TO PROMOTE THE USE OF AFRICAN TRADITIONAL KNOWLEDGE, INNOVATIONS AND PRACTICES RELEVANT TO BIODIVERSITY CONSERVATION FOR WIDER APPLICATION?

“Respecting traditional knowledge does not mean keeping it from the world. It means using it in ways that benefit the communities from which it was drawn” Anon. 2004

Based on the previous discussions, especially the discussion of barriers to the use of African traditional knowledge, innovations and practices, the following issues can be seen as important ways and means of ensuring the perpetuation of African traditional knowledge, innovations and practices:

1. *Need for creating incentives to enhance the role of traditional knowledge systems;*
2. *Need for building awareness about the continued importance of traditional knowledge;*
3. *Land resources tenure; and*
4. *Land and natural resources rights;*
5. *Can existing intellectual property rights regimes be used to protect traditional knowledge? – examine how current laws can protect TK; and*
6. *The need for developing access and benefit-sharing regimes coupled with the protection of indigenous knowledge.*

These issues will be explored in more detail below. Box 23 below provides an overview of some of the ways that can be used to protect and conserve African traditional knowledge, innovations and practices.

Box 23: Some of the ways to protect and conserve African traditional knowledge, innovations and practices

Some practical examples:

Best ways to protect and conserve African Traditional Knowledge

- Parents and Elders must take responsibility for teaching the younger generations;
- Practical teaching through use, processing and application of medicinal plants;
- Documentation of knowledge in publications, posters and audio-visual materials;
- Form part of the school curriculum, but in collaboration with local communities to ensure that teaching is concurrent with maintaining local traditions;
- Conduct workshops, seminars and exhibitions;
- Provide incentives for the increased use of traditional knowledge.
- Establish traditional botanical gardens and medicinal plant gardens in African Villages for educational purposes; and
- Conserve medicinal plant reserves near villages for educational purposes;

a) Need for creating incentives to enhance the role of traditional knowledge

systems in Africa

From the information presented in this paper it becomes clear that there is a dire need for the immediate development of incentives for the protection and promotion of African traditional knowledge. The rate of erosion of the traditional knowledge of biodiversity held by African local and indigenous communities has never been as high as in the current generation. Incentive measures, tailored to secure the survival of traditional knowledge within and beyond this current generation, needs to be developed urgently to encourage the use of African biodiversity-related traditional knowledge innovations and practices. Many of the young people in Africa today see no use in maintaining the knowledge of their ancestors as this has many times been ridiculed, labeled as primitive and backward by those trained in Western institutions.

Young people must feel that it is rewarding to pursue careers based on the traditional knowledge of their forebears or ancestors. A number of issues towards the use of traditional knowledge are highlighted in Box 24. These need to be considered in awareness programmes aimed at mitigating the effects of barriers towards the use of traditional knowledge.

BOX 24: Issues for consideration in programmes aimed at creating incentives for the use of traditional knowledge, innovations and practices

Young people must feel that it is rewarding to pursue careers based on the traditional knowledge of their forebears or ancestors. This awareness creation effort should address the following:

- *It is important to value and have respect for African traditional systems of living, culture, knowledge, practices and technologies;*
- *It is not necessarily old-fashioned and retrogressive to continue to adhere to African traditional approaches to ensuring sustainable livelihoods (Ekpere, 2004);*
- *The challenge is not to preserve tradition, but to identify those elements in traditional systems that are worth keeping and to look for ways to integrate these elements with new knowledge, insights and ways of living based on modern scientific methods and market-based commercial approaches to sustainable resource use and management, and related benefit-creation and sharing;*
- *There is a need that those trained in the Western institutions of higher learning to recognize that the two bodies of knowledge i.e. Western knowledge and African Indigenous Knowledge systems can co-exist and mutually re-enforce and support each other. The one should not try to rule over the other;*
- *Models for ethical codes of conduct for research, access to use, exchange and management of information concerning traditional knowledge, innovations and practices needs to be developed. It is important to always consider the following questions: Do the members of local and indigenous communities want to have their knowledge formally documented? How should it be documented and by whom? Who will have access to such data bases?*
- *There is a need to revise the prevailing belief that western medicine is superior to traditional practices. There is a need for synergies between the two systems, synergies that by combining the two complementary approaches, could lead to more creative and culturally sensitive approaches for HIV/AIDS treatment in Africa (Shenton, 2004);*
- *Modify the age at which traditional education in the village begins, so as to ensure the transmission of knowledge prior to the departure of youngsters for formal education away from the village in urban centers or overseas, together with a need to convince the Westernized elite of the value of local knowledge;*
- *Create opportunities for urban children to be exposed to traditional lifestyles*
- *There is a need to identify measures to ensure that communities share in the benefits arising from the use of their knowledge;*
- *It is crucial to identify ways and means to encourage, monitor and control access to genetic resources and the associated traditional knowledge; and*
- *There is a need to help communities in the process of market and product development, processing and commercialization.*

b. Need for building awareness about the continued importance of traditional

knowledge

There is an increasing need to demonstrate the value and importance of indigenous knowledge, innovations and practices of African people within Africa as a region and elsewhere on the globe. This use of knowledge by the custodians of biodiversity has led to the survival of many useful species. The further use of this knowledge is however being threatened by the dominant western based knowledge. Greater awareness needs to be raised of the importance of traditional knowledge with regard to natural resource management, biotrade and bioprospecting.

Generally there is a need to promote awareness of the importance of traditional knowledge for sustainable resource management, food security and sovereignty, primary health care and national development. This process needs to take place at both the policy making level and within the general public.

There is the need for creating awareness amongst African governments about the importance of the protection of the rights and recognition of African indigenous communities. Taking the example of Burundi where the Government has given the Batwa huntergatherers who are the Indigenous peoples of the country a recognition by nominating them to both the Senate and the parliament. WE have six in total- three in the senate- one of the is a woman, they have also three members of parliament again with one lady who is now serving a second term. The

work of the Working Group of the African Commission on Human and Peoples' Rights on the situation of indigenous Populations and Communities in this regards is commendable. Box 25 gives an overview of the process that has been undertaken within the African Commission on the situation of indigenous Populations and Communities in Africa.

Box 25: Overview of the work of the Working Group on the Rights of Indigenous Peoples/Communities in Africa of the African Commission

The Working Group of the African Commission on Human and Peoples' Rights on the Situation of Indigenous Population and Communities in Africa. Source: Kipuri, 2005

In 1999, IWGIA (International Working Group for Indigenous Affairs) in cooperation with PINGOs ((Pastoralists Indigenous Non-Governmental Organizations Forum) held a conference on the situation of indigenous people in Africa in Tanzania. This conference recommended that the African Commission on Human and Peoples' Rights should be encouraged to address the human rights situation of indigenous peoples in Africa. Initially, the African Commission tended to reject the issue, as it did not find the term indigenous peoples applicable to African conditions.

One of the members of the African Commission, Commissioner Barney Pitso Rabe from South-Africa, participated in the Tanzania conference and, during the following sessions of the African Commission in Rwanda and Algeria respectively, he brought up the issue. This became one step forward in the recognition of the rights of Indigenous peoples in Africa.

Deliberating on the issue of Indigenous rights in the African context

During the 28th Ordinary Session of the Commission, which took place in Benin in October 2000, the situation of indigenous people was on the agenda as a separate item for the first time. Although the issue was initially not positively received, its inclusion in the official agenda was a major step forward. It gave the Commission and indigenous peoples the possibility of pursuing the matter further. This remarkable step forward indicated stronger than ever that the African Commission was now willing to deliberate and debate the issue of indigenous rights in Africa. During the Benin session, the Resolution providing for the establishment of a Working Group on the Rights of Indigenous Peoples/Communities was adopted. Considering that the African Commission had never before dealt with issues of human rights of indigenous

peoples, all this has been a particular interesting and promising process.

Indigenous representatives present themselves to the African Commission

The 29th Ordinary Session of the African Commission took place in Tripoli, Libya, in April 2001. For the first time ever 5 indigenous representatives participated and spoke in a session of the African Commission. The indigenous participation in the Libya session was crucial: for the first time, indigenous people had the opportunity of presenting their cases directly to the African Commission. They actively lobbied the governments and Commissioners and, through a seminar they organized during the session, they got a chance to voice their concerns and discuss directly with other human rights NGOs and interested state parties. The presence of indigenous people at the session in Libya presenting the reality of their experiences was felt within the African Commission and compelled the African Commission to seriously engage in issues relating to the rights of indigenous peoples.

Establishment of the Working Group

During the Libya Session, the “Working Group on the Rights of Indigenous Populations/Commission in Africa” was established by the African Commission. The African Commission also resolved to maintain the agenda item on indigenous populations/communities, thus providing indigenous peoples with a platform at each ordinary session for bringing their concerns to the fore.

In May 2001 this Working Group was established.

This was the mandate of the Group:

1. To examine the concept of indigenous people and communities in Africa;
2. Study the implications of the African Charter on the human rights and well-being of indigenous communities;
3. Consider appropriate recommendations for the monitoring and protection of the rights of indigenous communities; and
4. To report to the African Commission on Human and People’s Rights.

Continued indigenous participation

Since the Libya session in April 2001, indigenous representatives have been participating in all sessions of the African Commission. They have given statements, lobbied governments and NGOs and created new networks. This has contributed significantly to raising awareness of the African Commission, and the participation and contribution of indigenous representatives is now clearly felt at the sessions.

The report from the Working Group

The Working Group undertook the study in 5 regions on the continent: Eastern Africa, Central Africa, West Africa, North Africa and Southern Africa. After the compilation of the findings, a consultative seminar was held in Nairobi, Kenya to verify the findings with indigenous representatives and experts. The final report was submitted to the African Commission at its 33rd session in Niger in May 2003, and it was adopted in a resolution passed by the African Commission at its 34th session in Gambia in November 2003. The resolution provides for the adoption of the report and its recommendations, the publication and wide distribution of the report, the maintenance of the agenda item on indigenous populations at all ordinary sessions of the African Commission, and finally the extension of the mandate of the Working Group of Experts for an initial period of 2 years. The report of the working group was published in January 2005.

- c. **Funding of Initiatives such as the encouragement and support for the establishment and development of traditional medicinal plant botanical gardens**

In many parts of the region the trade in medicinal plants is an established and thriving industry involving the harvesting and sale of tons of medicinal plants. This industry has increased recently given the encouragement of the traditional knowledge, innovations and practices of local and indigenous communities around the globe by various international organizations. There is now also a great encouragement of traditional medicine to feature in national health care.

Many of these traditional medicinal plants can only be identified and harvested when they are flowering in summer and spring. Harvesters who in most cases are community members and traditional healers could be asked to keep sample plants as well as seeds, and also provide the local names and other traditional taxonomical features of the species involved. The plants could be identified by planting the seeds under laboratory conditions, as this will facilitate proper scientific identification as well as generate data on the reproductive biology of these plants.

Collaboration of all stakeholders will be called for in this initiative. It is essential that the prior informed consent as well as the necessary access conditions such as on mutually agreed terms and appropriate benefit-sharing arrangements should be established and adhered to. It is hoped that this initiative will promote the protection and preservation of traditional medicinal plants, but with an emphasis on sustainable use and harvesting and not necessarily the protection of resources to death.

These traditional medicinal plant botanical gardens can serve as reservoirs of traditional medicinal plant germplasm. If the issue of documentation of related knowledge can be addressed effectively, such knowledge could also serve to supplement the knowledge about the use of medicinal plants. If this is not done there is a high risk of some of this knowledge disappearing with the healers and Elders who possess such knowledge as many times this is specialized knowledge and not commonly known by all members of a given community.

An important related issue to this is that of indigenous taxonomic knowledge. It is important to recognize that taxonomies and other elements of local knowledge and their application have emerged from, and function within, specific social contexts. African rural community's resource use patterns are products not of their physical environment and its resources per se, but of their perceptions, or culturally-formed images, of the environment and its resources. To properly understand human ecological relationships, an understanding of a society's local taxonomic knowledge base and the cognitive system that underlies it, is crucial. The issue of traditional taxonomic knowledge has received very little attention internationally and it is regrettable that the Global Taxonomy Initiative is also not including this issue in their activities.

d. Legislation and Policy Framework in Africa

Governments prevail in the modern world as the policy and lawmakers of activities taking place in their respective jurisdictions. Local and indigenous communities may not have access to the necessary forums where decisions and laws are made that may affect them. Public consultation is always provided for but the effectiveness of such provisions for local and indigenous communities is questionable.

There is a need for policy makers in Africa to critically consider the issue of African indigenous knowledge, innovations and practices that are relevant to the conservation of biological diversity. To achieve this, a conducive policy and legal framework is required to ensure that communities are allowed to continue using and employing their traditional Knowledge, innovations and practices as it relates to biodiversity conservation. It is important to involve Indigenous Communities in the formulation of the policies.

Provision should be made for the protection of such knowledge as well as the promotion for wider use and application. Africa was one of the first regions to recognize the challenges it faced in the conservation and management of its biological resources and, in response, developed the African Convention on the Conservation of Nature and Natural Resources in 1968 (Algiers Convention). Today, there is a need to

protect the knowledge innovations and practices of local and indigenous communities across Africa from disappearing, abuse and misuse. Indigenous communities should work towards enhanced dialogues with their national governments and find middle ways or common grounds from which to start this process as it will not happen spontaneously without conscious effort at the same time national governments may also not embark on this process on their own accord. There is further a need to develop concrete ways and means to achieve this. African indigenous community, their networks and service providers should be integral in this process by spearheading the process of developing concrete ways and means.

e. Institutional Capacity in Africa

The issue of institutional capacity across Africa also needs to be considered as a **potential barrier to the** local communities in terms of using their traditional knowledge innovations and practices relevant to the conservation of biological diversity. The issue in Africa is not really one of money but of management and leadership. Many of the failures in Africa are caused by the lack of effective managers and leaders. Institutional bottlenecks also contribute significantly to this issue as it leads to the problem of slowing down the processes of policies and legislative frameworks being developed and fully implemented. The lack of recognition of the value of the African traditional knowledge, innovations and practices by some leaders in key institutions in Africa also serves as a barrier to the perpetuation of African indigenous knowledge systems. Some concrete ideas is for instance the establishment of Universities, and other training institutions dedicated to the cause of the further transmission of African traditional knowledge with the full and effective involvement of indigenous communities. Elders and traditional healers and other holders of traditional bodies of knowledge could then play a crucial role in such undertakings as teachers, lecturers and even as traditional researchers. This could facilitate a crucial interface between western knowledge and traditional knowledge. Schools could also be encouraged to include indigenous knowledge issues in their curricula to expose scholars to this aspect of the African way of life at an early age.

Indigenous Peoples and their communities have the will but the bad governance had destroyed it all.

f) The role of the Millennium Development Goals (MDGs) in promoting traditional knowledge

The Millennium Development Goals (MDGs) are an ambitious agenda for reducing poverty and improving lives that world leaders agreed on at the Millennium Summit in September 2000. The MDGs aim to improve human well-being by reducing poverty, hunger, and child and maternal mortality, ensuring education for all, controlling and managing diseases; tackling gender disparity, ensuring sustainable development; and pursuing global partnerships. At the core of these targets are the indigenous and local communities around the world in general and in particular those in Africa. Ecosystem services are a dominant influence on livelihoods of most poor people (MA, 2005) which is the case with many of the African indigenous and local communities. Most of Africa's indigenous and local communities live in rural areas and thus directly dependent on biodiversity and ecosystems services of food production, including agriculture, livestock and hunting. Mismanagement of ecosystems threatens the livelihood of poor people and may threaten their survival. All the MDGs are highly relevant to indigenous and local communities in Africa. According to the Inter-Agency Support Group on Indigenous Issues (2004) all indigenous and tribal peoples have the right to benefit from the MDGs and from other goals and aspirations contained in the Millennium Declaration, to the same extent as all others. They further maintain that as the 2005 review of the implementation of the MDGs nears, it appears from the available evidence that indigenous and tribal peoples are lagging behind other parts of the population in the achievement of the goals in most, if not all, the countries in which they live.

However, indigenous and tribal women commonly face additional gender-based disadvantages and discrimination.

There is also a concern that the effort to meet the targets laid down for the achievement of the MDGs could in fact have harmful effects on indigenous and local communities, such as accelerated loss of the

lands and natural resources on which indigenous peoples' livelihoods have traditionally depended or the displacement of indigenous and local communities from those lands. Because the situation of indigenous and local communities in Africa is often not reflected in statistics or is hidden in national averages, there is a concern that efforts to achieve the MDGs could in some cases have a negative impact on indigenous and local communities while national indicators apparently improve. While the MDGs carry a potential for assessing the major problems faced by indigenous people, the MDGs and the indicators for their achievement do not necessarily capture the specificities of indigenous and local communities and their visions.

Achieving these goals in the African Region will require the contribution of all development actors in the region and around the world. African indigenous peoples and their organizations should be integral in the implementation of the MDGs as they are able to provide the skills and creativity to making them happen (UNDP, 2004). It is important to recognize that if the MDGs are to be achieved special attention must be placed on indigenous peoples (UNDP, 2004). Efforts are needed at the national, regional and international levels to achieve the MDGs with the full participation of indigenous and local communities and without interfering with their development paths and holistic understanding of their needs (Inter-Agency Support Group on Indigenous Issues, 2004). Such efforts must take into account the multiple levels and sources of discrimination and exclusion that indigenous peoples face (Inter-Agency Support Group on Indigenous Issues, 2004). Many of the regions facing the greatest challenges in achieving the MDGs overlap with the regions facing the greatest problems related to the sustainable supply of ecosystem services (MA, 2005). Sub-Saharan Africa has been singled out in Africa as one of the most vulnerable regions. Sub-Saharan Africa has experienced increases in maternal deaths and income poverty. The number of people living in poverty in Sub-Saharan Africa is expected to rise from 315 million in 1994 to 404 million by 2015. Many of these people who will be affected by this increase in poverty will be indigenous communities. It is thus important that the linkages between the implementation of the MDGs and the promotion of traditional knowledge be explored and strengthened.

g) Can existing intellectual property rights regimes be used to protect African traditional knowledge, innovations and practices?

Generally, existing intellectual property rights (IPR) regimes - notably patent systems – are inappropriate for the protection of African traditional knowledge. Current IPR regimes are not sufficient to ensure that benefits flow back to indigenous and local communities and thus demonstrating the value of the traditional knowledge, innovations and practices, which will in turn promote the maintenance of such knowledge by African indigenous communities.

Most probably the biggest shortcoming of existing IPRs is that they were originally designed and developed for industrial inventions, whereby innovations are viewed as individual activities composed of separate identifiable components and ideas, each of which can be described and owned, and thus patented.

In contrast, most African traditional innovations of local and indigenous communities are as a result of a collective process of freely sharing ideas, knowledge and practices - as has been elucidated earlier in this paper-, which cannot be owned by an individual or even a group.

Africa as a continent has realized the need to develop its own *sui generis* regime to try and address this issue of the protection of traditional knowledge innovations and practices of local and indigenous communities on the continent.

The “African Model Law” for the protection of the rights of local communities, farmers and breeders, and for the regulation of access to genetic resources has been put forward to African countries as the African *sui generis* regime. This model law serves as a framework and guideline for African countries in the process of formulating and developing national access to genetic resources and the associated traditional

knowledge and benefit sharing legislation. It provides Africa with an opportunity to protect its rich cultural wealth and thereby its biological wealth. African countries are encouraged to make use of the OAU model law in the quest to find appropriate means to protect the traditional knowledge, innovations and practices of indigenous and local community embodying traditional lifestyles relevant to the conservation of biological diversity.

h) Involvement of African indigenous communities into mainstream development activities at the national level

Another issue that is important to consider is the argument whether indigenous and local communities should be left to continue living their traditional lifestyles forever without contact or interference from their national government.

The issue is not to deny indigenous and local communities of their rights to partake in the mainstream development initiatives of their countries. There are those who argue that –for instance the Ovahimba people of Namibia - who continue to live their lives as they have lived for millennia should be allowed to continue to do so, where as others argue that government should intervene and introduce the Ovahimba to mainstream development.

Perhaps the Ovahimba people (and all other African local and indigenous communities) should determine their own fate.

It is felt by most Namibians, however, to be desirable for the Ovahimba to send their children to modern schools; by doing so their children would be able to defend their rights better using their knowledge of the mainstream development agendas to defend their case and using the national language to argue their case both at national levels and at international levels. There is, according to this approach, a place for the traditional Ovahimba way to co-exist with the new ways, this can be viewed as two parallel lines alongside each other with occasional points of contact where the two systems converge and an exchange can take place between the two systems where after they again separate. This can be the points of convergence where African innovation meets western innovation or national innovation. The challenge is not to preserve traditional knowledge, because it has a dynamic nature, but rather to identify those elements in traditional knowledge (and traditional lifestyles) that are worth keeping and to look for ways to integrate these elements with new knowledge, insights and ways of living based on modern scientific methods. This integration should also include market-based commercial approaches to sustainable resource use and management, and related benefit-creation and sharing which could contribute to alternative incomes that can sustain the livelihoods of African local and indigenous communities. These points of convergence could facilitate this process of cross fertilization where by both systems could benefit.

i) The role of African Networks of Indigenous Peoples

The threats experienced by indigenous and local communities in Africa are more or less the same despite the difference in geographical areas. There is a need for African indigenous peoples to find platforms that will enable them to have a voice and bring their realities, experiences and challenges to the forefront. One way of achieving this is for indigenous peoples to work with their various service providers who may be NGO's, CBO's and other networks that have as their main aim and focus the advancement and voicing of the challenges and realities of African Indigenous Peoples.

These networks can help to share experiences and best practices and case studies within the African Region but also with other networks in other regions. Indigenous communities can then learn from each other and help each other to make informed decisions based on their own experiences within the region and that of their compatriots in other regions in the World. Table 3 provides a list of some of the indigenous people's networks and institutions that are operating in the various regions of Africa. From the table it is clear that there is quite a considerable number of networks within Africa if they can

collaborate with each other and have a combined concerted effort they will form a considerable movement for the advancement of the various issues facing indigenous communities in Africa. One net-work that has emerged as the leading network and representative structure of indigenous peoples in Africa, stimulating and supporting numerous regional advocacy projects and dialogue with African governments is the Indigenous Peoples of Africa Co-ordinating Committee Secretariat (IPACC). It was created in 1997 by the African caucus at the UN Working Group on Indigenous Populations (Part of the UNHCHR). It represent over 100 self-identified indigenous peoples' organizations in over 20 African countries.

Table 3: Some of the African Indigenous People's networks and organizations.

Region	Network¹⁵	Impact
Southern Africa	<ul style="list-style-type: none"> • The Working Group on Indigenous Minorities in Southern Africa (WIMSA) • Kgeikani Kweni First Peoples of the Kalahari • South African Centre for Indigenous knowledge (SARCIK) • South African San Council • Nama First Peoples Organization • Indigenous Peoples of Africa Coordination Committee (IPACC) • Congress of Traditional Leaders of South Africa • South African San Institute 	Led to the breaking of the isolation within which San groups existed within their own countries.
West Africa	<ul style="list-style-type: none"> • African Indigenous Womens Organization • Ethnic Minority and Indigenous Rights Organisation of Africa • Movement for the survival of the Ogoni • Tinhan-Burkina Faso and Mali • Niger and Chad- TOUNFA • CHATMA • TIDAWT 	
North Africa	<ul style="list-style-type: none"> • Commission Amazigh Internationale pour le Development et les Droits del'Homme (CAIDDH) • Amazigh Cultural Movement • Association IIs N amazigh • Association Adrar • Association Tamaynut • Association Tamunt n Iffus • Congres Mondial amazigh • Institute Royal for Amazigh Culture 	Advocate for the respect of human rights such as cultural and linguistic rights and the recognition of the rights of the indigenous people in North Africa

¹⁵ This list is not exhaustive. It is just indicative of the fact that indigenous communities in Africa has begun to organize themselves and establish various networks and NGOs to advance their cause and many of these networks and advocacy groups have been instrumental in gaining grounds in terms of the rights of African indigenous communities.

<p>Central Africa</p>	<ul style="list-style-type: none"> • Association Nationale des Peuples Autochtones Pygmées en République Démocratique du Congo (ANPAPRDC) • Programme D' Integration et de Development du Peuple Pygme • Action pour la Promotion des Droits de Minorite Autochtones en Afrique Centrale • Communaute des Autochtones Rwandais (CAURWA) • African Indigenous and Minority Peoples Organisation (AIMPO) • Association pour le Développement Global des Batwa du Rwanda ADBR • Programme dintegration et de developpement du peuple Pygme Au Kivu • 	<p>Promote the rights of the Pygme people of Central Africa and fight for their recognition</p> <p>Working to promote Batwa rights</p>
<p>East Africa</p>	<ul style="list-style-type: none"> • Ilaramatak Lokonerei –Rerat • Parakuyo Maasai organization • PINGOS- Tanzania • Maa women organization-Tanzania. • The Hadzabe survival organization. • United Batwa organization in Uganda. • Karamojong women for Peace and environment network- Karamojong Uganda • Kenya Resource Centre for Indigenous Knowledge (KENRIK) • African Indigenous Women Organization-Eastern Africa. • Indigenous Information Network • Indigenous Peoples of East organization. • Ngorongoro Crater Pastoralist Survival Trust • Maasai Education Discovery • Indigenous information Network • Simba Masaai Outreach organisation • Yaaku Peoples Association • Manyoito Pastoralist Integrated development organization MPIDO 	<p>Promote their fundamental human rights</p>

CHAPTER 7

KEY MESSAGES FROM THIS PAPER:

“The promotion and protection of the cultural, linguistic and religious rights of all our people must occupy a central place in the work of the Government. It should not happen that anyone of us should feel a sense of alienation. Whatever the sickness of our society, none should be driven to levels of despair which drive them to a peripheral existence at the fringes of the mainstream. Nor should we allow that those who were denied their identity, including the Khoi and the San, continue to exist in the shadows, a passing historic relic and an object of an obscene tourist curiosity. We consider the work of restoring the pride and identity of all our people of vital importance to the task of advancing the human dignity of all our citizens and ensuring the success of our efforts towards national reconciliation and nation building”
The President of South Africa, Mr. Thabo Mbeki, June 1999 (ACHPR, 2005)

Africa as a continent and the people of Africa have much to offer to humanity. Africa is a continent with huge potential especially based on the African heritage embodied in the diverse people’s cultures and the related diversity of traditional knowledge innovations and practices. Humanity has its origins in Africa and this is already a huge plus for the so called “Dark Continent” We need to identify the enabling environment for creating success and replicate this across Africa.

There is an urgent need for international, national, regional and sub-regional recognition, retention and use of indigenous knowledge systems in Africa and elsewhere. Such knowledge systems should also be integrated into the formal educational systems explaining its relevance to national development priorities. It thus follows that indigenous knowledge be accepted as having a status equal to any other form of knowledge. This equality should gain recognition in law.

Governments need to develop and implement appropriate policies and legislation for the protection, promotion and facilitation of the use of TK with the full and effective participation of indigenous and local communities.

Governments and the private sector should involve indigenous and local communities in the formulation, implementation and evaluation of development projects as well as in EIA, social and cultural impacts assessments of projects which may have an impact on their ability to continue accessing and using natural resources and the application of TK relevant to such resources. Governments should ensure that from the onset in the formulation and development of development projects, the definition of what is to be conserved, how it should be managed, and for whom, should be based on interactive dialogue to understand how local livelihoods are constructed and people’s own definitions of well-being.

Box 26: Example of western innovations meeting with African inventions (adapted from Gupta, 2003)

Example of western innovations meeting with African inventions

In many Mali villages, food storage vessels are made of dry gourd skins. These sometimes get cracked or broken. A Bela woman would stitch these pieces together with plastic cords so that these natural biomass-based vessels can last longer. This is an excellent example where the culture of recycling and repair, which is so integral to traditional communities (unlike Western culture which creates a lot of waste) combines a traditional vessel with modern plastic chord (Gupta, 2000).

This approach of combining a traditional resource with modern materials may not happen so obviously in the modern laboratories and academic research institutions. However, this process *per se* is not totally unknown to the modern methods of problem solving. There is an increased need for such approaches where the two knowledge systems cross-fertilize each other.

As some of the TK held by indigenous and local communities in Africa is under threat of disappearance due to various socio-cultural and economic pressures **there is an urgent need to establish mechanisms to revive and retain such TK using the available knowledge and skills, especially those that are relevant to the conservation and sustainable use of biodiversity**

There is a need for information sharing on African best practices across Africa based on the use of African traditional knowledge, innovations and practices. Exchange visits by holders of indigenous knowledge in Africa should be facilitated in the different African regions in order to promote the sharing of knowledge to formulate better use and protection at all levels.

The consultative process of the CBD and UNEP need a working set of criteria to identify the spectrum of peoples to be considered as “indigenous peoples” for the purpose of consultations. The ideas put forward in this paper could serve as step towards that goal. These consultative processes of the CBD and UNEP should further be broadened in Africa and should be conducted in close co-operation with the networks of indigenous people’s organizations.

Priority should be given to ensuring access and participation by hunter-gatherer peoples and transhumant pastoralist peoples in the CBD processes – attention should be given to those groups with no or little organized civil society.

Consultation with major international conservation agencies, for example World Wildlife Fund, Wildlife Conservation Society, National Geographic and others could assist with building capacity of indigenous peoples to participate in the CBD process.

TK should be equally valued with Western Science and thus scientists need to collaborate, through research and development, in equal partnership with TK holders, with their prior and informed consent

The Global Taxonomy Initiative left out Indigenous Knowledge Systems, which is a mistake and should be corrected. Local taxonomic knowledge can assist in reaching the objectives of the Global Taxonomic Initiative and African local and indigenous communities have a contribution to make through their knowledge systems to global taxonomy.

There is a need to look closer into the way in which barriers, socio-economic, technological and cultural, prevent knowledgeable people from speaking and their voices from being heard. This will significantly contribute to biodiversity conservation, management and sustainable use.

There is a need to address political and socio-economic marginalization of local and indigenous communities in Africa.

- i. This includes the urban-rural dichotomy
- ii. Lack of access to services
- iii. Lack of access to formal education and lack of recognition of the informal education

Governments are not pleased with the claim by indigenous and local communities to the right to control and manage their heritage, knowledge and biodiversity which is based on their inherent right to self-determination. This may be a very powerful barrier to the perpetuation of traditional knowledge systems in Africa.

There is a need to address land and resource tenure in Africa. This is a highly political issue and difficult to address. The history of conservation in Africa is a story of the eviction of Africans from their rich ancestral lands and dumping on marginal lands. Africa has been divided historically with artificial boundaries that did not recognize traditional and cultural boundaries. This later resulted in bloody and terrible wars and conflicts over land and resources in Africa between brother and brother thus resulting in environmental degradation and loss of biodiversity on the continent As well as indigenous knowledge that may have been held by those who perished in these wars;

Some of the implications may include:

1. Loss of languages in Africa;
2. Increase of disease in Africa (diabetes, obesity, tuberculosis, malaria etc.); and
3. Maintaining links to the land; this is an important process that needs to be addressed. In order for African traditional knowledge relevant to the conservation of biodiversity to survive and remain in use, people will need to have access to the land to use, practice and improve their knowledge. We need to find incentives to have this process continue. Urbanization has already contributed significantly to the loss of knowledge relevant to the conservation, management and use of African biodiversity.

Links to international processes¹⁶ relevant to the maintenance of African indigenous knowledge on biodiversity should be fostered.

There is a need to address primary health care and distinguish between mental and physical health as African indigenous peoples have health needs that cut across socio-economic lines. Indigenous health care must include indigenous perspectives and incorporate holistic, physical, mental, spiritual and cultural elements, both in the design and delivery of health care.

There is a need to take the situation of African indigenous and local communities fully into account in the efforts of the international system to achieve the MDGs and the aspirations of the Millennium Declaration. African States, international organizations and non-governmental organizations should promote national dialogues, including through the establishment of institutional frameworks, as appropriate, in order to bring together indigenous peoples' perspectives and priorities for sustainable

¹⁶ These international processes are led by (amongst others), WIPO, CBD, UNESCO, WTO, UNCTAD etc.

human development and their expectations regarding the MDGs. Indigenous peoples' institutions in and their processes in Africa, where they exist, should be respected during these dialogues

Good policy and/or legislation are not enough support to marginalized peoples. The recognition of their voice, their traditional knowledge, innovations and practices is also needed as well as their full and effective participation.

Communities should have improved understanding of what the true value of the product derived from their biological resources. Through their networks (e.g. North-South networks) they could look at market value and prices for traditional knowledge based products and medicines. This is especially so in the case where such products were developed on the basis of their traditional knowledge, innovations and practices and used for in the export market.

Provisions should be developed within the government systems in Africa whereby indigenous knowledge can be collected, documented, protected and put to use with the free and prior informed consent of holders of such knowledge to avert such problems as patenting and to facilitate further dissemination.

There is an urgent need to promote the use of native names for animal and plant species in order to increase the likelihood that the conservation of biodiversity will be culturally accepted by indigenous people. This can be achieved through support of existing networks of networks such as e.g. the African Ethnobotany Network (AEN) and national nodes (e.g. UGANEB, Kenya Ethnobotany Network [KEN])

Governments and local and indigenous communities in Africa should promote the revival and preservation of African indigenous languages through resources such as linguistic documentation, as well as the aim to restore every day communication in indigenous languages. This could also be done by encouraging more studies on African indigenous languages in faculties at Universities and other training institutions.

There is an urgent need to build on local priorities determined by the indigenous and local communities themselves, the diversity of livelihoods and local definitions of well-being. There is an urgent need to create and strengthen local traditional institutions in order to promote, protect and transmit TK; further institutions at the local level to promote the transmission of TK should be created.

Indigenous and local communities in Africa should inform themselves of existing protocols, guidelines and other instruments relevant to the promotion, protection, use and retention of their TK, innovations and practices relevant to the conservation and sustainable use of biological diversity. Indigenous people should initiate this process themselves as national governments may not see the need for this despite the many calls at the international levels for governments to do so.

The extend family, community and traditional socio-cultural and political structures and institutions in Africa should be supported as primary modes of transmittal of TK for intergenerational transfer as the breakdown of these is not helpful to the transmittal, retention and use of TK. People need to be made aware of the positive aspects of the African extend family not only in terms of the maintenance of traditional knowledge but also in terms of care for the Elders (i.e. they are not dumped in old age homes), collective caring for children, and other such benefits.

The capacity of local and indigenous communities to appreciate the value of their TK and to utilize their TK should be strengthened. Given that many indigenous communities in Africa may not have such a long history with the monetary system, they sell their produce and innovations at inappropriate

prices or simply trade it for alcohol and tobacco. There is therefore a need to make communities of the true value of their products and knowledge.

African local and indigenous communities should promote the sustainable use of traditional foods, crop varieties, animals, artisanal, agricultural and agroforestry systems, non-timber forest products and medicines to encourage the retention and use of TK as well as to ensure sustainable livelihoods.

The current model of globalization should be critically examined and a new model with all interest holders including indigenous and local communities, be developed that is friendly to indigenous and local communities and encourages cultural diversity, including language diversity and protection and promotion of TK. An alternative “globalism” needs to be developed that allows for the survival and growth of indigenous economic systems and local, small-scale community (and often non-cash based) economies

There is an urgent need for the international community to encourage governments to focus more on the adaptation of traditional customary, systems, knowledge and practices to social change rather than replacement of such systems by western models.

The CBD and UNEP should encourage international donors to help assist indigenous peoples in Africa to build up their capacity, in terms of leadership, organizational capacity and the ability to conduct their own research and advocacy.

CHAPTER 8

CONCLUSIONS

Once the “local experts,” the older generation, are gone and there are no successors, the knowledge held in trust by those individuals for future generations is lost forever (Gupta, 2003).

Conserving biodiversity without conserving associated knowledge systems is like building and maintaining a library without a catalogue. It is true that users of such a library might in fact develop a catalogue over a long period of time but meanwhile the users would suffer. By analogy, biodiversity users, who are without a knowledge base, will not benefit from centuries of experimentation, conservation and knowledge accumulation by local and indigenous communities. It is true that formal scientific knowledge of plants and animals is diverse and rich. However, the bases upon which different communities have classified and organized their knowledge as well as practices are similarly rich (Gupta, 2003). It has to be recognized that African biodiversity-related traditional knowledge, innovations and practices have relevance today with regard to natural resource management in general and biodiversity conservation management and use in particular. This view point needs to be encouraged in formal education institutions in Africa. This should be ingrained in the children already at an early stage during their primary school years.

Traditional knowledge deserves its place next to western based knowledge systems and awareness has to be raised that these two systems can indeed co-exist.

From the discussion in this paper it seems that traditional knowledge related to African traditional medicine may well be one of the knowledge systems that is not negatively impacted upon by barriers to the use of traditional knowledge. It has been mentioned before that healers continue to use their knowledge in both rural and urban settings where their knowledge and skills are needed. It is important

that this knowledge flow not be blocked. The threat to the maintenance of this knowledge system may lie in the direct loss of biodiversity as some of the plants may become extinct due to over harvesting and habitat loss due to development projects and changing environmental conditions. The absence of certain plants and animals may lead to the erosion of the knowledge that relates to such plants and animals.

There is a need for scientific and traditional knowledge practitioners to join forces and mutually support each other. Each knowledge system respectively has much to offer in the efforts for biodiversity conservation.

The indigenous and local communities in Africa possess knowledge that has been tested over time and through time as it has been passed on from generation to generation. In short local and indigenous communities possess the actual working knowledge relevant to the preservation of biodiversity within their territories whereas scientists have theories about such biodiversity. Scientist today are trained in a very sectoral manner whereas local and indigenous communities have a more holistic approach towards studying and understanding biodiversity in general and biodiversity in particular; therefore interaction between these two groups is essential.

Information sharing between local and indigenous communities and western trained scientists will be an essential task in order to foster the use of traditional knowledge as it relates to biodiversity. This exchange of information should not solely be between scientist and local and indigenous communities but also between communities themselves across the continent.

Finally, from the various issues considered in this paper it is evident that there is still a very long way to go in terms of advancing the issues of African indigenous people and at the same time it also evident that Africa as a continent is moving fast towards new forms of agreements and policy frameworks to positively address the issues and the rights of the African indigenous people.

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Annex I

Recommendations adopted at the African regional workshop on the Composite Report on the Status and Trends of Traditional Knowledge. New York, 21-22 April 2005.**General**

It is recommended that:

1. There is a need to promote the recognition, retention and use of TK at all levels
2. As some TK held by indigenous and local communities is under threat of disappearance due to various socio-cultural and economic pressures there is an urgent need establish mechanisms to revive and sustain such TK using the available knowledge and skills, especially those that are relevant to the conservation and sustainable use of biodiversity.
3. Governments that have not ratified international instruments relevant to the rights of indigenous and local communities and their traditional knowledge, innovations and practices need to be urged to ratify such instruments
4. Indigenous and local community should make use of the opportunities provided by tourism to promote the use and retention of their TK
5. Misappropriation of TK and associated genetic resources needs to be addressed through strategies such as the development of a code of ethics for researchers in indigenous and local community contexts as well as the development of other strategies, including *sui generis* protection such as the recognition of customary laws/legal principles and forms of protection to ensure TK is fully protected.
6. TK should be equally valued with Western science and thus scientists need to collaborate, through research and development, in equal partnership with TK holders, with their prior and informed consent.
7. All interest holders should work together to recover and support traditional knowledge systems for the good of all humanity, without prejudice to indigenous and local communities.
8. There is a need to strengthen the implementation of the Convention on Biological Diversity at global and regional levels.
9. Foreign and introduced religions have damaged TK systems and therefore their adaptation to social-cultural contexts and inter-Faith dialogues should be promoted and encouraged in order to engender mutual respect and to repair centuries of damage to the TK systems especially spiritual believe system of indigenous and local communities.
10. The right of self-determination of indigenous peoples and the related process of free, prior and informed consent needs to be acknowledged and implemented if indigenous peoples are to be empowered to protect their TK.
11. The holistic nature of TK must be understood and promoted instead of its breakdown and compartmentalization into discrete components, such as Traditional Environmental Knowledge, Traditional Forest Related Knowledge, or Traditional Cultural Expressions. A holistic understanding as well as the coordination and harmonization among the various UN agencies and multi-lateral bodies active on TK should be encouraged.

Local Level

It is recommended that:

1. There is a need to create and strengthen local traditional institutions in order to promote, protect and transmit TK.

2. Indigenous and local communities should inform themselves of existing protocols, guidelines and other instruments relevant to the promotion, protection, use and retention of their TK, innovations and practices relevant to the conservation and sustainable use of biological diversity.
3. Indigenous and local communities and other relevant local institutions should take measures to promote indigenous languages and positive cultural practices to enhance the retention and protection of TK.
4. Indigenous and local communities should lobby their representatives in political parties and governments to ensure that their concerns get reflected in party manifestos and national development plans and policies especially those relevant to TK.
5. The extended family, community and traditional socio-cultural and political structures and institutions should be supported as primary modes of transmittal of TK for intergenerational transfer as the breakdown of these is not helpful to the transmittal, retention and use of TK.
6. Indigenous peoples and local communities require access, control and ownership of their lands and natural resources to practice and retain TK.
8. Indigenous and local communities should promote the sustainable use of traditional foods, crop varieties, animals, artisanal fisheries (pisciculture), agricultural and agro-forestry systems, non-timber forest products and medicines to encourage the retention and use of TK as well as to ensure sustainable livelihoods.
9. The capacity of local and indigenous communities to appreciate the value of their TK and to utilize their TK should be strengthened.
10. Indigenous and local communities should develop initiatives at the local level to improve the quality and standardization of their traditional medicine in order to facilitate mainstreaming of traditional medicines for human and animal.
11. Indigenous and local communities in collaboration with relevant government institutions should encourage and promote the establishment of botanical gardens for medicinal and other useful plants.

National levels

It is recommended that:

1. The capacity of local and indigenous communities to appreciate the value of their TK and to utilize their TK should be strengthened.
2. Governments and other relevant institutions should enhance the recognition and support of the knowledge, innovations and practices of local and indigenous communities relevant to the conservation and sustainable use of biodiversity.
3. Governments and other relevant institutions should recognise the rights of indigenous and local communities as custodians and managers of natural resources.
4. Government are to put in place measures to ensure equitable access, distribution and utilisation of national resources (budgetary allocation, social services & water resources) by indigenous and local communities in order to reduce pressure on natural resources relevant to the retention and use of TK.
5. Governments need to develop and implement appropriate policies and legislation for the protection, promotion and facilitation of the use of TK with the full and effective participation of indigenous and local communities.

6. Governments need to implement and comply with their international commitments under the CBD and other relevant international instruments relevant to the traditional knowledge, innovations and practices of indigenous and local communities.
7. Governments and the private sector should involve indigenous and local communities in the formulation, implementation and evaluation of development projects as well as in EIA, social and cultural impacts assessments of projects which might have an impact on their ability to continue accessing and using natural resources and the application of TK relevant to such resources.
8. Governments and relevant national institutions should take measures to promote indigenous languages and positive cultural practices to enhance the retention and protection of TK.
9. Governments and other relevant national institutions should promote education and public awareness of TK including the mainstreaming of TK in the formal education curriculum at the national and local levels as well as the promotion of indigenous media (community radios, community news letters) to ensure cultural awareness and sensitivity to indigenous and local communities.
10. Ensure the full and affective participation of indigenous and local communities in policy formulation, planning, implementation and decision-making processes of national governments.
11. Governments are to develop, with the full and effective participation of indigenous and local communities, national legislation to implement international and regional commitments such as the AOU Model Law, Bonn Guidelines and other relevant instruments to control and regulate bio-piracy and bio-prospecting as well as to protect the TK of indigenous and local communities.
12. Governments and relevant institutions should promote community based eco-tourism initiatives especially by indigenous an local communities.
13. Governments and other relevant institutions should assist indigenous and local communities in improving the quality and standardisation of traditional medicine in order to facilitate mainstreaming of traditional medicines for human and animal.
14. Governments should promote and encourage the establishment in collaboration with indigenous and local communities botanical gardens for medicinal and other useful plants.
15. Governments in collaboration with indigenous and local communities should identify traditional knowledge holders (individuals and institutions) and other TK experts and to promote and protect their knowledge and expertise.
16. National governments should focus more on the adaptation of traditional customary laws, systems, knowledge and practices to social change rather than replacement of such systems by western models.
17. Increased cooperation is required between governments and indigenous and local communities in national reporting and more importantly, in the implementation of the Convention on Biological Diversity.
18. Governments and relevant institutions should recognise indigenous women as key players in the promotion and retention of traditional knowledge, innovations and practices of indigenous and local communities and therefore they should be provided with support and capacity building measures to empower them.

International Levels

It is recommended that:

1. The South should ensure that its agendas get reflected in international processes especially those that relate to TK relevant to the conservation and sustainable use of biodiversity.
2. Government should incorporate indigenous and local community representatives in their national delegations to relevant international conferences.
3. Urge Governments and other donors to make contributions to the fund established by the Conference of the Parties to facilitate the participation of indigenous and local communities in the Convention processes.
4. The international community should encourage governments to focus more on the adaptation of traditional customary laws, systems, knowledge and practices to social change rather than replacement of such systems by western models.
5. The National focal points of the Conference of the Parties should be strengthened and strongly encouraged to work with indigenous peoples organizations and networks to disseminate information to indigenous and local communities and to other government departments (to build capacity and sensitivity to indigenous issues).
8. The precautionary principle should be applied to the introduction of all alien species, including genetically modified organisms and other modern technologies.
9. Governments should recognise the principles of customary indigenous law applicable to TK and incorporate such principles into national legal systems, in equal partnership with TK holders and with their prior and informed consent, and respecting the right of indigenous peoples to continue practicing these systems without interference or threat.
12. The implementation of globalization should take into account the concerns and needs of indigenous and local communities.

*Annex II***ACKNOWLEDGEMENTS**

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