



Access to Genetic Resources in Latin America and the Caribbean: Research, Commercialization and Indigenous worldview



IUCN's Regional Office for South America



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**Access to Genetic Resources in Latin America and the Caribbean:
Research, Commercialization and Indigenous Worldview**

**Strengthening the Implementation of Regimes of Access
to Genetic Resources and Benefit Sharing in Latin
America and the Caribbean**

Montserrat Rios and Arturo Mora

Editors

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Interrelationship between indigenous worldview and biodiversity:
How to protect traditional knowledge and genetic resources?



Handicrafts in the Colca Canyon, Peru. © Sarah Johnson.

Gabriel Ricardo Nemogá-Soto



Interrelationship between indigenous worldview and biodiversity: How to protect traditional knowledge and genetic resources?

Introduction

The emergence of a recombinant biotechnology applied to DNA made feasible the development of the industrial application of genetic material giving an unexpected economic importance to indigenous and local knowledge related to biodiversity uses. This new vision turned biological diversity into a reserve of natural material, as well as indigenous and local knowledge related to plants and animals in a basis for developing commercial products creating different dynamics and initiatives of bio prospecting with scientific and lucrative purposes. Nowadays, it is known that some initiatives exerted a misappropriation of genetic resources and traditional knowledge; generating regulatory processes to ensure participation in the benefit sharing derived from their utilization (ABS).

In this ABS context regimes of access to genetic resources are established under Arts.1 and 15 of the CBD because they recognize the sovereignty of countries of origin but even if traditional knowledge is mentioned a comprehensive protection is still needed. Also regulation as Decision 391 of 1996 included traditional knowledge as an intangible component of genetic resources and conditioned the granting of intellectual property rights on their innovations and legal access (Supplementary provision 2^a). While this regulation helped in the recognition of the rights of indigenous, Afro American and local communities to decide on the access and use of their knowledge, practices and innovations (Decision 391, Art. 7), the development of a comprehensive protection regime remained subject to the establishment of a harmonization regulation (Temporary Provision 8^a). The truth is that two decades have passed without establishing such regime or materializing national measures to prevent irregular appropriation of genetic resources and local knowledge related, except for Peru where there is a record of collective knowledge.

Peru's records are inspired in biodiversity record systems driven by some NGO's for biodiversity in India such as the initiative "Honey Bee Network" (Gupta 2000) which developed a digital library and promotes a model to combat misappropriation of traditional knowledge related to biodiversity, especially in traditional medicine systems (WIPO 2011). Documenting local knowledge and resources is directed to prevent obtaining and undue exploitation of intellectual property rights and enforces regulation on access and benefit sharing.

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This research examines protection and conservation of traditional knowledge of indigenous peoples and local communities using a theoretical approach on bio cultural diversity to comprehensively understand the interrelationships between traditional knowledge and biodiversity, and understanding and integrating indigenous worldviews in the design of protection systems. It also identifies international instruments that enshrine the rights of indigenous peoples related to their cultural identity, their traditional knowledge and natural resources; subsequently it specifies the frame of intellectual property that sets its protection with advantages and limitations. Finally, it reviews and values the Peruvian efforts of its record system of collective knowledge examining the scope of this mechanism for the conservation and protection of traditional knowledge, innovations and practices related to the conservation of biodiversity and its sustainable use.

2. Protection of traditional knowledge

Consistently, several statements and expressions from indigenous peoples' leaders indicate that conservation and protection of traditional knowledge are closely linked to land rights, their resources and the right to self-determination (Kari-Oca Declaration and Indigenous Peoples Earth Charter 1992; Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples 1993; Indigenous Peoples' Seattle Declaration 1999). Thus, it is said that traditional knowledge is an integral part of indigenous and local lifestyles that are displayed in permanent and dynamic interaction with nature. The implication of such interactions is simple and straightforward without ensuring the lands, the rights over their resources and the exercise of self-determination, making conservation of traditional knowledge impossible in a meaningful way for the survival of the people.

The position of indigenous peoples is based on their lifestyle and daily practice, and the interrelationship between traditional knowledge and the ecosystem dynamics of the lands inhabited has been documented by studies conducted in the different ecosystems, going from the Arctic to the deserts in Africa and from the Andes to the Pacific Islands systems, and showing the adaptation of human groups to changing environmental conditions (Infield 2001; Lauer and Aswani 2009; Gombay 2010; Woodley 2010). Traditional knowledge itself has an intrinsic and necessary articulation with worldview, rituals and spirituality of each people as their particular contents correspond to the local, socio-environmental context and are present in: the stories of origin; relationships with deities; ceremonies, and practices that make the bio cultural diversity.

The approach from bio cultural diversity recognizes the "close ties of traditional knowledge and biodiversity, traditional lands, cultural values and customary regulations, all of which are vital to preserve traditional knowledge" (Swiderska 2006: 17). Bio cultural diversity can be understood as "the diversity of life in all its biological, cultural and linguistic expressions that are interrelated and probably co-evolved within a socio-ecological adaptive system" (Maffi 2010: 5)

In this context, traditional knowledge is an integral part of cultural diversity and arises from the challenges and problem solving that communities face in all areas of life; and therefore, to ensure their generation and conservation communities need to be able to develop and maintain from their own worldview their interaction with the land and its resources.

From an indigenous worldview separation between knowledge and living beings, natural environment and social life is impractical for nature and humanity are not cleaved. Indissolubility between knowledge and the various manifestations of life has been demonstrated in community conservation practices documented by Swiderska (2006) under the concept of "collective bio cultural heritage", comprising "knowledge, innovations and practices of indigenous and local communities that are kept collectively and are inextricably linked to traditional resources and lands, to the local economy, diversity of genes, varieties, species and ecosystems, cultural and spiritual values and customary regulation shaped within the socio-ecological context of communities" (Swiderska and Argumedo 2006: 11). Additionally, experiences in Africa, Asia, North and South America referred by Maffiy (2010), reiterate that interrelationships between biological and cultural diversity are the basis of conservation efforts and cultural affirmation in community initiatives of several indigenous peoples around the world.

Indigenous peoples represent between 4.000 and 5.000 of the 6.000 languages spoken in the world, forming the largest cultural diversity yet representing only about 5% of the world population. The rapid disappearance of native languages means that the encoded knowledge within them is becoming extinct with negative consequences for indigenous peoples, conservation of biodiversity and for humanity as a whole (Oviedo, González and Maffi 2004). This suggests that interrelationships between cultural and biological diversity are relevant for the design of protection strategies of traditional knowledge and involve considering indigenous peoples and local communities lifestyles. In this regard, the preservation of conditions that will ensure the generation of knowledge requires halting the loss of cultural diversity typical of mega diverse countries and it is equivalent to preserving adaptive solutions developed by humanity in different geographical contexts when considering social and environmental problems (Maffi and Woodley 2010). In the Americas indigenous peoples and those brought from Africa as slaves, survived the devastating practices of colonial empires. Subsequently, their very existence was hampered by assimilation and elimination policies driven by several governments who sought to forge homogeneous nations. Despite these processes, most of the indigenous peoples and Afro American and local communities kept their worldviews as the basis of interaction with nature; especially with plants and animals, and continued developing collective knowledge which allowed them to adapt and survive.

2. Recognition of the indigenous worldview

Concepts related to indigenous peoples themselves and to the communities whose knowledge is intended to be protected become relevant from a bio cultural diversity perspective. *Suma Qamaña* or Good Living is the expression of the aspiration of indigenous peoples to have fullness of life assuming responsibility and respect for all being of nature and recognizing human species as part of it. In Ecuador the term kichwa *Sumak Kawsay* is used to describe Good Living; however, the nodal elements of this view match the principles of other indigenous peoples in the south of the continent as described by Uzeda (2009), Huanacuni (2010) and Ascarrunz (2011). In the north, indigenous peoples of Canada use the expression *Mino bimaadiziwin from the Anishinaabe* (Ojibwe) people which could be translated as Living Well or Good Life (McGregor 2006). This concept in itself recognizes the intrinsic value of nature and every living being by the mere fact of their existence.

In this regard, it must be said that indigenous worldview, economic valuation and exchange of knowledge do not become the main focus or priority of their protection and conservation systems. Clarifying that Good Living is a conceptual statement against the commercial emphasis on natural resources that has driven the extractive processes of great environmental impact: "We will continue strengthening and defending our economies and rights over our lands and resources against extractive industries, predatory investments, appropriation of lands and territories, forced displacement and unsustainable development projects. These include large hydroelectric dams, plantations, large-scale infrastructure, tar sands extraction and other mega projects, as well as the theft and appropriation of our biodiversity and traditional knowledge" (Rio+20 Indigenous Peoples International Declaration on Self-Determination and Sustainable Development 2012). The concept of Good Living and cultural elements of the worldviews of indigenous peoples is starting to be recognized in the agenda for debates on traditional knowledge and the need of a comprehensive system validating the protection and conservation of collective knowledge (SPDA y SGCAN 2012).

Indigenous worldviews and lifestyles have priority for their collectiveness rather than for individual rights, this is why their dynamic and adaptation to changing situations rather than preventing access and controlling the availability of knowledge require the active exchange and intergenerational transfer of strategic information, skills and knowledge. The widespread of knowledge to solve health problems, feeding, housing, social cohesion, crop conservation as well as use, innovation and practices related to biodiversity are a collective adaptation whose appropriation and individual control would be a disadvantage for the survival of the human group in a changing environment. Collective knowledge of the Inuit people on "*caribou*" in the Arctic for example, ensures that the community can react properly to changes in the population of this species and their migratory cycles along the years, as documented by Berkes (2008). Similarly, knowledge and collective knowledge of Andean people to preserving crop diversity, cultural practices and related ceremonial rites sustain their permanence in an environment that is constantly changing (Ishizawa 2010). The collective nature of institutions, practices and rights of indigenous peoples is recognized in the international law.

2. Collective rights of indigenous peoples

Rights over traditional knowledge are recognized in various international instruments and provide a basis for the design of mechanisms that meet the needs and interests of indigenous peoples; although it does not define the ownership over traditional knowledge, CBD creates an obligation for countries to promote the use of traditional knowledge and to have the consent of indigenous and local communities for access. The scope of the “protection of traditional knowledge, innovations and practices” contained in article 8(j) goes beyond establishing standards of legal protection over knowledge, as stated by the CBD’s Executive Secretary (Executive Secretary, Secretariat of the Convention on Biological Diversity 2004).

CBD focuses protection on knowledge, innovations and practices related to biodiversity but extends its recognition to lifestyles of indigenous and local communities that interact and promote the conservation of biodiversity. Additionally, Art. 10(c) of the CBD states that signatory countries should promote the use of customary law which is relevant for the design of protection systems. Other instruments such as FAO’s International Treaty on Plant Genetic Resources for Food and Agriculture in Art. 9 (2, paragraph a) recognizes the responsibility of governments to take measures to protect and promote the rights of farmers and their traditional knowledge.

In the development of legislation and protection systems, signatory countries of the 169 Convention of the International Labor Organization (ILO) are committed to protect their values and social, cultural and spiritual practices under customary law and in consultation with indigenous peoples as stated in Arts.5.1, 8.2 and 13.1. The commitment to take measures to ensure “full realization of social, economic and cultural rights of these peoples with respect of their social and cultural identity, their customs and traditions and their institutions” is also provided in the Convention in Art. 2.2.b. The obligation to ensure the rights of these peoples “to the natural resources on their lands” (Art. 15.1, ILO 169) and the right to education programs covering “their knowledge and technologies, their value systems and all other social, economic and cultural aspirations” (Art. 27.1, ILO 169), conditions are pointed out in premises to be considered in the design of policies, measures and institutions for the protection of traditional knowledge.

In indigenous peoples their knowledge is intrinsically articulated with their lifestyle, therefore, right to self-determination is relevant in the design of mechanisms to preserve and protect traditional knowledge. To answer questions about what is understood by “protection” and what should be protected requires the autonomous, active and full participation of peoples according to their customary law and traditions. Thus, the communities and peoples themselves should decide on their priorities for their permanence and strengthening from their perception which is to “Define and implement our own priorities for the economic, social and cultural development and environmental protection based on our traditional culture, knowledge and practices, and the implementation of our inherent right to self-determination” (Rio+20 Indigenous Peoples International Declaration on Self-Determination and Sustainable Development 2012). As recognized in the United Nations Declaration on the Rights of Indigenous Peoples (Arts.3, 31 and 32, UNDRIP) the exercise of self-determination is when people can decide the level of interaction and adoption of practices, products and technologies for their political, cultural, economic and social development.

In this regard, protection of traditional knowledge is a fundamental right of indigenous peoples as an integral and substantive part of their lifestyles as indigenous experts from the region like Rodrigo de la Cruz (2005) have specified. The above premise was reaffirmed in the Rio+20 Indigenous Peoples International Declaration on Self-Determination and Sustainable Development (2012) stating that: "self-determination is the basis for Good Living of our peoples", this makes that ensuring land rights, land management and building dynamic community assets become a top priority as local economies are the ones that ensure sustainable livelihoods and community solidarity and are the basic components of ecosystem resilience".

UNDRIP recognizes explicitly in its Art. 31 the right of indigenous peoples to control and protect their traditional knowledge, cultural expressions and manifestations of their science, technologies and cultures. It also includes the right to "maintain, control, protect and develop intellectual property over such cultural heritage, their traditional knowledge and traditional cultural expressions" (Art. 31). Although it is part of the so-called soft-law, with no legally binding force, UNDRIP is part of the mandatory legal framework in countries such as Bolivia, which adopted Law N° 3760 on November 7, 2007, and in the legal systems that integrate UNDRIP provisions as part of the constitutional regulation because they represent fundamental human rights. Additionally, its adoption by the General Assembly of the United Nations signed by 143 countries and subsequently by countries that abstained or were initially opposed, place UNDRIP as a necessary reference in the design of protection systems.

The Nagoya Protocol negotiations resulted in significant recognitions in the international forum of the CBD since under its framework local and indigenous communities are collective subjects of interest. The Nagoya Protocol encourages countries to adopt legislative, administrative and policy measures to ensure that these communities are part of the benefit sharing derived from the use of traditional knowledge and genetic resources, according to national regulation (Art. 5, paragraphs 2 and 5). Regarding traditional knowledge related to genetic resources it reiterates the relevance and necessity of taking into account customary law and community protocols (Art. 12, paragraph 1). It also reiterates guidelines previously established at regional level, for example in Decision 391 of 1996 which states that the need of the Nagoya's Protocol implementation does not restrict customary exchange of genetic resources and traditional knowledge (Art. 12, paragraph 4).

Summarizing, provisions of the Nagoya Protocol specify the obligations of the parties regarding the rights of indigenous and local communities within the CBD's scope. For this reason, it's importance lies in not contradicting the rights contained in the UNDRIP and allows for an interpretation that can direct the action of signatory countries; however, since it is a binding instrument, the language used "each party shall take legislative, administrative or policy measures, as appropriate" and provide compliance "in accordance with domestic legislation" introduces a wide range of uncertainty as for the effective compliance of these obligations by the states.

2. Challenges to establish the subject of rights

Plurality of ancestral peoples and communities, their different historical backgrounds and different levels of interaction with a prevailing social organization become issues that pose enormous challenges to specify the subjects of rights. The definition adopted by international instruments set a precedent in the ILO's 169 Convention of 1989. This definition highlights objective factors that refer to the distinction between tribal and indigenous peoples. The first refer to communities with specific social, cultural and economic conditions and that are also completely or partially governed by their own customs and traditions.

Former colonies of indigenous peoples are those who have ancestral ties to human groups in a territory to the arrival of the colonizer, retaining their own social, economic, cultural and political institutions. Equally, the definition adopted by the 169 Convention includes an essential aspect concerning indigenous or tribal awareness or self-recognition since for their own indigenous peoples the question of who is indigenous and the criteria for their recognition always has political implications (Corntassel 2003). Thus, the ILO's 169 Convention of 1989 in its Paragraphs 1 and 2 apply:

1. a) To tribal peoples in independent countries whose social, cultural and economic conditions distinguish those from other sections of the national community, and that are also completely or partially governed by their own customs and traditions or by a special legislation.
- b) To the peoples in independent countries, considered indigenous on account of their descent of populations that inhabited the country, or a geographical region to which the country belonged at the time of conquest or colonization, or at the establishment of current country borders and whatever their legal status retain some or all of their social, economic, cultural and political institutions.
2. Awareness of indigenous or tribal identity should be considered a fundamental criterion for determining the groups to which the provisions apply.

The CBD adopts the term indigenous and local communities but in the preamble refers to local communities and indigenous populations embodying traditional lifestyles on biological resources. Art. 8(j) specifies one of the commitments of member countries; the CBD refers to local and indigenous communities embodying traditional lifestyles on biological resources relevant for the conservation and sustainable use of biodiversity and its components. It also recognizes the close dependence of communities on biodiversity and the convenience of equitably benefit sharing derived from the utilization of traditional knowledge but it does not include an operational definition. Even so the term indigenous and local communities, was adopted in the instruments developed by the CBD and the Cartagena Protocol (2000) and the Nagoya Protocol (2010).

The importance of the efforts by the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) and the WIPO lies in a greater determination, indicating that the use of the term "indigenous and local communities" in the CBD refers to "communities identified from yesteryear with the lands and waters in which they live or have used in accordance with their traditions" (Secretariat of the Permanent Forum on Indigenous issues

2004; Secretariat of the Permanent Forum on Indigenous Issues 2006). Specifying even further the notion of local community, it is stated that it refers to “the human population living in an area that is distinguished by its own ecological characteristics and whose livelihood depends completely or partially, directly to the goods and services that biodiversity and the ecosystem provide. The traditional knowledge of this population comes from a relationship of dependence regarding activities such as: agriculture, fishing, grazing, hunting and harvesting to name a few” (UNEP-CBD 2005: 2). Other instruments like FAO International Treaty on Plant Genetic Resources for Food and Agriculture also use the term “indigenous communities” and “local communities”, but do not provide an explicit definition and they do recognize the contribution made by these communities in terms of plant species for food and agriculture (Art. 9.1).

The Andean region advances in defining the community's holders of rights on indigenous, traditional or ancestral knowledge. Decision 391 of 1996 of the Andean Community of Nations (CAN), includes the definition of indigenous, African American or local communities as a: “human group whose social, cultural and economic conditions distinguish them from other sections of the national community, and that are also completely or partially governed by their own customs and traditions or by a special legislation and that whatever their legal status retain some or all of their social, economic, cultural and political institutions”; this definition is similar to the one of the 169 Convention of 1989 while eliminating the subjective component. The subject of protection in the Andean legislation includes afro descendants and local communities, with the first including populations that were moved to the mainland as slaves in the colonial period. Additionally, the definition of the Andean law accepts the expression “local communities” of the CBD, reaching populations that without being indigenous have a relation with biodiversity resources and peasant communities whose indigenous identity was blurred in most cases by integration processes and land reforms.

In each historical-cultural context the collective subjects intended to be protected can be more complex. In Bolivia for example, when the multinational state was established, the new Constitution explicitly recognized native Nations and Indigenous Peoples and peasants, including the term “intercultural communities” when referring to peoples from the west of the country who migrated to the east under a policy of expanding the agriculture frontier in 1960's. Additionally, the Constitution of 2009 recognizes the same rights to Afro Bolivian communities. When considering the historical context in multinational states such as Bolivia, the accuracy of the legal subject from a bio cultural approach is relevant if one considers that the various indigenous peoples account for more than 40% of the population (INE 2012). The accuracy of the subjects of protection will be an element for political decisions when developing sui generis regimes, as detailed in Peru's protection regime.

6. Protection under intellectual property rights and *sui generis* regimes

The diverse and complex issues surrounding the discussion of a protection system of traditional knowledge were initially undertaken under the WIPO's framework as technical issues to be explored and creating the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC). IGC's exploratory activities initiated in 2001 include various governmental, industrial, academic, indigenous and non-governmental perspectives. Precisely, given the link to the negotiations in the CBD and the nature of the WIPO, the IGC took an initial defensive approach from intellectual property on issues of access and benefit sharing derived from the utilization of genetic resources, protection of traditional knowledge and folklore expressions. Thus, the conceptual approach that guides IGC's activities differentiates traditional knowledge from traditional cultural expressions or folklore expressions. Within the reference framework of intellectual property both groups are seen as economic and cultural assets and are subjects of protection.

In developing their analysis the IGC understands traditional knowledge as "[...] dynamic and constantly evolving knowledge created in a traditional context, collectively preserved and transmitted from generation to generation and including, among others, specialized knowledge, skills, innovations, practices and learning that survive in genetic resources" (WIPO 2012a: 4). Anyway, there is no consensus within the IGC on patentable subject matter and the latest versions of the document "Protecting Traditional Knowledge: draft articles", developed by the Secretariat includes two definitions of traditional knowledge (WIPO 2012b; WIPO 2013).

Nowadays, it is accepted that traditional nature does not refer to the content of knowledge but to its context and the collective nature shows its connection with the distinctive lifestyle of a community or people. Thus, for the IGC indigenous knowledge is considered as part of a larger universe of traditional knowledge (WIPO 2012a). The connection between traditional knowledge, lifestyle and cultural identity of indigenous peoples who deserve protection is not new in the IGC debates: "it may be necessary for knowledge to have an intergenerational nature, be objectively linked to the community of origin and maintain a subjective association within that community so that it is part of its identity" (WIPO 2008: 5). From this point of view, traditional knowledge is not restricted to only the one linked to genetic resources but it also includes any technical scope. Knowledge related to biodiversity is just one example which seeks to be protected as specified in the second part of one of the options for definition that states: "traditional knowledge is also the knowledge related to biodiversity, traditional lifestyles and natural resources" (WIPO 2012b: 8).

The scope of IGC fixes intellectual property as required by the operational concept of protection, differentiating its scope from other international instruments as de CBD, the UNESCO Convention for the Safeguarding of Intangible Cultural Heritage of 2003 and the UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions of 2005. In this context, protection is the safeguarding of traditional knowledge and traditional cultural expressions against unauthorized

use

or unfair exploitation distinguishing positive protection and preventive protection. For these reasons, the first seeks to prevent unauthorized use by third parties; it also includes direct control and exploitation of traditional knowledge by the community itself. Meanwhile, the second seeks to prevent the granting of "property rights unfounded or illegitimate on the subject matter of traditional knowledge and related genetic resources" (WIPO 2008:6; WIPO 2012a: 36).

Under the framework of intellectual property, finding solutions starts from considering that if used for undue monopolization and privatization of indigenous knowledge, their institutions can be improved to avoid it. Nowadays, patent-related measures such as disclosure of origin and certificates of origin are included and the adoption of similar measures is suggested regarding the granting of plant certificates (Tobin 1996; Mgbeoji 2006). Minimum documentation was expanded regarding the patent law through the Patent Cooperation Treaty (PCT), trying to resolve the availability of publications on traditional knowledge at the reviewing phase of state of art or technique. Also in 2006, a category of subjects related to traditional knowledge were included in the International Patent Classification (WIPO 2008); however, with its potential adjustments and additions, limitations of intellectual property to protect traditional knowledge and its cultural expressions were recognized (OMPI 2012c).

Because of the particular conditions of creation, transfer and use of traditional knowledge it has been suggested that its protection requires the design of unique and special system or *sui generis* system. The design of *sui generis* systems is necessary since the notions of private property and individual intellectual property when related to traditional knowledge and biodiversity elements object free trade and its distribution in traditional cultural contexts (Posey 2002). Control and restriction to access and use of traditional knowledge are not relevant except when using sacred plants in ceremonies and spiritual practices that require training and qualification for its handling.

Currently various indigenous peoples and local communities that interact with biodiversity face a context that pushes for industrial and commercial use of their knowledge. The prevailing view regarding intellectual property seeks to protect traditional knowledge but responds to the increasing activity of private initiatives and research institutes and to the difficulty of controlling its use. Nemogá-Soto (2013a) conducted an analysis in Colombia, during 1991-2010, showing that research programs on genetic diversity and biodiversity policies were defined without acknowledging the active role and the rights of communities and peoples that constitute the ethnic and cultural diversity of the nation. Cooperation agencies such as UNCTAD identify indigenous knowledge as a valuable resource that could be used for development and trade with economic outcomes for its owners (Bhatti 2004). Twarog (2004) suggests the need of a comprehensive national assessment to preserve, protect and promote traditional knowledge anticipating an eventual disposition of some communities to participate in the commercialization of their knowledge or of its cultural expressions.

Currently, commercialization of traditional knowledge and its products is an option that some communities take over in inequitable conditions. It is in this context that control over their knowledge, innovations and practices as well as the use of intellectual property tools as collective brands, denomination of origin and geographical indications, and certificates of origin among others, can play a role to ensure a fair benefit sharing (Tobin 1996; Downes and Laird 1999). In this case it would not be about a *sui generis* regime but about the use of intellectual property tools to improve the bargaining capacity and position of communities who choose to develop marketing relations.

From an indigenous peoples perspective the possibility of commercial transactions on their collective knowledge would only be a complementary option but it may not be the central reference point for protection and conservation of their traditional knowledge, unless communities radically transform their collective and traditional lifestyle. Meanwhile, under the economic framework in which protection alternatives develop through intellectual property rights, preservation of the different lifestyles of indigenous peoples and the indefinite practice and renew of their knowledge in the community are not priorities. Preservation of knowledge, traditional knowledge and practice demand the design of *sui generis* protection measures without losing sight that full conservation requires bio cultural approaches that incorporate indigenous worldviews.

The document "Protection of Traditional Knowledge. Draft Art.s" was submitted to the WIPO's General Assembly in 2012, framed in the development of one or more binding international instruments to protect genetic resources, traditional knowledge and traditional cultural expressions (WIPO 2013). The joint draft IGC-WIPO is a work document generated under the mandates of WIPO's General Assembly that includes alternative wording and the facilitators' reasoning on the reach and systematization of the draft. To date, alternative texts still show strains between comprehensive protection of traditional knowledge and a functional protection for its marketing purposes.

In the development of IGC's deliberations "political objectives" and "general guiding principles" were incorporated in the document WIPO/GRTKF/18/5 Prov. (WIPO 2010), including elements such as the acknowledgment of the intrinsic, spiritual and scientific value of traditional knowledge when: recognizing that traditional knowledge systems have equivalent scientific value than other knowledge systems (whereas i); calling to respect traditional knowledge systems, their contribution to science and technology, food security and sustainable agriculture (whereas ii); recognizing the distinctive nature of traditional knowledge systems and leaving open the possibility that protection systems belong to that nature (whereas v), and ratifying the consensus regarding the vocation to enforce the Prior Informed Consent (PIC), the MAT and preventing misappropriation of traditional knowledge (whereas vii).

The aforementioned document includes, although they are not consensual texts: stopping the grant or exercise of intellectual property rights over traditional knowledge and genetic resources by creating digital libraries of traditional knowledge (whereas xiv) and demanding the disclosure of the source and country of origin of resources, evidence of PIC and benefit sharing conditions (whereas xiv); the text also mentions: collecting the strain in sectors that reiterate the value of the concept of public domain on traditional knowledge (whereas vii).

In general, the document promotes the connection of communities with the commercial use of traditional knowledge for economic development and the marketing of by-products from traditional knowledge. The link between traditional knowledge and its by-products with economic development seeks to ensure relations of the community with different market options (WIPO 2013); however, this option is conditioned to be consistent with the right of communities' holders of knowledge to freely define their economic development.

The IGC negotiation process and outcomes will have a great influence on the development of protection regimes, even though its development as an international instrument is ongoing. Anyway, at country level it is necessary to advance on debates to improve the comprehensive protection options that will recognize historical contexts and the nature of biodiversity in each case. For this purpose, the background of the Andean Community of Nations (CAN) should be examined, oriented to establish a *sui generis* regime.

The elements required for the CAN's *sui generis* regime proposal emphasizes the knowledge, innovations and practices of indigenous peoples related to biodiversity but also refer to cultural and folklore issues (Cruz *et al.* 2005). The proposal includes ancient knowledge since it comprises the wisdom of indigenous peoples according to their worldviews. The elements emphasize "the wide range of traditional knowledge, innovations, and practices of indigenous peoples related to biodiversity and cultural and folklore issues" (Cruz *et al.* 2005: 7). Among the alternatives considered by Cruz and colleagues (2005) for a *sui generis* protection are:

- i. A *sui generis* protection regime of collective and comprehensive knowledge without further interaction with the intellectual property right.
- ii. A *sui generis* protection regime for traditional comprehensive and collective knowledge as a result of combining intellectual property rights and knowledge systems of indigenous peoples.
- iii. Protection through national standards.
- iv. Protection of traditional comprehensive and collective knowledge through customary law.

The proposed elements promote the adoption of *sui generis* protection Andean regime for comprehensive and collective traditional knowledge, innovations and practices of indigenous peoples on the basis of customary law and cultural practices.

In support of this action it should be stated that: "Organizations of indigenous peoples have agreed that a *sui generis* regime could be the ideal mechanism given the nature of traditional comprehensive and collective knowledge as its collective nature and intergenerational practice. However, a protection measure through current intellectual property rights does not solve the underlying problem even by incorporating new elements, i.e. the very nature of the given knowledge does not ensure its continuation and dynamics." (Cruz *et al.* 2005: 25).

In a later text on possible elements for a *sui generis* regime of the General Secretariat, Andean Community (2009: 3), the general objective is "value and strengthen the knowledge systems of indigenous peoples and Afro American and local communities, and prevent misappropriation of this knowledge and its various tangible and intangible cultural manifestations". The proposal retakes elements from the intellectual property field, establishing the scope of application on traditional knowledge linked to ecosystems management and the use of biodiversity resources, and traditional cultural expressions; considering guarantees such as PIC, confidentiality and laws against unfair competition, national and local records, agreements, contracts and licensing agreements (General Secretariat Andean Community 2009). It also includes among the positive protection mechanisms and instruments, tools of intellectual property such as collective brands, geographical indications and copyright.

The document of the General Secretariat of the Andean Community (2009) aforementioned has not yet been formally adopted and is part of a limited perspective from the intellectual property scope for the development of a *sui generis* protection regime, unlike the comprehensive protection option and culturally appropriate. Regarding policy decisions it seems relevant to retake the work groups of indigenous experts, take into account the elements contained in the document of the General Secretariat but focusing the debates and works from a bio cultural diversity perspective with a vocation to integrate indigenous worldviews.

In general the approach of bio cultural diversity, the acknowledgement of concepts as the Good Living and the protection initiatives under the notion of "collective bio cultural heritage", are distinguished because they highlight the relevance and the need to work with concepts that would give scope to indigenous worldviews. Countries of Latin America and the Caribbean are noted for leading innovative approaches for the use of biodiversity and proposals to establish access regimes, combat piracy and introduce modifications to the patent system. Likewise, proposals that start out from the recognition of the importance of bio cultural diversity for the design of a *sui generis* system for the sake of a comprehensive protection of traditional knowledge could be developed, corresponding to self-determination and cultural affirmation of indigenous peoples and local communities. Access and record regimes that exist or that are in debate in some countries can be complementary to a comprehensive protection regime, but since they are directly or indirectly framed in intellectual property rights institutions they could be limited in their scope. Cases of collective knowledge records in Peru become one of the most consolidated experiences in the region for the protection of collective knowledge.

7. Record of collective knowledge in Peru

7.1 Background of the process

The development, discussion and adoption process of the protection mechanism of collective knowledge in Peru took at least six years since from the adoption of Decision 391 in 1996 consultation groups were established formed by representatives of government, the academy, indigenous communities and NGO's who brought about the development and adoption of a law for the protection of traditional knowledge (Tobin and Swiderska 2001; Álvarez 2008; Ruiz 2010). In 1997 Law 26839 on Conservation and Sustainable Use of Genetic Resources recognized that knowledge, innovations and practices of indigenous peoples related to biodiversity are part of their cultural heritage and they have the right to decide on their use. The development of the first drafts of a possible legislation was structured from meetings with leaders of indigenous communities, representatives of neighboring countries as well as in seminars and international meetings sponsored by the National Institute for the Defense of Competition and the Protection of Intellectual Property (INDECOPI) and the WIPO (Pacón 2004). On October 21, 1999 INDECOPI published the "Proposal for a Protection Regime of Collective Knowledge of Indigenous Peoples and Access to Genetic Resources" (Resolution 0322-1999-INDECOPI/DIR) and in 2000, at least two drafts of the proposal were officially published by INDECOPI (2000). Two years later, Peru adopted Law N° 27811 in August, 2002 for the Protection of Collective Knowledge of Indigenous Peoples related to Biological Resources.

Throughout the government's initiative on a "Proposal for a Protection Regime of Collective Knowledge of Indigenous Peoples and Access to Genetic Resources", the participation of organizations and indigenous peoples were not considered as procedures of prior consultations. Indigenous participation was lower in the development phase (1996-1998), higher in the consultation phase (1998-1999), and significant in the post-publication (1999-2000) (Tobin y Swiderska 2001). Tobin and Swiderska (2001) pointed out that the governmental initiative considered regulatory voids on traditional knowledge that became evident during the negotiations of an agreement for the Cooperation Program for Biodiversity in Peru which included: the University of Washington; Sarle & Co. (a Monsanto subsidiary); representative local and national organizations of the Aguarunas in the Amazon and the Confederation of Amazonian Nationalities of Peru (CONAP); the Natural History Museum of the National University of San Marcos, and the University of Cayetano Heredia in Peru. Associated collective knowledge are diverse and highly valued in Peru, given the existence of 1.786 Amazonian indigenous communities of 60 ethnic peoples according to the 2007 Census, while there are Afro Peruvian and peasant communities that interact with the country's biodiversity.

When INDECOPI's publication was released, a Working Group on Indigenous Peoples (GTPI) was created and it was composed by governmental agencies on indigenous affairs and indigenous organizations in order to achieve a nationwide broadcasting (Tobin y Swiderska 2001). Participation activities continued with the enactment of the law, and Ruíz (2010) states that during the training activities and the implementation of Law 27811, representatives of indigenous organizations participated in the definition of application forms and in the adoption of the criteria of free procedures for records and infringement complaints.

The Peruvian initiative was not limited to the issuance of a law; it was part of the government's response and was supported by sectors of civil society to enforce the country's rights over genetic resources. The direct involvement and leadership of INDECOPI in this experience are relevant, correlating with the emphasis and objectives of the record system demarcated by institutions of intellectual property. The establishment of inter-agency work groups convened by state entities, NGO's, researchers and some indigenous organizations on the development of the initiative is a characteristic feature of the participatory approach of legislation on this subject in Peru. The dynamics on the collective knowledge protection issue also influenced internationally with the positions that the official delegation of Peru submitted to the CBD, WIPO and the World Trade Organization (WTO), with the Report of the *ad hoc* Commission as an example, led by INDECOPI in the fifth Intergovernmental Committee Meeting on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore of WIPO (2005).

The Peruvian governmental strategy included the creation of a National Commission for the Prevention of Bio Piracy by Law 28216 of 2004 on Protection on Access to Peruvian Biodiversity and Collective Knowledge of Indigenous Peoples. The multi-sectorial Commission is composed of government agencies, government and non-government and private organizations, intended to "identify and follow up on requests for patents granted abroad related to biological resources and collective knowledge of indigenous peoples [...]" (Art. 4, c, Law 28216); it also complements the protection regime for collective knowledge established by Law 27811.

The Peruvian initiative had international favorable contexts encouraged by commitments on intellectual property under the WTO and by the introduction of access regimes under the CBD. At the same time the need to update the laws on intellectual property in Andean countries and the imposition of a minimum protection on intellectual property matters generated a reform process. The development and adoption of Decision 345 of 1993 on the Common Regime for the Protection of the Rights of Plant Breeders' set the direction for CAN countries and it was intended to protect the rights over homogenous, stable and distinct plant varieties obtained by scientific methods. The measure itself in Andean countries gave priority to the interests of breeders but especially to exporters that needed to ensure a minimum protection to the rights of holders of plant varieties used in the international market, for example the flower industry in Colombia.

Results of Decision 345 introduced a protection regime for plant breeders but neglected the need to develop a *sui generis* regime to protect innovations, knowledge and practices of indigenous peoples from the region; leaving out the protection of rights of indigenous and local communities who for centuries domesticated and cultivated them through local and ancestral relatives and that served breeders as base material for new plant varieties and to obtain exclusive rights. Decision 345 granted rights to whom obtained varieties through scientific procedures but not to indigenous and local communities that obtain their varieties through traditional methods as stated in Art. 4: "Member Countries shall grant breeders' certificates to people who have created plant varieties when they are new, homogenous, distinct and stable and have been assigned a name that constitute their generic designation.

For the purposes of this Decision, to create means obtaining a new variety through the application of scientific knowledge for the genetic improvement of plants". As a result of the debate about this regime and its implications a transitory regulation was included establishing a Common Access Regime on Biogenetic Resources under the CBD (Clause 3, transitory provisions, Decision 345).

In the context for recognizing sovereign rights over genetic resources CAN countries were pioneers in developing a common access regime highlighting the presence of ecosystems that transcended their political and administrative borders. The establishment of Decision 391 of 1996 recognized the close interdependence of indigenous, Afro American and local communities with biodiversity and the right to decide on the Access to their knowledge (Art. 7). Years later, Decision 486 of 2000, again reaffirmed the obligation to disclose the origin of genetic resources and traditional knowledge regarding intellectual property when inventions are directly or indirectly related (Art. 26 literal h, i, j).

Decision 523 of 2002 on the Regional Strategy of Biological Diversity and Decision 524 which established a Working Group on Indigenous Peoples traditional knowledge were again referred to but without developing a protection regime. Debates on regulations and work plans in the Andean region on access to genetic resources created a suitable environment for protection methods for collective knowledge related to biodiversity yielding in Peru unlike other Andean countries. Internationally, the Fifth Conference of the Parties in 2002 (COP 5, Decision V/16: Art. 8j) required the support of the development of records of traditional knowledge, innovations and practices of indigenous and local communities (Convention on Biological Diversity 2000). In the case of Peru, the record system is part of a national strategy tending to counter the loss of control of traditional knowledge because of economic, social and cultural processes; since this is the legal and policy instrument directed to promote, value, diffuse and protect communities' collective knowledge (Ruiz 2010).

7.2 Objectives of a record of collective knowledge

In Peru the primary objective is to establish a special protection regime for collective knowledge of indigenous peoples related to biological resources (Art. 3), establishing a system as a defense mechanism to prevent the granting of intellectual property rights on inventions derived from these, particularly distorting the newness in patent applications (Art. 5, literal f). In addition, the record is a mechanism that can facilitate transactions among potential users of collective knowledge on biodiversity and their suppliers. Therefore, an institutional base is established to ensure that communities that provide knowledge participate in the benefit sharing derived from their use.

The Peruvian regime seeks that the use of collective knowledge is done with the PIC of indigenous peoples, as well as under a fair and equitable sharing of benefits derived from their use. In a broader sense, the system seeks to promote respect, preservation and application of collective knowledge; strengthen and build capacities of communities; motivate its use for the benefit of indigenous peoples and humanity (Art. 5, literal a, e, d). These objectives are limited to the record system covering collective knowledge but reaches over practices and innovations of indigenous peoples related to biodiversity as stated in the CBD

Art. 8(j) of the CBD includes respect and preservation of knowledge, innovations and practices of indigenous and local communities who incorporate lifestyles relevant for the conservation and sustainable use of biodiversity but also includes as a goal its wider application providing that benefit sharing from its use is equitable. The Peruvian record system focuses the documentation of collective knowledge on biodiversity emphasizing in the prevention of illegal granting of patents.

7.3 Scope and limitations of the record system

Records are by nature restrictive in scope so they can not cover all intellectual and cultural expressions of a community or peoples. The record system in Peru does not cover other kind of knowledge different from the ones related to biodiversity, it differs from the legal protection regime applied in Panama that focuses on inventions, models, drawings and designs, innovations contained in images, figures, symbols, graphics, petroglyphs and other details as well as cultural, historical, music, arts elements, artistic expressions and all manifestations suitable for commercial use (Legislative Assembly of Panama 2000). While the Panamanian system focuses on objects that are cultural expressions of indigenous peoples (Presidency of the Republic of Panama 2001) the Peruvian one covers collective knowledge related to the use of biodiversity.

The Peruvian system is structured in the context of intellectual property and its record of collective knowledge works in combination with other instruments as licensing agreements for commercial use, trade secrets and competition regulation (Art. 6). PIC of corresponding indigenous organizations must be obtained when access to collective knowledge is for scientific, commercial or industrial application and if this access has commercial or industrial purposes; in addition, a licensing agreement is required whose minimum contents are also legally established (Arts. 6 and 7). Peruvian Law introduces the possibility for communities to receive compensation for the use of collective knowledge found publicly accessible or placed in a public domain in the last 20 years (Art. 13).

To the extent that record of collective knowledge has declarative effects its implementation does not override the rights of other peoples. Knowledge can belong to several communities (Law 27811, Art. 10), for example, in a community the use of some plants has spiritual connotations that are not shared equally with another. The system provides that in cases of differences between indigenous peoples, customary law and traditional forms of conflict resolution can be applied (Art. 46), applying this provision in all discrepancy cases under the regime's application. A particular situation would be the obligation to inform the largest number of indigenous peoples holders of knowledge that is being subject of negotiations of licensing agreements by indigenous organizations and the obligation to take into account their interests and spiritual, cultural values or religious beliefs (Art. 6).

The obligation does not include notifying communities from neighboring countries; therefore, for the ones sharing ecosystems it is important to provide mechanisms of mutual notification identifying the entities responsible for conducting it. So, the situation is relevant for indigenous peoples, whose ancestral lands were divided by political administrative borders, keeping common ecosystems and biodiversity incorporated into their customs, traditions and culture. Countries from the Andean region could design mechanisms to notify about access applications and search for consensus, especially among communities that are separated by national borders drawn in their territories.

The Peruvian record system is a defensive protection (Art. 16), whose goal is the availability and use of public information that could be used by intellectual property offices to establish the state of art in the field of innovation; therefore, if it is defensive it seeks to detract the claims of novelty in patent applications on innovations based directly or indirectly on traditional knowledge. Among the elements of positive protection of the records of confidential collective knowledge, issues related to industrial or business secrets are enshrined such as the protection against disclosure or breach of confidentiality reserve (Art. 42). Thus, communities assert their rights over knowledge registered and have additionally compensatory actions against users who do not follow access protocols provided in the regulation or that breach confidentiality obligations (Art. 43).

It should be noted that the emphasis of the Peruvian system is not the establishment of exclusive rights but to specify the existence of certain collective knowledge in a specific community and to prevent its misappropriation by third parties. Communities that record confidential knowledge do not receive protection as exclusive holders as others may share the same uses and register them later; however, at the request of access to registered knowledge, the communities are the ones that register it and the ones who can grant or deny such access by negotiating licensing and ensuring the benefit sharing derived from their use. At the same time the record system of collective knowledge does not limit the direct use by communities that have it or the traditional exchange between them. Even when licensing has been granted by indigenous peoples on certain knowledge, these cannot limit the granting of others over the same knowledge by other communities (Art. 32).

7.4 Collective knowledge as an object of protection

Peruvian Law focuses on collective knowledge of indigenous peoples and explicitly excludes the one who could belong to an individual (Art. 10), since it is understood that it has protection in all available forms of intellectual property. In practice, members of a community do not produce knowledge in isolation, but rather receive them from others or as a result of interactions with members of their community. In the empirical component of the use of medicinal plants, traditional doctors test their procedures, test those used to treat diseases in the community and get answers and information from patients on results that corroborate its effectiveness in proceedings. The idea of an isolated individual inventor does not appear in indigenous societies as the individual creator of knowledge is a concept developed during the Renaissance and consolidated in capitalist societies focused on the individual as the core of property rights.

For this reason, the image of the isolated inventor persists in modern society despite the technological revolution that transformed the work of individual researchers in work groups and teams of researchers, often located in different places but researching on the same product or technological application.

Regarding the beneficiaries, some systems leave open the possibility of benefits for individual holders of traditional knowledge (WIPO 2011); there is also the possibility of recognizing the rights to a governmental authority, provided that the income derived from their use is transferred to educational programs for sustainable development, national heritage and social or cultural welfare. According to the extent of Peruvian Law, it is intended to prevent the record of collective knowledge as an individual, after going through the requirements established for its application (Art. 20). In this regard, it is anticipated that indigenous peoples be represented by their own organizations according to their traditions (Art. 14) and as subject of protection.

7.5 Peruvian regulation and the subject of rights

Peruvian regulation settles the delimitation of the subject who receives protection in a quite flexible and broad way defining indigenous peoples for purposes of the protection system of collective knowledge as native peoples prior to the creation of the national state with their own culture and land; incorporating the subjective element of self-recognition. It also explicitly includes peoples in voluntary isolation and peasant and native communities; even though the definition defines the scope in the first paragraph, then it indicates that indigenous is synonymous with original, traditional, ethnic, ancestral, native or other words (Art. 2, Law 27811).

Under the Peruvian regulation the definition of indigenous peoples does not become an obstacle to include other communities interested in the protection system of collective knowledge and the operation of the record system. In developing the regulation, the representation of Andean, Amazonian and Afro Peruvian peoples is recognized both in a Management Committee of the Indigenous Peoples Development Fund (Art. 39), as in the specialized Council on protection of indigenous knowledge (Art. 66). On April 2011, the first meetings with indigenous peoples for the creation of the Committee were held (Mescoco 2011).

7.6 Rights of Indigenous Peoples

In Art. 1 and consistent with Art. 7 of Decision 391, the Peruvian regulation recognizes “the right and the power of indigenous peoples to decide over their collective knowledge”; although registration does not constitute rights when indigenous peoples register their knowledge they acquire protection against undue “disclosure, acquisition or use of such collective knowledge without their consent or in an unfair manner” (Art. 42), provided that it is registered in the confidential record. Actions against infringement may be initiated ex officio by INDECOP or by action brought by the wronged people. In cases of utilization that are contrary to the provisions in the record system, organizations of indigenous peoples affected by such utilization can exert actions claiming ownership and indemnification (Arts. 42, 43, 45).

7.7 Collective knowledge record system

The Peruvian Law establishes a system composed by records, licensing, industrial secrets and a compensatory mechanism for using traditional knowledge related to biodiversity. Record of collective knowledge includes one public, one confidential and eventually one local (Art. 15). In the Public Registry, publicly accessible knowledge is integrated since it was previously disseminated and published with or without the consent of the communities and regardless the circumstance in which it was published. Knowledge included in such registration is based on available bibliographic information.

The Confidential Record is composed by collective knowledge reported as such by indigenous peoples and communities to the national authority of intellectual property; also they come at a request of representatives organizations of communities or peoples. Similarly, the Law provides for the establishment of local records of collective knowledge according to uses and customs and communities may request technical assistance from INDECOPI.

The number of records increase steadily over time with 219 records of collective knowledge in 2009 (Ruiz 2010) and in October 2012 they went up to 1081 records including knowledge in public records; even though the majority (60%) were knowledge and information not published. At the same time in the same year 2012, INDECOPI received 1594 applications to record collective knowledge (INDECOPI 2012).

The management of the systems shows that records processes are complex because of validation procedures since without identification and verification of the involved biological resources these are unsound. Thus, additional costs should be considered in the collection, transportation, conservation and identification of specimen processes, generating difficulties for the communities but without their related scientific identification it is impossible to grant the corresponding record.

Licensing provided as part of the system have a minimum content defined by law and always proceed if a third party seeks access to confidential collective knowledge for scientific, commercial or industrial purposes (Art. 27). They must be recorded in Castilian and native languages, if applicable, and granted for a period between one and three years; it also explicitly provides for compensation including no less than a 5% of the value of gross sales of products as a direct or indirect result of the use of indigenous knowledge (Art. 27, literal c). In 2013 applicability studies were conducted and a possible flexibilization of rates on royalties set by law (Ministry of Environment and Sustainable Development 2013). Among the requirements it is expected to obtain the PIC rendering mandatory for the user to provide initial and periodic information on the applications and what will be done with the indigenous knowledge; for this reason it is mandatory for licensing agreements to meet the minimum legal requirements and be registered with INDECOPI under confidentiality guarantees (Arts. 26 a 28).

In the future it is expected that users of publicly accessible knowledge negotiate compensations for its use with communities and peoples that adopted them originally. In this case it is expected that users pay for using information that even though it can formally be restricted is physically available. In this case it is not mandatory to register the licensing agreement with INDECOPI, making it difficult to measure the impact of this provision (Ortega, 2013).

Peruvian regulation includes as a supporting feature the trade secret figure applied to collective knowledge even when it is less relevant than the descriptions of the record's operation. In this regard, communities who document their knowledge in the confidential record acquire protection against "the disclosure, acquisition or use of such collective knowledge without their consent and in an unfair manner to the extent that this collective knowledge is not of public domain". In the same way it incorporates the protection against the disclosure by third parties who breach the obligation of discretion or confidentiality (Art. 42).

The compensatory mechanism for the use of traditional knowledge takes shape in the establishment of an Indigenous Peoples Development Fund (FDPI) same that was created with technical, economic and financial autonomy and it is intended to support the comprehensive development of indigenous peoples through the financing of development projects. The participation in economic resources for projects does not need applicant communities to document their knowledge in the record system. In any case, the granting for project funding is done through the Administrative Committee created on June 2011, composed by five representatives of indigenous organizations and two representatives of the National Commission of Andean, Amazonian and Afro Peruvian Peoples (Ministry of Environment and Sustainable Development 2013).

The law provides that the Indigenous Peoples Development Fund is financed with resources from the national budget, international technical cooperation, donations and penalties provided by law for violations of the rights of indigenous peoples on their traditional knowledge. A specific income source for the Fund is the percentage of economic benefits from royalties of gross sales, not less than a 10%, and the result of products developed directly or indirectly from collective knowledge not available in the public domain. Additionally, percentages for gross sales of products developed from knowledge that will be in public domain in the last 20 years are expected (Arts. 8 and 13, Law 27811); however, because of the recent creation of this Fund there is no information about its operation and performance.

7.8 Record content and ABS

The record content is determined by the scope and objectives of the regime that emphasizes in the mechanism as a tool to prevent bio piracy cases under the fair and equitable benefit sharing derived from the use of knowledge. Therefore, records are aimed to capture and document collective knowledge of indigenous peoples related to biodiversity, considering the context of intellectual property rights and access regulation.

Regarding the requirements to record collective knowledge, applications should be made by indigenous peoples or communities prior an internal consensus to record them providing a minute of collective or community agreement (Art. 20) and proceed through their representative organizations. Applications identify: indigenous peoples; the representative; biological resources related to knowledge and a description of knowledge or use intended to be recorded.

Given the objectives for detracting the claims of novelty in patent applications it is important to document the uses regarding specific components of biodiversity; requiring the identification of the biological resource thought samples, pictures, in order to perform their taxonomic classification and

assignment of the scientific name. At the same time, the suitability in identifying the biological resource is essential for all users of collective knowledge, especially when trying to develop industrial or commercial applications from it. The record application is accepted with the local or indigenous name but this information is irrelevant for a bio prospector as there is little interest in acquiring licensing if biological resources to which collective knowledge is related are not identified.

7.9 Record System Management

When managing a record system, aspects related with access conditions to information and manager's obligations must be defined. The main function of INDECOPI regarding the system is to keep and maintain the Record of Collective Knowledge of Indigenous Peoples as the Peruvian regulation established differential requirements on access conditions. Thus, according to the public or confidential nature of collective knowledge, access levels are broad and unrestricted in the first case directly fulfilling its defensive function; while in the second case access is restrictive and confidential consistent with the goal of benefit sharing derived from the use of knowledge.

Another contribution of the confidential record of collective knowledge is documenting the state of art, preventing the possibility of patents related to traditional knowledge. Access to the contents of this record could be restricted for its spiritual connotation or cultural value, considering the development of the powers granted to indigenous peoples and communities. Besides the centralized management of the public and confidential records by INDECOPI, regulation provides that local organizations can establish their own record; in this case its creation and operation should be articulated with the national record system and technically supported by INDECOPI.

When establishing the public and confidential records it is expected that the managing entity, INDECOPI in this case, act as guarantor of the relationship between potential users and communities holders of knowledge. Even the elements of the licensing agreement have minimum requirements provided they are recordable with INDECOPI (Art. 27). In this regard, INDECOPI's function is to keep a record of licenses as well as assessing the validity of the licensing agreements on collective knowledge of indigenous peoples.

Combination of Access types to the Peruvian record system corresponds to the conditions of communities and indigenous organizations, so the ones with sufficient capacity to establish community records and to negotiate licensing directly with potential users can do without a central administration. Otherwise it requires support and legal certainty for the system's operation because the communities will not be able to do it in isolation.

7.10 Traceability and monitoring of licensing agreements

The second additional provision of the Peruvian Law renders mandatory for the patent application of a product invention or processes developed directly or indirectly based on collective knowledge to attach a copy of the licensing agreement. Omission of the requirement is grounds for denial of the application or even nullity of an eventual granted patent. Thus, this regulation follows the guidelines of Decision 486 of 2000, regarding the requirements for patent applications and disclosure of origin of resources and traditional knowledge (Art. 26, paragraphs h, i, j).

The National Commission against Bio Piracy and INDECOPI interpret the regulations in force in order to recognize the rights of all parties involved, among them the Peruvian State, indigenous peoples, and businesses and researchers who develop innovation and products. The purpose is to implement a fair and equitable benefit sharing and recognition of rights, with an interest so the patents applicants regularize the access and observe the regulation on access at national and international levels. Rather than an exclusive defensive approach, INDECOPI and the Commission have focused lately on finding friendly approaches with potential offenders before initiating any opposition actions, making applicants voluntarily withdraw the respective application (Valladolid Pers. com. 2013).

Traceability and monitoring obligations under these licensing agreements especially regarding the use of licensed knowledge in foreign jurisdictions, does not depend entirely on the record system or the authorities appointed for the record administration. When establishing the National Commission for the Prevention of Bio Piracy by Law 28216 of 2004, Peru created a strategy to identify requested and granted patents on genetic resources use and collective knowledge of indigenous peoples.

The Commission strategy focused in endemic resources and related traditional knowledge. In 2005 Peru submitted a report to the IGC-WIPO CIG-OMPI identifying potential undue applications and patents regarding the following plant species: "*hercampuri*" (*Gentianella alborosea*), "*camu-camu*" (*Myrcia riadubia*), "*yacón*" (*Smallanthus sonchifolius*), "*caigua*" (*Cyclanthera pedata*), "*sacha inchi*" (*Plukenetia volubilis*), and "*chancapiedra*" (*Phyllanthus niruri*). On January 2013, Commission's actions identified 18 cases of bio piracy related to genetic resources of Peruvian origin and traditional knowledge of indigenous peoples, with 10 in favor of the Peruvian State (Valladolid Pers. com. 2013; Nemogá-Soto 2013b).

7.11 Perspective on Access and Benefit Sharing

The record system was established as a starting point to ensure benefit sharing on the use of collective knowledge. With an increased number of records, the perspective can be consolidated to the extent that it is profitable for domestic and foreign companies to pay royalties receiving legal access in exchange of a database on the uses of biodiversity technically referenced. In the government's view, companies using knowledge as the pharmaceutical industry must pay 10% of gross product sales related to collective knowledge to the Indigenous Peoples Development Fund provided by Law 27811 (The Republic 2011).

The government's view is not shared by industry's spokesman and advocates of a more conservative position on the nature of traditional knowledge and intellectual property rights. An example of this is the Peruvian Economy Institute (IPE), since it considers traditional knowledge as "a set of ancestral beliefs, some true and some false, based on the experience of native communities throughout many years" (IPE 2011). According to this, such knowledge for the IPE lack value in themselves because they are not generated by a scientific method, therefore, to collect royalties for their use discourages the performance of researches to validate them, concluding that "it makes no sense to pay royalties for the use of a non-limited public good" (IEP 2011).

7. Final Considerations

Conservation experiences guided by the understanding of interrelationships between biological and cultural diversity are relevant references especially when it comes to protection of traditional knowledge that are part of a comprehensive lifestyle of indigenous peoples and local communities that are in constant and dynamic interaction with nature. Ensuring the persistence of traditional knowledge and the lifestyle that supports them, should be the primary task for mega diverse countries and humanity as a whole, mainly given the contemporary environmental challenges and the increasing loss of biodiversity.

International legal instrument such as CBD, the ILO 169 Convention of 1989 and the UNDRIP, as well as the approach on conservation, bio cultural protection and the own vision of indigenous peoples and communities as Good Living together are references needed to develop a comprehensive protection system beyond the scope of commercialization of knowledge and intellectual property rights. WIPO's IGC is working on a protection instrument whose scope and international content should be considered in the creation of individual or group regimes in countries. National or regional initiatives such as the *sui generis* system developed by CAN up until now require an update with the approach of bio cultural diversity in order to articulate the indigenous worldviews on protection systems; through their participation it is up to indigenous peoples to decide over the protection instruments and the development of alternatives based on the use of their traditional knowledge exercising their right to self-determination recognized worldwide.

Some forms of intellectual property can ensure compliance of obligations in the benefit sharing derived from the use of traditional knowledge and biological resources. Thus, designations of origin, geographical indications, certificates of origin and records of collective knowledge among others, could be used by communities that choose to market their knowledge and their by-products. In this regard, the design of protection alternatives of traditional knowledge and the rights of their holders under intellectual property are instrumental and can be used to protect them in local communities and indigenous peoples and in their trade relations with outer societies.

Record of collective knowledge for example can contribute to establishing a trading platform with greater assurance for communities who choose to license their collective knowledge; however, its feasibility require communities to articulate themselves as suppliers in a market of indigenous knowledge on biodiversity, and that users identify the record system as an institutional channel to legally access them at low transaction costs. PIC and MAT can be collected in a licensing accepted by the record to ensure legal certainty required by different actors. Thus, record of collective knowledge would operate as an extension of the intellectual property system so that their original holders receive a fair compensation for their use.

In this scenario, the record system serves its purpose if it ensures the conduction of business transactions on collective knowledge, it works as a mechanism to collect royalties for the use of knowledge, contributes to the patenting of inventions related to indigenous knowledge with industrial and commercial applications, and prevents the granting and undue exploitation of intellectual property rights. However, if the conditions of the communities are of economic poverty and lack of basic services such as health and drinking water, with no political organization and representation, a record system of knowledge outside the community control can become just another mechanism rather limited to extract information or defensive protection.

Protection systems require focusing the comprehensiveness of traditional knowledge of not just those related to biodiversity as in the case of the Peruvian record system. Despite this limitation, the Peruvian system is both a pioneer experience in the region and a reference to evaluate the complex processes of development and implementation of a protection system. As such, the record system meets part of its objectives to help prevent misappropriation of traditional knowledge and resources from Peru; however, its effect would be lower without the complementary activities from the National Commission against Bio Piracy.

The initial defensive approach of this Commission, progressively more oriented to implement the regulations on access and benefit sharing, opens a new possibility of institutional arrangements with positive results for the country and indigenous peoples but also for bio prospecting companies and researchers. The above perspective may be possible bearing in mind that the protection system of traditional knowledge is not limited to establishing a regulation. Their own views on economic, social and cultural development of indigenous peoples are always needed when defining the objectives and the designing of protection systems of traditional knowledge through their representative organizations. Therefore, preservation of traditional knowledge and lifestyles that enable their permanent regeneration require actions that go beyond the intellectual property system.

The experiences of cultural reaffirmation guided by the understanding of the interrelationships between human groups and nature, as well as practices of the concept of bio cultural collective knowledge show that this approach has the potential to guide the research on biodiversity conservation, the protection action and the defense of the rights of indigenous peoples and communities. The challenge to work for the conservation of bio cultural diversity and for the rights of indigenous peoples on their lands and natural resources at the same time is to find innovative ways to support the right to self-determination of indigenous peoples (Davidson-Hunt *et al.* 2012). The preservation of knowledge, innovations and practices related to bio cultural diversity is urgent and needed for indigenous peoples but also for humanity.

Conservation of bio cultural diversity requires capacity building and living conditions of indigenous peoples and communities. The use of records locally under the control and administration of indigenous and local authorities can give relevance to the cultural, social and political contexts of the corresponding people, with broader and more comprehensive goals.

In this case, records and databases will have a different configuration in order to share traditional knowledge, conserve and preserve them for future generations. At the same time, cultural, spiritual or religious content as well as beliefs related to the use of collective knowledge will acquire greater relevance in this scenario, compared with the barely marginal interest that they have today for those who have access in order to develop products. In practice, these public and confidential record systems as the one established in Peru do not emphasize on cultural and spiritual elements.

The situation would be different if the objective was to preserve the traditions, uses and lifestyles of indigenous peoples exercising self-determination since the cultural, social and political contexts of the people or community would be essential to design and adopt relevant strategies. Aside from that, the use of indigenous names on biological species in the record of collective knowledge for example, becomes a technical detail that contributes to identify biological resources and to strengthen the information system, but it is irrelevant for the understanding of sacred, religious or spiritual meanings and stories related to them.

Ultimately, local record systems controlled by communities could use technological tools as databases to store digitally ancestral practices that nourish the free exchange of seeds, knowledge and information. Thus, these practices of reciprocity and mutual aid take place in areas with high biodiversity, correlating with distinct features and processes of ancestral cultural identities when persisting for example in the exchange of knowledge and seeds among agro bio diverse communities (Lapeña 2012). The strengthening of solidarity patterns help to minimize the potential conflicts over ownership, royalties and exclusive rights among communities especially since the main goal in this case is to contribute to common property of knowledge, practices and mutual benefits.

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