

HARNESSING TRADITIONAL KNOWLEDGE AND GENETIC RESOURCES FOR LOCAL DEVELOPMENT AND TRADE

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Summary

The resilience and adaptability of traditional economies have enabled hundreds of millions of people past and present to live worthwhile lives. This is now much better recognised than before. From the 1980s, traditional rural societies began to gain broader respect for their cultural richness, sophisticated natural resource management expertise, and for their agricultural and health-related knowledge. Indeed, it became more evident that many of the technologies that traditional cultural communities need to enable them to thrive already exist. We know that because despite political instability including wars, public health emergencies, hostile environments, lack of external support, and the extreme poverty that makes it difficult for traditional societies to acquire from elsewhere goods and technologies that they do not produce themselves, millions of people in traditional societies live productive worthwhile lives. Furthermore, many conservation and development agencies began to consider what the Convention on Biological Diversity refers to as “the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles” as a hitherto barely tapped source of technologies capable of being harnessed in the pursuit of more sustainable paths of development not just for those communities but for national economies and even the world.

According to the World Health Organization, up to 80 per cent of the world’s population depends on traditional medicine for its primary health needs. While the high cost of pharmaceuticals is a factor in this, for many ailments traditional medicine is preferred, even by urban populations. Consequently, traditional herbalists are often active in both rural and urban areas.

Some traditional medicines are used as inputs in biomedical research, suggesting that they may constitute a source of income not just as drugs in themselves but as the sources of chemical substances with therapeutic effects. Indeed, traditional communities have already been responsible for the discovery, development, and preservation of a tremendous range of medicinal plants, health-giving herbal formulations, arts and crafts and agricultural and forest products, that are traded internationally and generate considerable economic value – but not for those

communities. Concerns have been raised about unfair exploitation of traditional health knowledge. But whatever the economic potential, medicinal plants continue to play a vital role in primary health care throughout the continent.

Turning to agriculture, traditional cultivation systems, based on extensive knowledge of natural processes and local economy have successfully enabled millions of people to subsist for thousands of years. But many of these systems have fallen into decline. Among the explanations put forward for this state of affairs are population increases, the spread of market economies including commercialisation of agriculture with the introduction of export crops and Green Revolution technologies, all-too-prevalent assumptions that Western techniques and methods such as high-input monocultural agriculture are superior to local ones like intercropping, the imposition of inappropriate laws and regulations by governments, and war. Despite this, the original agricultural systems are intact in many parts of the developing world.

In traditional societies, handicrafts and artworks are not mass-produced objects made in accordance with precise, inflexible guidelines established by the ancestors. Instead, they are the products of individual artisans and artists steeped in the culture of the society to which they belong. Trade in handicrafts is substantial. For Burkina Faso, example, handicrafts constitute 70 percent of GDP. However, the continued production and further development of traditional handicrafts and artworks are threatened sometimes by the disappearance of traditional skills. Another serious problem is copying and mass production by outsiders, who thereby deprive artisans of a source of income.

Local governance underpins traditional economies. The latter is unlikely to operate effectively in the absence of well-functioning formal or informal juridical and administrative institutions such as councils of the elders, spiritual leaders, chiefs, courts, and widely accepted and enforced customary norms including those relating to property rights. In traditional societies customs are often of major importance in regulating social and economic behaviour. Customs are established modes of behaviour within a cultural community that may have the force of law.

In many cases, cultural communities manage local resources and the environment in a highly sustainable manner. They do so through the application of sophisticated resource management systems developed through knowledge of the natural environment.

Many if not most of the technologies that traditional cultural communities need to enable them to thrive already exist. Nonetheless, groups and communities holding traditional knowledge, practices, and possessing their own laws and governance systems are often highly receptive to ideas and influences from outside. In many cases, they are stronger and more viable for that. For traditional economies to succeed in the modern globalising world, they need to conserve the best of their traditions while selecting the most useful resources, technologies and institutions from outside and adapting them to optimally meet their needs. For them to achieve both, coercive measures including forced assimilation programmes should be avoided.

Traditional economies can and should be the basis for development policy involving local people, which in turn should be based upon the enhanced application in a balanced manner of both local and non-local resources, technologies and institutions.

The constraints to achieving this are both political and economic. While a system of decentralised political, administrative and juridical institutions is a necessary condition for traditional economies to operate in a successful and sustainable manner for the benefit of local people and the wider economy, democracy and accountability are absolutely essential.

In conclusion, the following list of key points is provided for the consideration of negotiators and policy makers:

- Act on the understanding that different countries have varied interests and concerns in respect of traditional knowledge and technologies and also that their positions may be based on quite different assumptions and ideological standpoints concerning traditional knowledge (TK) and technologies and TK-holding groups.
- Do not expect early solutions to this issue. Devising workable measures and achieving consensus on their adoption will take a long time given the complexity of the issue, the stakes involved and the conflicting interests of the various “stakeholders”.
- Avoid or discourage protracted discussions on the applicability of existing IPRs to traditional knowledge and technologies, and on the “need” to define traditional knowledge and technologies first before solutions may be formulated.
- Conduct studies to estimate the costs of implementing proposals or measures to protect traditional knowledge and technologies and weigh these against the benefits that can realistically be gained *before* deciding to actively pursue them in international forums.
- Ensure that national policies and multilateral-level negotiating positions and strategies are consistent, coherent and mutually supporting.
- Encourage the active participation of traditional knowledge and technology holders and traditional communities in both the formulation of national policies and of multilateral negotiating positions.
- Place the interests of indigenous peoples and traditional communities at the centre of all negotiating strategies on traditional knowledge and technologies.
- Be aware that many otherwise sympathetic people oppose the creation of new property regimes on the grounds that they will shrink the public domain. Therefore, it may be necessary to emphasise that a *sui generis* system based upon customary law would not enclose part of the knowledge commons but would merely recognise property rights that already exist but which are not respected.

1. Introduction

Until the 1980s, development planning and conservation policies were usually based on very negative assumptions about traditional rural societies. Poor rural dwellers were generally assumed to be backward and inimical to change, and their livelihood practices, such as shifting cultivation, were thought to be at best inefficient and unproductive and at worst environmentally destructive. But from that decade, these people began to gain broader respect for their cultural richness, sophisticated natural resource management expertise, and for their agricultural and health-related knowledge. Many conservation and development agencies began to consider what the

Convention on Biological Diversity refers to as “the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles” as a hitherto barely tapped source of technologies capable of being harnessed in the pursuit of more sustainable paths of development. Such enlightened attitudes towards the knowledge, skills, and subsistence practices of rural communities in developing countries emerged, according to Adams, “as part of a liberal and populist reaction against the unsuccessful technological triumphalism of rural development practice”.¹ These attitudes have become increasingly mainstream in academia and among international development and conservation agencies. Many multilateral and bilateral donor agencies now recognise and actively promote the role of traditional knowledge in sustainable rural development programmes.

Although the case was sometimes overstated to the point of naïve romanticism, this re-evaluation was long overdue. Indeed, such views seemed to be borne out by the tremendous biodiversity-richness of those areas inhabited by traditional peoples and communities, as compared to the generally far more degraded ecosystems elsewhere, or in those same places after the traditional occupants had been subjected to policies of forced assimilation or removal. Indeed, the fact that traditional economies have enabled hundreds of millions of people past and present to live worthwhile lives is testament to its viability.

This paper first explores the specific areas of health, agriculture, and natural product-based handicrafts industries, local governance and property rights, and sustainable resource management. One conclusion to be drawn is that many if not most of the technologies that traditional cultural communities need to enable them to thrive already exist. Up to now, though, policymakers have tended to overlook or denigrate them. A broader conclusion is that traditional economies can and should be the basis for development policy involving local people.

Groups and communities holding traditional knowledge, technologies and cultural expressions (folklore), and possessing their own laws and governance systems are often highly receptive to ideas and influences from outside. In many cases, they are stronger and more viable for that. For traditional economies to succeed in the modern globalising world, they need to conserve the best of their traditions while selecting the most useful resources, technologies and institutions from outside and adapting them to optimally meet their needs.

In short, traditional economies should be based upon the enhanced application in a balanced manner of both local and non-local resources, technologies and institutions. In large part the constraints to achieving this are at least as much political in nature as they are economic.

“Tradition” and “traditional” in the present context, as in others, are tricky words to define and to distinguish from what is not tradition or traditional. Moreover, the two words often have negative connotations suggesting an extreme conservatism which clings on to the outdated, the obsolete, the antithetical to material improvement, and sometimes even the inhumane.

¹ Adams, W.M. (1990) *Green Development: Environment and Sustainability in the Third World*, London: Routledge, at 169.

While some traditional practices may indeed be fairly depicted this way, tradition has many positive elements. As a body of knowledge, customs, beliefs and cultural works and expressions handed down from generation to generation, tradition often forms the “glue” that strengthens social cohesiveness and cultural identity, and provides the underpinning for successful ways of subsisting in what are often hostile natural environments. And neither is it the case that “tradition” is about the old, the obsolete and the maladaptive. If we just consider traditional knowledge, technologies and cultural expressions, there is growing recognition that these can be highly evolutionary, adaptive and even novel. In short, knowledge held and generated within “traditional” societies can be new as well as old. We should not be surprised by this. Out of necessity, traditional knowledge has always been adaptive because adaptation is the key to survival in precarious environments. Consequently, while traditional knowledge is handed down from one generation to another, this does not mean that what each generation inherits is what it passes on. Knowledge develops incrementally with each generation adding to the stock of knowledge.

Many traditional economies have existed over very long periods of time. They are durable. But they are also vulnerable in today’s world. Consequently, efforts are required to conserve them where they are threatened and revive them where they have eroded.² Indeed, human cultural diversity is eroding at an accelerating rate as the world steadily becomes more biologically and culturally uniform. According to the International Union for the Conservation of Nature (IUCN) Inter-Commission Task Force on Indigenous Peoples, “cultures are dying out faster than the peoples associated with them. It has been estimated that half the world’s languages – the storehouses of peoples’ intellectual heritages and the framework for their unique understandings of life – will disappear within a century”.³ According to the Task Force, the main threats include genocide, uncontrolled frontier aggression, military intimidation, extension of government control, unjust land policies, cultural modification policies, and inappropriate conservation management. This suggests that measures to protect traditional economies and the rights of traditional cultural communities should be complementary and that they need to be implemented with some urgency.⁴

2. Health

According to the World Health Organization, up to 80 per cent of the world’s population depends on traditional medicine for its primary health needs. While the high cost of pharmaceuticals is a factor in this, for many ailments traditional medicine is preferred, even by urban populations. Consequently, traditional herbalists are often active in both rural and urban areas.

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It is also important to create economic opportunities for traditional communities where they are and building upon what they are doing already. In TK book, the paper by Karbolo demonstrates this. http://www.unctad.org/en/docs/ditcted10_en.pdf

³ IUCN Inter-Commission Task Force on Indigenous Peoples (1997) *Indigenous Peoples and Sustainability: Cases and Actions*, IUCN and International Books, Utrecht, at 60.

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In the UNCTAD TK book, the paper by Oviedo, the estimate for languages dying out in the next 100 years is 90%. http://www.unctad.org/en/docs/ditcted10_en.pdf, page 94.

In some areas, traditional and western medicinal systems operate side by side, leaving individuals with freedom to choose how they wish to be treated.⁵ But in other areas, there are tensions between the two, often caused by hostility towards traditional practitioners from those trained in western biomedicine or from governments.⁶

Some traditional medicines are used as inputs in biomedical research, suggesting that they may constitute a source of income not just as drugs in themselves but as the sources of chemical substances that may form the basis of new pharmaceuticals. Indeed, traditional communities have already been responsible for the discovery, development, and preservation of a tremendous range of medicinal plants, health-giving herbal formulations, agricultural and forest products, and handicrafts that are traded internationally and generate considerable economic value – but not for those communities. As is well known, concerns have been raised about unfair exploitation of traditional health knowledge. How legitimate are such concerns? It is difficult to be sure but genuine commercial applications undoubtedly exist.

Attempts have been made to estimate the contribution of traditional health knowledge to modern industry, albeit without much accuracy. The estimated market value of plant-based medicines sold in OECD⁷ countries in 1990 was \$61 billion.⁸ Many of the pharmaceutical companies are likely to have used traditional health knowledge as leads in their product development. This is demonstrated by an estimate that of the 119 plant-based compounds used in medicine worldwide, 74 percent had the same or related uses as the medicinal plants from which they were derived.⁹

A good example is the rosy periwinkle (*Catharanthus roseus*), a plant originally found in Madagascar, which yields two anti-cancer alkaloids, vincristine and vinblastine.¹⁰ These have generated huge profits for Eli Lilly, a United States pharmaceutical company, since they came on the market around four decades ago. To some this is the classic “biopiracy” case with Madagascar and its people the unfortunate victim. In fact, while the plant is thought to originate from Madagascar, it exists throughout the tropics and has grown in the Caribbean for long enough to be considered as a native plant there. It is many years since the company relied on Madagascar for supplies of the plant, and most now come from plantations in Texas. As for the ethnobiological knowledge, information on the use of the plant for medicinal purposes that attracted Eli Lilly researchers, and those at the University of Western Ontario in Canada who also discovered the anti-cancer properties of the plant, came not from the island state at all, but from the Philippines and Jamaica. In

⁵ For example, see Munguti, K. (1997) “Indigenous knowledge in the management of malaria and visceral leishmaniasis among the Tugen on Kenya”. *Indigenous Knowledge and Development Monitor* 5(1), pp.10-12.

⁶ For example, see Abbink, J. (1995) “Medicinal and ritual plants of the Ethiopian southwest: an account of recent research”. *Indigenous Knowledge and Development Monitor* 3(2), pp.6-8.

⁷ Organisation for Economic Cooperation and Development (OECD) is an international organization comprised of 30 member countries that share a commitment to democratic government and the market economy.

⁸ Principe, P. (1998) “Economics and medicinal plants”, in Tomlinson, T.R. and Akerele, O. (eds), *Medicinal Plants: Their Role in Health and Biodiversity*, Philadelphia: University of Pennsylvania Press, at 44-5.

⁹ Farnsworth, N.R. (1988) “Screening plants for new medicines”, in: Wilson, E.O. (ed) *BioDiversity*, Washington DC: National Academy Press, pp.83-97.

¹⁰ Dutfield, G. (2004) *Intellectual Property, Biogenetic Resources and Traditional Knowledge*, London: Earthscan, at 47.

both countries the plant was used by rural communities not to treat cancer but diabetes. This raises the question of who, if anyone, should Eli Lilly share the benefits with in accordance with the principles of fairness and equity, and in what proportions. It is a difficult question to answer.

But the industrial demand for traditional health knowledge should not be overestimated either. While enhanced abilities to screen huge quantities of natural products, analyze, and manipulate their DNA structures might suggest that medicinal plants will become more popular with industry, it seems more likely that advances in biotechnology and new drug discovery approaches based, for example, on combinatorial chemistry and human genomics and proteomics, will in the long term *reduce* industrial interest in medicinal plants and associated traditional knowledge. But whatever the economic potential, medicinal plants continue to play a vital role in primary health care throughout the world.

3. Agriculture

In agriculture, Brokensha offers evidence that “African farmers developed an extensive and deep body of knowledge about those resources [...] on which their lives depended”, and that “this knowledge had evolved over the years and was based on rational observation and experimentation.”¹¹ The same may be said for many traditional farmers in other areas of the world. However, the same expert paints a rather bleak picture of the present condition of the traditional agricultural economy in Africa: “African farming systems were complex and flexible, demonstrating impressive knowledge of the local ecology, and – in terms of the population and technology available – were generally satisfactory.” He then uses the past tense to explain that “... these once-viable, adaptive, flexible and successful African agricultural systems have been modified and distorted, in some cases out of all recognition.” Again, similar stories may be told from other parts of the world.

Among the explanations put forward for this state of affairs are population increases, the spread of market economies including commercialisation of agriculture with the introduction of export crops and Green Revolution technologies, all-too-prevalent assumptions that Western techniques and methods such as high-input monocultural agriculture are superior to local ones like intercropping, the imposition of inappropriate laws and regulations by governments, and war.

Despite this, Brokensha finds that the original agricultural systems are intact in many parts of Africa. Similarly, Richards explains how Mende farming communities in Sierra Leone continue effectively to manage agricultural genetic diversity, experiment on-farm with traditional *and modern* rice varieties and to produce their own varieties whose performance is often better than those provided by extension services.¹² His findings lead Richards to put forward the following suggestion:

¹¹ Brokensha, D. (1999) “What African farmers know”, in Posey, D.A. (ed) *Cultural and Spiritual Values of Biodiversity*, Nairobi & London: UNEP & IT Publications, pp.309-12.

¹² Richards, P. (1999) “Casting seeds to the four winds: a modest proposal for plant genetic diversity management”, in Posey, D.A. (ed) *Cultural and Spiritual Values of Biodiversity*, Nairobi & London: UNEP & IT Publications, pp.315-16.

It is sometimes assumed that poor agrarian districts of the globe are rich in biodiversity and poor in human resources. Scientific breeding, undertaken by a remote elite on behalf of the poor, is one way round this assumed poverty of human resources. Breeders make the clever choices, and all farmers do is plant what they provide. But what if the problem is wrongly conceived? The lesson of the Mende is that the human capacity to combine, select and screen planting materials is locally present in hyper-abundance. Maybe it makes more sense to concentrate on enriching the gene pool, leaving local talent to do the rest. Forget the Green Revolution. Treat local myths seriously. Charter a plane and scatter duplicates of the international rice gene bank collections to the four winds.

Another interesting case illustrating the vital role, and further potential, of traditional knowledge in strengthening the traditional agricultural economy comes from Western Niger.¹³ The study, which surveyed two mixed-farming communities not far from the capital, Niamey, revealed that farmers have a comprehensive and accurate knowledge of the soils and soil fertility management, cultivation, forestry and animal husbandry, albeit with wide variations in how they explained this knowledge. However, the farmers are constrained from applying their knowledge on a greater scale because of financial limitations and institutional constraints such as lack of land tenure and livestock ownership. Resolving these problems in the interests of enhancing the development of sustainable farming systems throughout the region, it is suggested, requires collaboration with politicians.

One means of reviving the traditional agricultural economy where it has fallen into decline has been to bring traditional crop species back into production.¹⁴ A good example is fonio (*Digitaria exilis*), a West African cereal with good nutritional qualities which had become a marginal crop. One of the reasons for the decline in cultivation was that the grains are time-consuming and expensive to process. To resolve this problem, the Centre de coopération internationale en recherche agronomique pour le développement (CIRAD) set up a project in collaboration with the national research institutes of Mali, Guinea and Burkina Faso from 1999-2004 to improve and disseminate post-harvest technologies. These new or adapted technologies include a thresher, a dehusker and cleaning equipment. These have been installed in both rural and urban areas. Both productivity and quality have improved as a result of the use of these technologies and the training and information provided by the project. In this case, success was based on the marriage of a traditional crop species with the introduction of improved technologies from outside.¹⁵

On the other hand, some countries for reasons relating to colonialism may rely heavily on cultivating and exporting non-traditional crops and their produce. This suggests that reviving the traditional agricultural economy may in some areas be infeasible. For

¹³ Lamers, J.P.A., P.R. Feil and A. Buerkert 1995. "Spatial crop growth variability in Western Niger: the knowledge of farmers and researchers". *Indigenous Knowledge and Development Monitor* 3(3), pp.17-18.

¹⁴ Cruz, J.-F. (2004) "Fonio: a small grain with potential". *LEISA Magazine* March, pp.16-17.

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In the UNCTAD TK book, the paper by Fenta of Ethiopia is a really interesting example of how elite landraces developed through a collaborative participatory research process outperforms their "modern" counterparts. http://www.unctad.org/en/docs//ditcted10_en.pdf.

example, Kenya depends heavily on trade in tea, coffee, and horticultural produce including vegetables and cut flowers. These products are extremely important not just as sources of foreign exchange but also employment and income for rural people. Each type of product is grown not just by large land and estate owners but smallholders. Most such crops cultivated for export markets are not native to Kenya but were introduced during or since the colonial period. Argentina and Brazil are also large exporters of agricultural produce based on exotic species, such as soybean, wheat and coffee. Nonetheless, the interaction of traditional knowledge with organic agricultural techniques applied to local or exotic crops is fertile ground for innovation.

4. Traditional technologies

The Convention on Biological Diversity deals with “technologies relevant to the conservation and sustainable use of biological diversity, which make use of genetic resources, and/or do not cause significant damage to the environment”. But what are technologies anyway?

According to Brenner (1997), “technology” has tangible and intangible elements, including products, machines and technical knowledge:

In its original sense, technology implies a knowledge both theoretical and empirical of given techniques. Products and machines constitute its visible and tangible aspects, but technology also has an intangible component that is present in the minds and memories of the individuals, in the organization structures and in the behaviour.¹⁶

The Convention on Biological Diversity refers to “indigenous and traditional technologies”. These are not defined but Posey and Dutfield have identified the following as categories of biodiversity-related traditional technology that are common to many traditional societies:¹⁷

- (i) know-how concerning preparation, processing, or storage of useful species;
- (ii) knowledge of formulations involving more than one ingredient;
- (iii) knowledge of individual species;
- (iv) knowledge of ecosystem conservation; and
- (v) classification systems of knowledge, such as traditional plant taxonomies

However, one can expand this list considerably. Although his research focuses mainly on India, Gupta’s list of technological fields in which traditional societies can be highly innovative, his findings are surely relevant elsewhere:¹⁸

- crop protection
- crop production
- animal husbandry
- grain storage

¹⁶ Brenner, C (1997) “Cahiers de Politique Economique du Centre de Développement” 14, Paris: OECD.

¹⁷ Posey, D.A. & Dutfield, G. (1996) *Beyond Intellectual Property: Toward Traditional Resource Rights for Indigenous Peoples and Traditional Communities*, Ottawa: IDRC, at 12.

¹⁸ In: Dutfield, G. (2004) *Intellectual Property, Biogenetic Resources and Traditional Knowledge*, London: Earthscan Publications.

- pisciculture
- poultry
- leather industry
- soil and water conservation
- forest conservation
- farm implements
- organic farming
- local varieties of seeds
- informal institutions (common property resources)
- ecological indicators

It is worthwhile to mention that in 1999 the India government established a National Innovation Foundation. The NIF's goals are as follows:¹⁹

1. To help India become an inventive and creative society and a global leader in sustainable technologies.
2. To ensure evolution and diffusion of green grassroots innovations in a time bound and mission oriented manner.
3. To support scouting, spawning, sustaining and scaling up of grassroots green innovations and link innovation, enterprises and investments.
4. To strengthen research and development linkages between excellence in formal and informal knowledge systems and create a knowledge network.
5. To promote wider social awareness and possible commercial and non-commercial applications of innovations

No other government has made such a significant official commitment to harnessing traditional technologies for sustainable development. Given that many traditional societies are rich sources of innovation in the above-mentioned technologies fields among others, India's initiative merits investigation by policymakers and development agencies elsewhere in the world.

5. The handicrafts trade

In traditional societies, handicrafts (such as *kiondo* baskets from Kenya, and *Kente* cloth from Ghana to name just two) and artworks are not mass-produced objects made in accordance with precise, inflexible guidelines established by the ancestors. Instead, they are the products of individual artisans and artists steeped in the culture of the society to which they belong.

Trade in handicrafts is substantial. According to Fowler, "artisan handicrafts represent an estimated US\$30 billion world market. In addition, handicraft production and sales represent a substantial percentage of gross domestic product (GDP) for some countries".²⁰ Two examples given are Burkina Faso for which handicrafts constitute 70 percent of GDP, and Peru for which the figure is 50 percent of GDP.

¹⁹ <http://www.nifindia.org>.

²⁰ Fowler, B.J. (2004) "Preventing counterfeit craft designs", in Finger, J.M. and Schuler, P. (eds), *Poor People's Knowledge: Promoting Intellectual Property in Developing Countries*, Washington DC: The World Bank, pp.113-131.

The continued production and further development of traditional handicrafts and artworks are threatened sometimes by the disappearance of traditional skills. Another serious problem is copying and mass production by outsiders, who thereby deprive artisans of a source of income. Intellectual property rights may play a helpful role in supporting trade that benefits local people.

6. Local governance, customary law and property rights

Local governance underpins traditional economies. The latter is unlikely to operate effectively in the absence of well-functioning formal or informal juridical and administrative institutions such as councils of the elders, spiritual leaders, chiefs, courts, and widely accepted and enforced customary norms including those relating to property rights (see below). In traditional societies customs are often of major importance in regulating social and economic behaviour. Customs are established modes of behaviour within a cultural community that may have the force of law. Customary norms and rules exist in all cultures, although not all cultural communities have dedicated judicial institutions to enforce them and to resolve disputes. How is customary law different from state law? First, generally speaking customary laws are unwritten while state law is codified or at least is founded upon a tradition of documented case law augmented by statutes. Second, for many traditional societies, customary law is not a subject for legal specialists; neither is it at all divorced from people's everyday lives. On the contrary, Sheleff²¹ considers a customary law system to be “a living law, a law activated and modified not by specialised practitioners but by those who in their daily lives, practice the law, living out their traditional customs in everyday contacts – and occasional confrontation with neighbours, rivals, partners, relatives.”

But effective as traditional systems of governance can be, there are likely to be some shortcomings. In a study of north Ghana, the author argued that traditional systems of governance may operate best when they are combined with western-style democracy.²² Weaknesses in local governance systems should ideally be addressed by improving them rather than creating parallel ones as if these will automatically function better.

Traditional proprietary systems relating to land, resources, goods, knowledge and cultural expressions are often highly complex, and varied. Despite this, many commentators are reluctant to ascribe concepts of ownership and property rights to traditional societies or individuals within them. It is true that concepts such as “stewardship” and “custodianship” may often be more appropriate than “property” and “ownership”, since the former words more strongly imply responsibilities as well as rights. It is also the case that traditional communities and peoples tend to be characterised by a strong sharing ethos with respect to their resources and knowledge. But even if we accept this, it would be wrong to conclude that *everything* is shared with *everybody* and in equal measure. In fact, the anthropological literature provides ample evidence that such concepts as ownership and property rights – or at least close equivalents to them – exist in most, if not all, traditional societies.

²¹ Sheleff, L. (1999) *The Future of Tradition: Customary Law, Common Law and Legal Pluralism*, London & Portland: Frank Cass.

²² Millar, D. (2003) “Blending systems of governance: towards food security”. *COMPAS Magazine* 9, pp.17-19.

In traditional societies, the right to livelihood resources (apart from immediate personal possessions) such as trees, crop species, and medicinal plants, are not usually exclusive.²³ They are often shared among individuals and social and corporate groups, each of which may have “bundles” of graded property rights to the same resources within a given area. Such rights are often considered inalienable; they cannot be transferred, either as a gift or through a commercial transaction. As a general rule, knowledge and resources are communally held and, although some specialised knowledge may be held exclusively by males, females, certain lineage groups, or ritual or society specialists (such as shamans), this does not give that group the right to privatise the communal heritage

However, it would be wrong to assume that there is a generic form of communal property rights that exists in all traditional societies and applies to all valuable or scarce resources. The idea that traditional property rights are always collective or communal in nature while Western notions of property are inherently individualist is an inaccurate cliché. It is true that collective responsibility for land and territory is a common characteristic in traditional societies. Moreover, while individuals and families may hold lands, resources or knowledge for their own use, ownership is often subject to customary law and practice and based on the collective consent of the community.

But the point is that individual property rights with widely varying levels of exclusivity over knowledge are not necessarily absent from many traditional societies, though they are often accompanied by certain duties. Traditional societies often consider each member as having *individual* rights and *collective* responsibilities that are linked inextricably. Indeed, the persistence of these responsibilities is probably more of a reason why the formal intellectual property system is inappropriate than the supposedly collective nature of customary rights over traditional knowledge and technologies. According to the Four Directions Council, a Canadian indigenous peoples organization: “Indigenous peoples possess their own locally-specific systems of jurisprudence with respect to the classification of different types of knowledge, proper procedures for acquiring and sharing knowledge, and the rights and responsibilities which attach to possessing knowledge, all of which are embedded uniquely in each culture and its language.”²⁴

Securing the protection of traditional knowledge, technologies and resources according to the local regulations requires the existence of effective local governance structures and customary law, including property regimes, and respect for these structures and regimes from outsiders. This is easiest to achieve in countries where customary law systems can operate with relative freedom, as in much of Africa, where legal pluralism is a common phenomenon. In such cases, the possibility arises for traditional rules and norms to be asserted with as much legal effect within that country as, say, patent rights, trademarks and copyrights. But whether customary laws regulating cultural, intellectual and physical property are fully incorporated into national legal systems, are enforceable in local courts alone, or are just given some

²³ Posey, D.A. & Dutfield, G. (1996) *Beyond Intellectual Property: Toward Traditional Resource Rights for Indigenous Peoples and Traditional Communities*, Ottawa: IDRC.

²⁴ Four Directions Council (1996) *Forests, indigenous peoples and biodiversity*. Contribution of the Four Directions Council to the Secretariat of the Convention on Biological Diversity, Lethbridge: FDC.

minimal recognition at the state level, the common assumption that traditional knowledge and resources are by definition part of the public domain becomes much more open to challenge than if customary law has no recognition at all.

But what can be done when local knowledge, resources, cultural products or locally produced manufactured goods spread beyond the control of the local administrative or juridical institutions, either through trade or misappropriation? In such a case, such protection may also require the use of national and even international legal norms such as those relating to intellectual property rights (see below) and the conservation of biological diversity.

7. Sustainable resource management and conservation

In many cases, traditional communities manage local resources and the environment in a highly sustainable manner. They do so through the application of sophisticated resource management systems developed through knowledge of the natural environment. Such knowledge may be defined as: “a body of knowledge built by a group of people through generations living in close contact with nature. It includes a system of classification, a set of empirical observations about the local environment, and a system of self-management that governs resource use.”²⁵ In this sense, traditional knowledge is systematic and empirical, and to the extent that it is accurate, is therefore scientific even if the form of expression may seem highly *unscientific* to most other people. For example, an indigenous person and a scientist may both know that quinine bark extract can cure malaria. But they are likely to describe what they know in very different ways that may be mutually unintelligible (even when communicated in the same language).²⁶

That a conservation ethic is a prevalent feature of the subsistence and resource management practices of many of the world’s present-day traditional communities is supported by a large number of field studies.²⁷ But this view is sometimes dismissed as romanticism. Some anthropologists claim that in many such societies, this ethic either is not observed by many of their members or is entirely nonexistent, or alternatively that many traditional societies observed to impact minimally on the environment do so merely because they are the smallest and most isolated ones.²⁸ It has also been argued that expecting them to continue using only traditional technologies and low-impact subsistence strategies places an unfair burden of

²⁵ Johnson, M. (1992) “Research on traditional environmental knowledge: its development and its role”, in Johnson, M. (ed) *Lore: Capturing Traditional Environmental Knowledge*, Ottawa: International Development Research Centre, pp.3-20.

²⁶ It might be countered that, since the indigenous peoples of western Amazonia do not really understand why quinine works, their quinine-based treatment is a technology that is not science-based. If that is so, however, one could infer that many western ‘scientific’ applications ought likewise to be ‘downgraded’ to technologies, since they are not based on a complete understanding of why they work.

²⁷ E.g. Bodley, J. (1976) *Anthropology and Contemporary Human Problems*, Menlo Park: Benjamin Cummings Publishing; Clad J. (1984) “Conservation and indigenous peoples: a study of convergent interests”. *Cultural Survival Quarterly*, 8, pp 68-73; Ellen R (1986) “What Black Elk left unsaid: on the illusory images of green primitivism”. *Anthropology Today*, 2, pp 8-12; Martin C (1978) *Keepers of the Game*, Berkeley: University of California Press.

²⁸ E.g. Hames R (1991) Wildlife conservation in tribal societies. In: Oldfield M L and Alcorn J B (eds) *Biodiversity: Culture, Conservation, and Ecodevelopment*, Boulder, San Francisco and London: Westview Press, pp.172-199.

responsibility on them and implicitly denies the right of such peoples to develop according to their own preferences.

Nevertheless, academic studies of such communities provide ample evidence that the protection of traditional knowledge and technologies can provide significant environmental benefits. For example, in many forest areas, members of traditional societies plant forest gardens and manage the regeneration of bush fallows in ways which take advantage of natural processes and mimic the biodiversity of natural forests. According to Oldfield and Alcorn, “much of the world’s crop diversity is in the custody of farmers who follow age-old farming and land use practices that conserve biodiversity ... These ecologically complex agricultural systems associated with centers of crop genetic diversity include traditional cultivars or ‘landraces’ that constitute an essential part of the world’s crop genetic heritage and non-domesticated plant and animal species that serve humanity in various ways”.²⁹

In large expanses of Kenya, for example, there are traditional communities that manage local resources and the environment in a highly sustainable manner. Since so much of the land surface presents serious challenges for human habitation, intimate knowledge of the natural environment is essential for survival. Groups like the Turkana of north-western Kenya, for example, have a highly sophisticated natural resource management system that has enabled them to survive in an environment that many would consider as being extremely hostile. According to Barrow:³⁰

The people of Turkana have evolved well-managed and sound ecological strategies which enable them to utilize the vegetation on a sustainable basis. They exploit different ecological niches by having grazing livestock (cattle, sheep and donkeys) and browsing livestock (camels and goats) and diversified food procurement strategies.

Barrow also emphasises their “well-developed knowledge of their flora and its uses” and goes on to explain how the Turkana take advantage of the full diversity of woody species to meet their many subsistence needs through their use as sources of food, fuel, building materials, and human and veterinary medicines.

8. Protecting traditional knowledge and technologies for local production and consumption

Many of the technologies that traditional cultural communities need to enable them to thrive already exist. We know that because despite political instability including wars, public health emergencies, hostile environments, lack of external support, and the extreme poverty that makes it difficult for traditional societies to acquire from elsewhere goods and technologies that they do not produce themselves, millions of people live productive worthwhile lives.

²⁹ Oldfield M.L. and Alcorn J.B. (1991) Conservation of traditional agroecosystems. In: Oldfield, M. L. and Alcorn J.B. (eds) *Biodiversity: Culture, Conservation and Ecdevelopment*, Boulder, San Francisco and London: Westview Press, pp.37-58, at 37.

³⁰ Barrow, E.G.C. (1996) “Customary tree tenure in pastoral lands”, in Juma, C. and Ojwang, J.B. (eds) *In Land We Trust: Environment, Private Property and Constitutional Change*, Initiatives Publishers and Zed Books: Nairobi and London, pp.259-278, at 266.

Nonetheless, groups and communities holding traditional knowledge, technologies and resources, and possessing their own laws and governance systems are often highly receptive to ideas and influences from outside. In many cases, they are stronger and more viable for that. For traditional economies to succeed in the modern globalising world, they need to conserve the best of their traditions while selecting the most useful resources, technologies and institutions from outside and adapting them to optimally meet their needs. For them to achieve both, coercive measures including forced assimilation programmes should be avoided.

As the examples covered in this paper should lead us to conclude, traditional economies can and should be the basis for development policy involving local people which should be based upon the enhanced application in a balanced manner of both local and non-local resources, technologies and institutions. The constraints to achieving this are political and economic. While a system of decentralised political, administrative and juridical institutions is a necessary condition for traditional economies to operate in a successful and sustainable manner, democracy and accountability are absolutely essential.

9. Protecting traditional knowledge and technologies for trade and development

It is a modern myth that the modern economy is knowledge-based while earlier and present-day traditional economies are purely resource-based. Knowledge, technology and resources regulated by effective governance structures are the basis of all economies including traditional ones.

Trade can be a two-edged sword. It can bring wealth and independence, but it can also increase dependence on outsiders and vulnerability to exploitation. Some people believe that the trade in such products as medicinal plants, traditional crop varieties and handicrafts can benefit local people. Others are more doubtful that local people will be able to avoid exploitation.

On the one hand, traditional communities are already locked into the world economic system and cannot simply opt out. In fact, “such products as handicrafts, medicinal plants, agricultural products, and non-wood forest products (NWFPs) are traded in both domestic and international markets and can provide substantial benefits for exporter countries. For example, some 150 NWFPs are traded internationally in significant quantities.³¹ The total value of the world NWFP trade is of the order of US\$ 11 billion”.³²

On the other hand, prices of such produce tends to be low and, even when products have a high economic value, traditional communities seldom receive a fair percentage of the value added to products that are processed and transported long distances. Moreover, it may be argued that traditional communities are bound to become victims of the vagaries of market forces if they get involved in selling low value products.

³¹ United Nations Conference on Trade and Development (2000) “Systems and national experiences for protecting traditional knowledge, innovations and practices. Background note by the UNCTAD Secretariat”, Geneva: UNCTAD.

³² FAO (1995) *Trade restrictions affecting international trade in non-wood forest products*, Rome: FAO.

Trade in exported products whose popularity may be short-lived will increase dependence on the trade and on the companies that groups work with, making trade-based relations essentially paternalistic. Also, trade can lead to overexploitation and even exhaustions of a resource.

But wherever the truth lies, local communities are finding it ever more necessary to secure a reliable flow of income so that they can achieve greater self-sufficiency. They may try to earn money by working outside the community, although doing so is seldom lucrative. Another way, and often a more appealing option, is to establish market links. Community members may take the initiative and sell local resources, manufactured goods and artworks in local and regional markets, as many communities have done for centuries. Or they may establish an agreement with a company, perhaps from another country, that is interested in commercialising the community's knowledge, resources, or arts and crafts.

Given the reality that some companies and individuals will enter into such agreements without even asking local communities for their consent, what rights do communities have to prevent unwanted commercialisation or to ensure that they have control over commercial activities? If asserting customary law is difficult, either because it cannot easily be enforced or the commercialising is taking place overseas or in a part of the country where the relevant customary law has no legal effect, national or even international laws may be available.

Benefiting from trade depends not only on the availability of legal rights that are enforceable beyond the locality, but also on the ability of traditional communities to take advantage of national and international law including property and access rights relating to land, natural resources and intellectual property. It also depends on specific capacity-building measures to address problems of lack of information and production and marketing weaknesses (Figure 1).

Figure 1: Harnessing traditional knowledge for development and trade: capacity-building challenges and responses

	LOCAL LEVEL		NATIONAL LEVEL	
General challenges	<i>Lack of information</i>	<i>Production and marketing weaknesses</i>	<i>Lack of information</i>	<i>Production and marketing weaknesses</i>
Specific challenges	<ul style="list-style-type: none"> • identifying TK with commercial applications • identifying types of product with stable markets and good prices • identifying financial and other needs • lack of information on import and product regulations in overseas markets 	<ul style="list-style-type: none"> • lack of awareness on product and import regulations in foreign countries • lack of capacity to standardise, scale up, package and market products • possibility of legal restraints on sustainable harvesting of biological resources • lack of funds 	<ul style="list-style-type: none"> • lack of awareness on the importance of TK for sustainable development • lack of information on rights and responsibilities relating to TK not in the public domain 	<ul style="list-style-type: none"> • need for policy instruments and incentive measures to harness TK for development and trade
Responses	<p>Providing training courses with information on:</p> <ul style="list-style-type: none"> • national and international natural product markets including relevant regulations • how government export promotion agencies may be able to assist communities • relevant experiences of other communities and grassroots organisations • potential sources of outside funding • the legal rights of indigenous and local communities • negotiating with scientific institutions and companies 	<ul style="list-style-type: none"> • developing inter-community producer associations • developing equitable community-business partnerships (where appropriate) • providing technical support and equipment • establishing certification procedures to guarantee that products are made by traditional communities and enhance their commercial value • using IPR-related and other marketing tools to secure good prices • providing venture capital funds for local innovations • establishing trust funds 	<ul style="list-style-type: none"> • providing TK awareness-raising training courses • conducting economic studies on value of TK 	<ul style="list-style-type: none"> • setting up a national innovation foundation to reward and provide incentives for local innovation • creating a geographical indications register • implementing appropriate environmental regulations to enable and/or incentivise sustainable harvesting of biological resources by local communities
Possible sources of support	Government; overseas development agencies; UNCTAD etc.	Public and private sector; government; overseas development agencies; financial institutions	Government; overseas development agencies; UNCTAD etc.	Government; international financial institutions; overseas development agencies; WIPO

10. Legal protection of traditional knowledge

There are ample reasons for governments to take steps to legally protect traditional knowledge, technologies and cultural works and expressions, whether or not local people are interested in commercialisation. However, legal protection cannot satisfactorily be dealt with in isolation from the more fundamental needs, interests and rights of the holders of traditional knowledge, technologies and cultural works and expressions, such as land rights. In all too many cases, traditional communities suffer from extreme poverty, ill health, unemployment, lack of access to land and essential resources, and human rights violations. Consequently, human cultural diversity is eroding at an accelerating rate as the world steadily becomes more biologically and culturally uniform.

There are not just sound moral reasons for arguing that basic rights ought to be respected, but practical ones too. As the late Darrell Posey so poignantly expressed it,

With the extinction of each indigenous group, the world loses millennia of accumulated knowledge about life in and adaptation to tropical ecosystems. This priceless information is forfeited with hardly a blink of the eye: the march of development cannot wait long enough to even find out what it is about to destroy.³³

Groups and individuals that retain control over their own destinies are far better placed to benefit from legal protection of their knowledge. Indigenous and traditional groups empowered with rights to control access to their lands and communities must surely have a better chance of preventing misappropriation of their knowledge and negotiating favourable bioprospecting arrangements.

Is sui generis protection the answer?

Patents, copyrights and other currently existing intellectual property formulations are inadequate in providing positive protection for traditional knowledge and technologies, and in some ways also make defensive protection more difficult. This does not mean their use should never be considered, but that their limitations are fairly severe and we might as well accept that as given. Apart from the basic conceptual and practical challenges in applying western formulations of intellectual property to traditional knowledge and technologies, for many traditional societies the incompatibilities go very deep indeed.

Consider the views of Brazilian shamans from 20 indigenous tribes that met in São Luis, Maranhão in December 2001. Among a set of recommendations and proposals on the theme of “Indigenous Knowledge and Science and Industrial Property” that they published in a letter, the following passage stands out:

As traditional indigenous peoples who inhabit diverse ecosystems, we have knowledge about the management and sustainable use of this biodiversity. This knowledge is collective and is not a product that can be commercialized like an ordinary piece of merchandise. Our knowledge of biodiversity cannot be separated

³³ D.A. Posey, *Indigenous Knowledge and Development: An Ideological Bridge to the Future*, in D.A. Posey, *Kayapó Ethnoecology and Culture* 59 (K. Plenderleith ed., Routledge 2002).

from our identities, laws, institutions, value systems and our cosmological vision as indigenous peoples.

For peoples holding such perspectives, the idea that traditional knowledge and technologies can be fragmented with each “piece” converted into separate units of quite distinct forms of alienable intellectual property is likely to be completely alien. Consequently, any legal system of protection must somehow accommodate the holistic nature of traditional knowledge and technologies. It must also avoid imposing notions of authorship that are alien to the beneficiary communities. While it would go too far to suggest that innovation and creativity in traditional societies are always collective achievements, they usually are. Even community knowledge specialists such as healers and artists do not necessarily consider themselves to be the creators or authors but rather as intermediaries between the community and the spirit world. On the other hand, the *sui generis* system should not dogmatically vest rights in whole communities that rightly belong to individuals or smaller groups. This could be very divisive. Close collaboration with traditional knowledge and technology holders and their communities is essential in the design of the *sui generis* system. This point cannot be emphasised strongly enough.

Devising such a system must of course have clear objectives. Three may be derived from Convention on Biological Diversity (CBD) Article 8(j): (i) to respect, preserve and maintain traditional knowledge, innovations and practices; (ii) promote their wider application with the prior informed consent and involvement of the holders; and (iii) encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations and practices with these holders.

Since CBD Parties agree in principle to these objectives, it seems appropriate that the *sui generis* system should also adopt them. But is this enough? It does not seem rational or even respectful towards traditional knowledge and technology holding peoples and communities to separate the task of protecting the knowledge from that of maintaining the integrity of the cultures which generate the knowledge. Such an approach is unlikely to work anyway. In this context, the Secretariat of the Convention on Biological Diversity produced a document³⁴ which noted that in the light of past discussions on this matter, “it is essential that *sui generis* systems:

- (a) Be not only consistent with but supportive of the provisions of the Convention on indigenous and local communities, and conservation and sustainable use of biodiversity;
- (b) Be based on an integrated-rights approach guided by human-rights principles and concern for the environment;
- (c) Have among their basic objectives:
 - (i) The encouragement of conservation and sustainable use of biodiversity;
 - (ii) The promotion of social justice and equity;
 - (iii) The effective protection of traditional biodiversity-related knowledge and resources against unauthorized collection, use, documentation and

³⁴ Secretariat of the Convention on Biological Diversity (2000), “Legal and other appropriate forms of protection for the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity. Note by the Executive Secretary” [UNEP/CBD/WG8J/1/2].

- exploitation – in part this would require a provision on prior informed consent; and
- (iv) The recognition and reinforcement of customary laws and practices, and traditional resource-management systems that are effective in conserving biological diversity;
 - (d) Be developed in close collaboration with indigenous and local communities through a broad-based consultative process that reflects a country's cultural diversity."³⁵

As for the scope and extent of protection, given the existence of the CBD and the particular interest that many countries have in biodiversity-related traditional knowledge and technologies, the system should probably be limited in its coverage to knowledge and technologies associated with biological resources or with the environment more generally. This is not to argue that this particular element of traditional knowledge should be protected to the exclusion of other elements. But an international consensus is much more likely to be achieved by limiting the scope of protection in this way. After all, many of the discussions and proposals put forward so far focus primarily on biodiversity-related traditional knowledge and technologies. On the other hand, this would of course fragment TK; something that may be inappropriate for the reasons given earlier.

Putting the national cart before the multilateral horse? identifying priorities

Should efforts be devoted to developing a national sui generis system first in order to gain experience that makes it easier to determine what a workable international solution should look like? Or is a multilateral settlement a pre-condition for the effective protection of the rights of traditional knowledge and technology holders? And what kind of a multilateral settlement is feasible anyway?

While each country will no doubt come up with good reasons to answer these questions differently, the undeniable problem with having a national system in a world where few such systems exist is that no matter how effective it may be at the domestic level, it would have no extra-territorial effect. Consequently, traditional knowledge and technology right holders would not be able to secure similar protection abroad, and exploitative behaviour in other countries would go on as before.

Dilemma and dangers

A poorly designed international sui generis system may turn out to be useless or even dysfunctional. Consider that indigenous peoples and traditional communities make up most of the world's cultural, intellectual and jurisprudential diversity. A legal system that works for a group inhabiting a valley in the Upper Amazon may be totally inappropriate for another group in Siberia or even in a neighbouring valley. But for a common international regime to provide effective international legal protection in foreign jurisdictions, a certain degree of harmonisation would probably be necessary.

³⁵ [CBD Secretariat paper] Dutfield, G. (1997), *Can the TRIPs Agreement Protect Biological and Cultural Diversity?* Biopolicy International Series No. 19, Nairobi: ACTS Press.

And a harmonised system cannot easily accommodate diversity. The result may be a regime that is appropriate to no culture and is therefore useless.

On the other hand, a legal system tailored to the specificities of a few prominent ethnic groups may well alienate other indigenous peoples, constituting another case of “globalised localism” to be added to intellectual property rights, which are really just European legal models that have been exported around the world including to countries of the world and cultures that may actually have little use for most of them.

It must also be cautioned that devising the most sophisticated and elaborate IPR system is will have little or no impact if the potential users and beneficiaries are unaware of its existence and/or have more immediate concerns such as extreme poverty, deprivation and societal breakdown caused by the insufficient recognition of their basic rights. It will also fail if it does not take their world views and customary norms into account.

Principally, traditional knowledge and technology protection for many indigenous groups is likely to work only with secure land rights. Groups empowered with rights to control access to their lands and communities are far better placed to benefit from legal protection of their knowledge. In fact, it is probably indispensable. In many parts of the world, indigenous groups are being expelled from their ancestral lands. Demanding legal protection of their knowledge without doing anything about this problem is futile if not perverse.

A checklist of key points for negotiating and policy making

In conclusion, the following list of key points is provided for the consideration of negotiators and policy makers:

- Act on the understanding that different countries have varied interests and concerns in respect of traditional knowledge and technologies and also that their positions may be based on quite different assumptions and ideological standpoints concerning traditional knowledge (TK) and technologies and TK-holding groups.
- Urgent as it is to respond to the loss of TK, do not expect early solutions to this issue. Devising workable measures and achieving consensus on their adoption will take a long time given the complexity of the issue, the stakes involved and the conflicting interests of the various “stakeholders”.
- Avoid or discourage protracted discussions on the applicability of existing IPRs to traditional knowledge and technologies, and on the “need” to define traditional knowledge and technologies first before solutions may be formulated.
- Conduct studies to estimate the costs of implementing proposals or measures to protect traditional knowledge and technologies and weigh these against the benefits that can realistically be gained *before* deciding to actively pursue them in international forums.
- Ensure that national policies and multilateral-level negotiating positions and strategies are consistent, coherent and mutually supporting.

- Encourage the active participation of traditional knowledge and technology holders and traditional communities in both the formulation of national policies and of multilateral negotiating positions.
- Place the interests of indigenous peoples and traditional communities at the centre of all negotiating strategies on traditional knowledge and technologies.
- Be aware that many otherwise sympathetic people oppose the creation of new property regimes on the grounds that they will shrink the public domain. Therefore, it may be necessary to emphasise that a sui generis system based upon customary law would not enclose part of the knowledge commons but would merely recognise property rights that already exist but which are not respected.