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**Biopiracy and Protection of Traditional Knowledge: Intellectual  
Property Rights and Beyond**

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**BIOPIRACY AND PROTECTION OF TRADITIONAL KNOWLEDGE:  
INTELLECTUAL PROPERTY RIGHTS AND BEYOND**

**By**

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**ABSTRACT**

The increasing importance of traditional knowledge (TK) of indigenous communities, both in the economy as well as in biodiversity conservation, has attracted the uncompensated use of such knowledge by multinational companies and research organisations for commercial purposes. Numerous cases of biopiracy have highlighted this issue and have increased demands for protection of TK from such misappropriation, causing many biodiversity rich countries to design and adopt different protective regimes.

This paper seeks to highlight the need for protecting TK by taking a look at some global biopiracy cases. It discusses various approaches for establishing a protective regime and argues that this cannot be done solely through conventional intellectual property rights (IPRs). It suggests a comprehensive approach that is a bundle of complementary legal, non-legal and voluntary mechanisms, containing not only IPRs but moving beyond to include *sui generis* systems that can be integrated into the national legal framework and also conform well to specific needs of indigenous communities.

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## **1. INTRODUCTION**

In recent years issues related to the importance of traditional knowledge (TK) held by indigenous communities, its role in the economy as well as in biodiversity conservation and sustainable use, and the need for its protection from misappropriation by commercial interests have been the subject of debate in international fora like the Convention on Biological Diversity, the World Trade Organization and the World Intellectual Property Organization. Recognition of the remarkable economic potential of such knowledge has led many multinational corporations of the industrialized nations to “free ride on the genetic resources and traditional knowledge and technologies of the developing countries” (Dutfield, 2006), leading the latter to resent such “biopiracy” or uncompensated exploitation of their natural resources.

With an increasing number of patents being extended to products based on genetic resources, developing countries, which harbor much of this biological diversity, are concerned not just about the misappropriation of resource based inventions but also the intangible knowledge associated with the resource. Much of this knowledge belongs to local and indigenous communities who through generations of observation, practice and usage have not only maintained and conserved biodiversity, but also developed and preserved an associated TK base. However, in most cases, benefits arising from commercial utilization of such resources are not shared with the communities that provide the knowledge. Though there is recognition of the need to protect the rights of such indigenous communities, there is also the realization that this cannot be done through conventional intellectual property rights (IPR) systems which are based on concepts of individual ownership. More and more biodiversity rich nations and indigenous groups are realizing the significance of this fact and taking measures

and understand them best. This process of “*appropriating biodiversity and the knowledge*” involved is termed biopiracy (Delgado, 2002, original italics). It refers specifically to “...the use of intellectual property (IP) systems to legitimize the exclusive ownership and control of *biological resources and knowledge*, without recognition, compensation or protection for contributions from indigenous and rural communities...thus bioprospecting cannot be considered anything but biopiracy” (Mooney, 1993; quoted in Delgado, 2002). The term can also be used for breach of contract related to access and use of TK (GRAIN & Kalpavriksh, 2002).

Protests relating to biopiracy revolve around the central point that businesses in developed nations are reaping the wealth garnered from poor people's knowledge and at the expense of

Rubia Cordifolia  
(*Manjistha*)

Pacific Pakistan	<i>Nonu</i> [ <i>Indian Mulberry</i> ( <i>Morinda citrifolia</i> )]	Europe, US	In 1995 Nonu Samoa Enterprises began export of nonu, a tree with medicinal properties, to the US with US collaboration.
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export market being estimated at US \$ 1 million (GRAIN, 2000). In 1994, two researchers of Colorado University claiming to be the first to identify and use a reliable method of cytoplasmic male sterility in quinoa for producing hybrids were granted US patent no. 5,304,718. This allowed them monopoly control over male sterile plants of the traditional Bolivian “Apelawa” variety of quinoa and plants derived from its cytoplasm. This method of hybridising quinoa also subsumed 43 other traditional varieties grown in Bolivia, Peru, Ecuador and Chile (RAFI, 1998).

Implications: The implications of the quinoa patent were serious for Bolivian farmers. Developing of hybrid quinoa was aimed at increasing the yield of the crop so that it could be cultivated on commercial scale in North America. Although the scientists agreed to transfer technology to researchers in Bolivia and Chile, this would not have been of much benefit as corporate owners of the patent could have prevented Bolivian exports of quinoa to the US. Such a loss of export markets could have adversely affected the livelihood of thousands of Bolivian small farmers who depended on their quinoa harvests. However, protests by the Bolivian National Association of Quinoa Producers (ANAPQUI) and a number of non-governmental organisations (NGOs) to oppose the patent caused the University of Colorado to abandon the patent by May 1998 (GRAIN, 2000).

## *ii. Ayahuasca*

*Ayahuasca* (*Banisteriopsis caapi*) is endemic to the Amazonian rainforest and has been used by natives of this region for religious and healing ceremonies. Central to the culture of many indigenous groups, this plant



Implications: The USPTO did not pay heed to the claims of indigenous groups that sacred plants should not be brought under patent protection. This went against perceptions that IPR laws could be used to defend against cultural misappropriation (Schuler, 2004). The fact that *ayahuasca* is a sacred plant used in religious ceremonies, the attempt to patent it was perceived by the indigenous community as an intense attack on their cultural rights (GRAIN, 2000).

### *iii. Turmeric*

Turmeric (*Curcuma longa*) is a magic cure-all for many Indians and has been used for thousands of years in traditional ayurvedic medicine for its anti-inf

The patent was opposed on grounds that the fungicidal effect of hydrophobic extracts of

(Chennells, 2003). Ironically, cultivation of *Hoodia* is being done by commercial farmers and not by indigenous communities who traditionally developed and conserved the resource or even by small farmers. This goes against the grain of the South African policy, which requires that bioprospecting should lead to economic development of the most disadvantaged sections of the population.

*vi. Enola Bean*

Mexican beans (*Phaseolus vulgaris*) have been developed and grown through centuries by generations of farmers and more recently plant breeders in Mexico. In 1994 Larry Proctor, the owner of a small seed company and President of POD-NERS, L.L.C purchased a bag of “Azufrado” or “Mayocoba” bean seeds in Sonora, and when back in the US planted yellow coloured beans and allowed them to self-pollinate. He selected yellow seeds for several generations and applied for a US patent on the resulting “uniform and stable population” of yellow bean seeds (quoted in RAFI, 2000). Proctor was granted US patent no. 5,894,079 on the “Enola” bean variety which allows exclusive monopoly on any *Phaseolus vulgaris* having a particular yellow colour. POD-NERS then claimed that was illegal for anyone to buy, sell, offer for sale, make use for any purpose including dry edible or propagation, or import beans of that description and has sued Mexican bean exporters for selling such bean seeds in the US (RAFI, 2000). On 20 December 2000 the International Center for Tropical Agriculture (CIAT) challenged the patent requesting for its re-examination (RAFI, 2001).

Implications: This patent allows POD-NERS to exclude importation or sale of any bean exhibiting the yellow colour of the Enola beans. The company is demanding six cents per pound in the form of royalties on yellow beans entering the US from Mexico (RAFI, 2000). Thus many poor farmers are being forced to pay a licence fee to grow and sell a crop that has been native to their regions and which they had been cultivating for centuries (Rattray, 2002). In addition to this US custom officials inspect beans entering into the country and collect samples from each shipment at additional costs to the exporter (Gilliland, 2000 quoted in RAFI, 2000). Because of this patented bean export sales have dropped over 90%, also affecting the market for other bean varieties (RAFI, 2001).

The problems and loopholes associated with such controversial patents are reflected in the US government’s justification for granting them:

Informal systems of knowledge often depend upon face-to-face communication, thereby limiting access to the information to persons in direct contact with one another. The public at large does not benefit from the knowledge nor can the knowledge be built upon. In addition, if information is not written down, that information is completely inaccessible to patent examiners everywhere as prior art when they are examining patent applications. It is possible, therefore, for a

Ø Customary and common – law regimes

The non-legally binding forms of protection include voluntary guidelines and codes of conduct and traditional resource rights (TRRs). The following discussion takes up the above options in detail:

### **3.1 Legally – binding forms of TK protection**

#### **3.1.1 Conventional IPR regimes**

Conventional IPR systems, based on concepts of individual ownership and private property rights legal rights are aimed at encouraging innovation and for facilitating technology transfer and access (Downes, 1997; CBD, 2000). However, these systems, which originated long before the CBD, were not created to address matters related to ABS and protection of TK. The forms of IPR relevant for this purpose include patents, PBRs, copyrights, trade secrets, trademarks and geographic indications/appellations of origin of which the last two claim economic rights while the rest encourage invention and “may be considered as granting “true” intellectual property rights to holders”(CBD, 2000; p 5, original emphasis).

Conventional IPR regimes have been deemed to be inadequate for protecting bio-diversity and communally based knowledge of the indigenous and local communities (CUTS, 1995; Montecinos, 1996; Dutfield, 2001; Ragavan, 2001) though at the same time they are thought to present “windows of opportunity” in this direction (CBD, 2000; p5, original emphasis). The existing modes of IPRs protection and their significance in protecting biodiversity and TK are as follows:

##### *(i) Patents*

To be patentable an invention must meet the criteria of novelty, utility, involve an inventive step and be non-obvious and have industrial applicability. Such criteria with respect to TK raise some problematic issues. Since TK is not a contemporary form of knowledge and has been used and passed down the generations, it cannot fulfil the novelty and/or inventive step requirements of patent protection. Importantly, although it is widely accepted that traditional medicines are useful in healing many ailments, they often do not meet the requirements of novelty and non-obviousness (Raghavan, 2001). Axt et al (1993) point out that determining

non-obviousness with respect to TK would be problematic as it would be difficult to pinpoint the relevant prior art. Patent applicants through documentary evidence must show that their innovation is the result of a single act of discovery. Indigenous communities cannot protect information relating to TK or protection of biodiversity if it is not the result of specific historic act of “discovery”. Axt et al (1993) hold that although it can be presumed that prior art would be knowledge held by the indigenous people before the invention was

93/11780 on a skin therapeutic mixture with cold processed aloe vera extract with yellow sap and aloin removed) (Correa, 2001).

An important aspect of patents that has long disturbed indigenous peoples is that this form of protection motivates commercialisation and distribution. Indigenous communities may however, be largely concerned with prohibiting commercialisation and restricting use and distribution. According to the 1994 COICA Statement:

*For members of Indigenous peoples, knowledge and determination of the use of resources are collective and inter-generational. No Indigenous population, whether of individuals or communities, nor the government, can sell or transfer ownership of resources which are the property of the people and which each generation has an obligation to safeguard for the next.*

(<http://users.ox.ac.uk/~wgtrr/coica.htm>)

Patents recognise only market economic values and ignore spiritual, aesthetic, or cultural - or even local economic - values. Indigenous peoples may value such information as they are linked to their cultural identity and symbolic unity (Posey, 1999).

#### *(ii) Copyrights*

Original artistic manifestations of TK holders such as literary, theatrical, pictorial, musical

*its protections are reserved. Those who do not fit this model - custodians of tribal culture and medical knowledge, collectives practicing traditional artistic and musical forms, or peasant cultivators of valuable seed varieties, for example - are denied intellectual property protection.*





element in the commercial promotion of goods. Trademarks take care of indigenous concerns better than other forms of IPR as they can be maintained in perpetuity and only limit the use of a symbol to a specified class of people instead of granting monopoly rights over the use of the information (Downs, 1997). Such a form of protection has been used by the Cowichan knitters of Vancouver Island, British Columbia to protect their products which were being threatened by fakes in the market (Brascoupé et al, 2001). However, this requires considerable effort in trademark promotion and protection.

*(v) Geographical indications*

Geographical indications, especially appellations of origin are effective in augmenting the commercial value of natural, traditional and craft products if their attributes can be traced to their particular geographical origin (Correa, 2001). Like trademarks, geographical indications also lend themselves effectively to the protection of TK as they can be held as long as the collective tradition is maintained and do not confer monopoly rights over the information. They can be used by a producer on the basis of location and method of production irrespective of whether the producer is an individual, family, partnership or some other concern. This suits the communal nature of TK, unlike requirements specified by other forms of IPR.

Geographical indications also respond to indigenous people's concerns regarding the inalienability of their knowledge that makes them resent the free buying and selling of the same. Such a concern is reflected in the initiative taken by the traditional silk weavers of the Indian state of Tamil Nadu to register their Kancheepuram *sarees* under the Geographical Indications Act. Not only would it prevent duplicates from flooding the market, it would also ensure that weavers conform to traditional weight, quality and *zari* norms (<http://tamilelibrary.org/teli/silk1.html>). In this respect, a geographical indication is not private property and the good-place link underlying GI protection automatically ensures that it cannot be transferred to non-locale producers or be used for similar products originating from any area outside the one represented by the GI (Rangnekar, 2002).

Although GIs are a better option for protecting certain products based on TK, the drawback is that they do not protect the underlying knowledge *per se* (Dutfield, 2000). This leaves the TK in the public domain with no protection against its misappropriation. To overcome this problem Kumar (undated) suggests the use of “complementary, though overlapping, IPRs covering similar subject matter”. By way of illustration, the same author presents a multipronged approach for protecting handicrafts: protection of its technical content as a technical idea, its cultural value as a form of expression and the distinctive characteristics through trademarks or GIs.

### ***3.1.2 Sui generis System of Protection of TK***

Several countries have realised that IPRs on their own are not adequate to protect TK. A number of such countries like India and Philippines have enacted or are in the process of enacting alternative systems of protection. Such a system would involve the establishment of a *sui generis* regime of IPRs which is a legal framework of its own kind with special adaptations to take care of the unique nature and characteristics of TK. Any model for *sui generis* national legislation aimed at protecting biodiversity related TK would have to uphold indigenous and local community cosmovisions and customary laws, and call for respect, maintenance and preservation of their knowledge, innovations and practices (Indigenous Peoples’ Biodiversity Network, 1996; cited in CBD, 2000). To ensure that a *sui generis* system does not conflict with other existing legislations, it might also be necessary to amend related national laws that govern land tenure, natural resources, protected areas, environment protection and IP.

Some Latin American countries have proposed the establishment of a *sui generis* system for TK in the context of the Free Trade Agreement for the Americas which allows Parties to “refuse to grant patents on plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes”. However, it specifies “Parties shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof” (FTAA, 2001). Some models that could prove useful in the protection of biodiversity related TK include:

- Ø The Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions, developed by the United Nations Education, Scientific and Cultural Organisation (UNESCO) and the WIPO
- Ø The Principles and Guidelines for the Protection of the Heritage of Indigenous People,

### *3.1.5 Customary and common law regimes*

In addition to using existing forms of IPR regimes for regulating access to and control over TK, CBD (2000) suggests that such knowledge should be acquired and used in a manner that does not violate the customary laws of the indigenous and local communities. This would entail including customary law systems or those elements relevant to CBD, into the mainstream national statutory and common law structure. In addition to honouring commitments to indigenous and local community self-determination in the recognition and administration of customary law, this would also help in the protection of such traditional legal systems.

The Biodiversity and Community Knowledge Protection Act of Bangladesh is one such piece of legislation that works in this direction and “prohibits violation of Common Property Regimes that include various rights, relations, arrangements and cultural practices whether or not they have legal expressions or recognition through legal precedence by which Communities own, use and have access to biological and genetic resources”. Another example is the Philippines Executive Order No. 274, which mandates that “Prospecting of biological and genetic resources shall be allowed within the ancestral lands and domains of indigenous cultural communities only with the prior informed consent of such communities; obtained in accordance with the customary laws of the concerned community” (Section 2.1).

The common law, in some countries, could also be a means for protecting biodiversity related TK. Some elements of such knowledge like herbal remedies prescribed by traditional healers, which cannot be protected under standard patent law, can be protected as confidential information. Common law principles like those governing unconscionable behaviour and unjust enrichment can also serve the purpose. Local communities seeking to control imitation or unauthorised commercialisation of their products could also take refuge in provisions of Article 10 bis of the Paris Convention for the Protection of Industrial Property that calls for protection from unjust competition (CBD, 2000).

### **3.1.6 National non-IPR legislations**

Most countries have a wide variety of legislation governing conservation and sustainable use of natural resources pertaining to different sectors, which can also be used to protect traditional biodiversity related knowledge. If resources being accessed are present in territories occupied or traditionally used by indigenous communities, then the law could incorporate provisions mandating permission of the affected community for access and use of the resource. Laws governing forests, fisheries, agriculture and those specific to nature conservation and protected areas could provide opportunities in this direction.

Some countries having jurisdiction over indigenous and local communities, through appropriate legislation, have granted or secured tenure of such communities over whole or part of their traditional territories. Such laws may also provide for some level of self-governance and enable communities to control access to their territories and natural resources. Moreover, national and subnational legislation could also include protection of cultural heritage through which sacred site or areas of particular significance to indigenous and local communities (like sacred groves and breeding sites of important species) could be safeguarded (CBD, 2000).

The above mechanisms of legal protection open up for TK holders the option of both 'positive' and 'defensive' protection of their knowledge (Srinivas, 2008). Positive protection allows them to acquire IPRs or any other right provided by a legal mechanism established to protect TK and interests of such knowledge holders. The rights of TK holders are recognised under such protection and can be enforced through IPRs or *sui generis* systems. Defensive Protection allows them to gain protection through legal or other means to prevent unauthorised use and claims to cultural expressions, knowledge contained in specific practices, products based on or enclosing TK that is already in the public domain.

## **3.2 Non-legally binding mechanisms**

### **3.2.1 Traditional resource rights**

Traditional resource rights (TRRs) can be defined as “a rights concept that seeks to integrate an array of existing universally recognized human rights [...] with implied environmental rights [...] and the emerging rights of indigenous peoples as expressed in the draft United

Nations Declaration on the Rights of Indigenous Peoples” (CBD, 2000; p 14) into “overlapping and mutually supporting bundle of rights” (Posey et al, 1996). It is a system of integrated rights that acknowledges that cultural and biological diversity are integrally inseparable and is guided by human rights principles of indigenous and local communities including the right to self-determination, collective right, land and territorial rights, religious freedom, the right to development, the right to privacy and PIC, environmental integrity, IPRs, neighbouring rights, the right to enter into legal agreements, rights to protection of cultural property, folklore and cultural heritage, the recognition of cultural landscapes, recognition of customary law and practice and farmers' rights (Posey, 1996).

TRRs are compatible with the requirements of the CBD, IUPGR and the TRIPS Agreement and allow States to fulfill their international obligations with respect to trade, environment and development as well as honour their commitments on human rights. Though these rights can be implemented at the local, national and international levels, they are not self-executing rights; rather they have to be implemented by national law making bodies (CBD, 2000). Thus, in addition to guiding international law and practices and national legislation, TRRs can also help give direction to dialogue between local and indigenous communities and other parties like governmental and nongovernmental organizations (Posey et al, 1996).

### **3.2.2 *Voluntary guidelines and codes of conduct***

Responding to continued misappropriation of their bioresources and related TK for commercial use, indigenous and local community groups started establishing codes of conduct, ethical guidelines and principles of cultural ownership since the early 1980s. Such documents assert ownership over cultural heritage and associated knowledge and lay down principles related to rights to privacy, ground rules for consultation and obtaining permission for carrying out research and publication/disclosure of information. Mirroring such efforts, many institutions and NGOs have also developed codes for guiding researchers towards right conduct while working with indigenous communities, respecting their rights to privacy, protection of their TK and fair dealings (CBD, 2000).

Codes of ethics and guidelines thus encourage researchers to reflect on and make efforts to improve current practices in addition to increasing sensitivity and regulating behaviour within the researcher community (Cassell et al, 1987; cited in Laird et al, 2002). Generally





- Ø “Professional Ethics in Economic Botany: Preliminary Draft Guidelines” of the Society for Economic Botany
- Ø “Biodiversity Research Protocol” developed by the Pew Conservation Fellows
- Ø “Guidelines for Equitable Partnerships in New Natural Product Development: Recommendations for a Code of Practice”
- Ø “Code of Conduct and Standards of Practice” developed by the International Society of Ethnobiology.

#### **4. THE WAY FORWARD: LOOKING BEYOND IPRS**

From the above discussion it is evident that the limitations of IPRs in protecting TK are manifold, rendering them inadequate for the purpose and making them incompatible with the customs, beliefs and knowledge systems of many traditional societies. However, the role of GIs and trademarks in protecting TK cannot be overlooked. As in the case of the Kancheepuram *sarees*, a well developed system of GIs has been used successfully in France to guarantee authenticity of certain food products like wines, cheeses and spirits whose value is based on environmental and cultural factors, especially the traditional, collectively developed techniques for production (Downes, 1997).

It is important to understand however, that no matter what the form of IPR protection, impediments like high costs and difficulty in enforcement of relevant rights would render them “of little or no real value to those who may claim rights in traditional knowledge” (Correa, 2001; p.13). As such, rather than opting for protection solely through IPRs, it would be more effective to “set any use of private property rights in a broader legal context, respecting this choice as one option within a spectrum of options” (WIPO, 2004; p.9). This approach has been adopted by many countries that have incorporated such rights into their national *sui generis* measures - Brazil has combined the grant of exclusive rights with access regulation; the United States of America has combined the use of existing exclusive rights with defensive protection of native insign4.4(ionaw[a1)-6.3 estion tofair coho m85.1(p)-5.ti(ecti)6.n.6( )-5.3(in

markets being affected by the rights. Owing to these factors, CBD highlights the impossibility of developing a universally applicable rights that would satisfy the requirements and needs of all local and indigenous communities.

Keeping these issues in view, the option of *sui generis* protection is being explored by many countries and their indigenous communities. According to the CBD (2007) TK encompasses three dimensions: a *cultural aspect* (reflecting the culture and values of a community), a *temporal aspect* (it is passed down from one generations to another with gradual adaptations taking place in response to changing realities) and a *spatial aspect* (relating to the territory or a community's relationship with its lands and waters traditionally occupied or used). The Convention specifies that an effective *sui generis* system must acknowledge and protect each of these dimensions at various levels. Srinivas (2008) however, expresses doubts about whether any single regime can protect all three dimensions as “different components of TK

*its language. Rather than attempting to devise uniform IPR guidelines for protection of traditional knowledge, the Four Directions Council urges governments to agree that traditional knowledge must be acquired and used in conformity with the customary laws of the people concerned*

Significantly, concepts presented by many customary law systems may also exist in other bodies of similar laws around the world and can be considered ‘common principles’ or “norms” of customary law. A case in point is the Nunavut Wildlife Act that lists important Inuit customary law principles with respect to biodiversity (CBD, 2007). Such principles that are common to those followed by other communities can be put together to develop a system of protection that can be applied across communities, resources and regions.

### *Recognition of Land Rights*

Indigenous communities would not be able to protect their TK and bioresources unless they have ownership rights over their ancestral lands and resources. CBD (2007) emphasizes the need for *sui generis* systems to “recognize the important link between protecting traditional knowledge and securing tenure and/or access over lands and waters traditionally occupied or used by indigenous and local communities” (p.3). Several biodiversity rich countries like Brazil<sup>1</sup> and Peru that also have a considerable indigenous population have understood the importance of this and made efforts to include relevant provisions in their national laws that grant indigenous communities sovereign control over their bioresources. Such community intellectual rights and collective rights (Seiler, 1998) have been granted by the Costa Rica Biodiversity Law<sup>2</sup> that establishes an entitlement called “The Community Intellectual Rights, *Sui generis*” in which the State recognises and protects the local and indigenous community’s biodiversity related

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<sup>1</sup> Constitution of the Federative Republic of Brazil of 1998 - Article 231: The Indians shall be accorded recognition of their social organization, customs, languages and traditions and the original rights in the lands that they occupy by tradition, it being the responsibility of the Union to demarcate them, protect them and ensure respect for all their property.

<sup>2</sup> Article 82 - *Sui generis* community intellectual rights: The State expressly recognises and protects, under the common denomination of *sui generis* community intellectual rights, the knowledge, practices and innovations of indigenous peoples and local communities related to the use of components of biodiversity and associated knowledge.

knowledge, practices and innovations (Aguilar, 2001). Philippines<sup>3</sup> has a similar agenda built into its Community Intellectual Rights Protection Act (2001). Valuable lessons can also be learnt from Venezuela<sup>4</sup> and signatories of the Andean Pact<sup>5</sup> that recognise the rights of indigenous peoples over their IP and have taken steps to arm them with IPRs for their biodiversity related innovations that conventional IPR systems do not recognise.

An effective property regime must thus, as part of positive protection vest in TK holders the rights to allow access, determine terms of access, refuse access and the means to enforce such rights (Srinivas, 2008). However, this can be difficult in cases where the rightful holders of TK cannot be clearly identified.

#### *Complementary national and international legislation*

*Sui generis* systems, however well designed, would not be effective on their own; rather they would need to be supported by appropriate national and international measures that would provide best-practice guidelines and recognize and endorse existing local protection systems (CBD, 2007). At the national level *sui generis* systems would have to be harmonized with other national laws which according to WIPO (CBD, 2007) could be done by determining the extent to which the law of IP can meet national objectives and help address policy issues related to TK. If such law is found to be deficient for the purpose of protecting TK, the WIPO suggests (CBD, 2007) that IP laws be adapted and *sui generis* measures, laws and systems developed to complement IP and non-IP tools. Legal protection of TK makes it necessary that the following issues be addressed (CBD, 2000):

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<sup>3</sup> The objective of this bill is to provide for a system of community intellectual rights protection of local and

- Ø Area and nature of respective national and indigenous and local community jurisdictions related to IP
- Ø Policing
- Ø Rules of evidence and procedure
- Ø Locus standi
- Ø Nature and composition of the judicial authority assigned to deal with customary IP
- Ø Role of local community justice mechanisms
- Ø Appropriateness, nature and enforcement of any penalties imposed for infringements against customary laws governing access to and use of biodiversity related TK.

CBD (2007) cautions that it could be beneficial to integrate the *sui generis* system into the general framework of national legislations.

Implementation of effective *sui generis* systems with proper institutional and legal support would require that local institutions governing land-use and management of biodiversity and related TK would have to be strengthened. At the national level this could call for legal and policy reform that aim at securing rights of indigenous communities to resource ownership and use and building their capacity to exercise such rights (CBD, 2007). Such steps have been taken by various countries through constitutional amendments that aim at incorporating biodiversity-related rights of indigenous communities in the national legislative framework which could lend more power to community rights legislation and has been followed by various countries in different parts of the world – India’s amendment 73 which aims at devolution of power to the grassroot level through the *Panchayati Raj* institution and Thailand’s Art. 79<sup>6</sup> of a new Constitution. Colombia, Brazil and other Latin American countries have also articulated such rights in their constitutions and this could strengthen *sui generis* community rights systems.

*Sui generis* systems for protecting TK have till now been developed on a national or regional level. The former becomes ineffective in the case of cross border knowledge systems and when TK is taken beyond the sphere of national jurisdiction. Regional initiatives like those

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<sup>6</sup> Article 79: The state must promote and accept public participation in planning and implementing environmental and natural resource conservation and management, as well as controlling and eradicating pollution that threatens people's lives, welfare and quality of life.



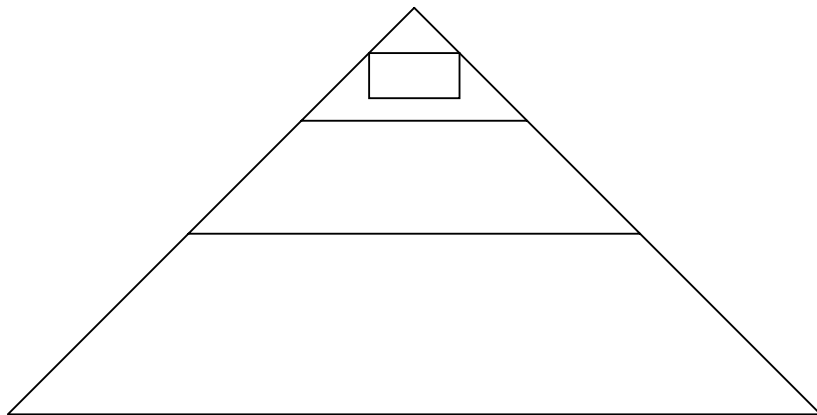


practices and national legislation as well as give direction to dialogue between local and indigenous communities and other parties like governmental and non-governmental organisations (NGOs) (Posey et al, 1996).

Some amount of protection can also be achieved by the use of protocols which though not legally enforceable, establish industry standards and could provide guidance to at least some of those stakeholders who wish to be access bioresources and TK in a responsible manner. It cannot however be overlooked that since protocols are not laws, enforcement would not only depend what powers indigenous and local communities can exercise under national and sub-national laws but also on the willingness to adhere to them voluntarily (CBD, 2000).

Drahos (2004) suggests that compliance with protocols can be increased by integrating them into a regulatory enforcement pyramid. Such a pyramid (Figure 1) has soft tools of regulation at the base – tools like guidelines, protocols and educational strategies that are based on the assumption that actors want to do the “right thing”. The tools of regulation become more stringent towards the top of the pyramid with the topmost offering strict forms of punishment like imprisonment, cancellation of license etc.

*Figure 1: International Enforcement Pyramid for TGKP*



*Source: Pyramid draws upon Braithwaite, J. (2002); cited in Drahos, 2004*

As the enforcement pyramid allows commencement of negotiations at the base through dialogues and information-based strategies, Drahos (2004) holds it especially appropriate for regulating use of TK and practices “because, for indigenous groups, respectful engagement



with others over the use of their knowledge and resources is the fundamental starting point of any process of regulation” (p.35).

An important component of a protective system, in addition to the above strategies, is the documentation of TK in a participatory way. Such registers and databases would prevent patents on indigenous resources and related TK by establishing prior art and also prompt sharing of benefits resulting from commercial use of such materials. India has already made inroads in this area in the form of the Traditional Knowledge Digital Library – a computerised database of documented TK related to medicinal and other plants. People’s Biodiversity Registers being developed in Kerala and Karnataka also are commendable efforts at protecting TK through documentation.

Similar initiatives taken by national institutions in other parts of the world offer important

collective regime on traditional knowledge, Portugal's TK law, and Thailand's register of traditional medicine, as well as measures within the Andean Community, the Organization of African Unity and the South Pacific Forum (Alexander et al, 2004).

In addition to the above measures, appropriate incentive schemes formulated in consonance with the opinion of indigenous and local communities could lead to effective protection of biodiversity related TK. Core incentives could include security of tenure over land and natural resources and co-management of natural resources, with monetary and non-monetary benefits being added to suit specific situations. Private research and collecting institutions could also aid in this process through contractual obligations based on MATs and fair and equitable benefit-sharing arrangements. (CBD, 2000).

With regard to providing incentives, it is important to understand that no one incentive will suffice for all situations within or across communities. Incentives would thus have to be tailored to suit different kinds of knowledge, skills, practices, innovations and holders of TK as well as the needs of particular communities and of particular members of the community. Above all, incentive measures should be designed and implemented in a manner that maintains the community and ecological balance (CBD, 1997). Capacity building measures could also be undertaken to supplement the above protective measures. This could include strengthening capacities for making proper use of biological resources, expertise in relevant scientific and technological fields, ability to draft legislation and develop *sui generis* systems of protection of TK and expertise and skill required for bargaining and negotiating ABS and other agreements (CDB, 2000).

Inspiration can be drawn from a "more responsive and constructive approach" (Swiderska et al, 2006; p.10) that is being explored by some indigenous communities and organizations to make up for gaps in policy initiatives of UN agencies like the CBD and WIPO that "address traditional knowledge separately from traditional resources and territories and customary laws, deal with TK issues within a paradigm of property, and marginalize the ancestral rights-holders from decision-making" (Swiderska et al, 2006; p.10). The concept of Collective Bio-Cultural Heritage is defined as the "Knowledge, innovations and practices of indigenous and local communities which are collectively held and inextricably linked to traditional resources and territories, local economies, the diversity of genes, varieties, species and ecosystems,

cultural and spiritual values, and customary laws shaped within the socio-ecological context



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