

# **TRADITIONAL KNOWLEDGE IN INDIA: IMPLICATIONS ON FOOD SECURITY AND ECONOMY, AND THE NEED FOR POLICY DEVELOPMENT**

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## **DEFINING TRADITIONAL KNOWLEDGE AND 'INDIGENOUS'**

A lot has been written about the legal terms appropriate to use to describe the knowledge assets of indigenous groups, local people, or traditional groups. It is fairly clear that no one definition commands universal support. A report prepared by the World Intellectual Property Organisation (hereinafter referred to as WIPO) Secretariat neatly summarises the situation: “There is...a diffuse range of potentially overlapping terms in current use in international, regional and national discussions related to Traditional Knowledge, corresponding with a wide range of policy frameworks. Terms are not neutral, and the choice of term is neither arbitrary nor irrelevant.”<sup>2</sup>

Traditional Knowledge is essentially culturally oriented or culturally based, and it is integral to the cultural identity of the social group in which it operates and is preserved. “Traditional Knowledge” is an open-ended way to refer to tradition-based literary, artistic or scientific works, performances, inventions, scientific discoveries, designs, marks, names and symbols, undisclosed information and all other tradition-based innovations and creations resulting from intellectual activity.<sup>3</sup>

Traditional Knowledge is knowledge, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity. Traditional Knowledge in a general sense embraces the content of knowledge itself as well as traditional cultural expressions, including distinctive

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<sup>2</sup> Carlos M. Correa, Research Handbook on the Protection of Intellectual Property under WTO Rules, (2010).

<sup>3</sup> Justice Vijender Jain, Chief Justice, Punjab And Haryana High Court, Chandigarh, “Safeguarding The Traditional Knowledge In India” (A Seminar of the Asia Pacific Jurist Association in Delhi on 28<sup>th</sup> April 2008).

signs and symbols associated with Traditional Knowledge. Traditional Knowledge in the narrow sense refers to knowledge as such, in particular the knowledge resulting from intellectual activity in a traditional context, and includes know-how, practices, skills, and innovations.<sup>4</sup>

Traditional Knowledge has been used for centuries by indigenous and local communities under local laws, customs and traditions. It has been transmitted and evolved from generation to generation. Traditional Knowledge has played, and still plays an important role in vital areas such as food security, the development of agriculture and medical treatment.

Traditional Medicine serves the health needs of a vast majority of people in developing countries, where access to “modern” health care services and medicine is limited by economic and cultural reasons. The use and continuous improvement of farmers’ varieties is essential in many agricultural systems. In many countries, seed supply fundamentally relies on the “informal” system of seed production which operates on the basis of the diffusion of the best seed available within a community, and on its movement, even over large distances during migration, or after a disaster. Furthermore, Traditional Knowledge is the origin of a great variety of artistic expression, including musical works and handicrafts.<sup>5</sup>

Thereafter, after understanding the basic concept of Traditional Knowledge, there further arises a question as to who can be brought under the ambit of the term ‘indigenous’ as it is their rights that we seek to protect through providing protection to Traditional Knowledge. The concepts of Traditional Knowledge and ‘indigenous people’ go hand in hand thereby making it necessary to provide clarity on this point.

Interestingly, the fact that indigenous peoples have gained more and more international recognition since the beginning of the 1970s has not led to a clear concept with regard to the term ‘indigenous peoples’. According to the chairperson of the Working Group on Indigenous Populations, Erica-Irene Daes, ‘the concept of “indigenous” is not capable of a precise,

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<sup>4</sup> World Intellectual Property Organization, Traditional Knowledge, Available at [www.wipo.int/tk/en/tk/](http://www.wipo.int/tk/en/tk/). (Last accessed on 27/07/2016)

<sup>5</sup> Ishita Chatterjee, “Intellectual Property Rights and Traditional Knowledge – Indian Perspective”, Manupatra Articles, Available at [www.manupatra.com/roundup/363/Articles/IPR%20and%20Traditional%20Knowledge.pdf](http://www.manupatra.com/roundup/363/Articles/IPR%20and%20Traditional%20Knowledge.pdf). (Last accessed on 27/07/2016)

inclusive definition that can be applied in the same manner to all regions of the world.’ She however, considers the following list relevant to the understanding of the term:

- (a) Priority in time, with respect to the occupation and use of a specific territory;
- (b) The voluntary perpetuation of cultural distinctiveness, which may include the aspects of language, social organization, religion and spiritual values, modes of production, laws and institutions;
- (c) Self-identification, as well as recognition by other groups, or by State authorities, as a distinct collectivity; and
- (d) An experience of subjugation, marginalization, dispossession, exclusion or discrimination, whether or not these conditions persist.<sup>6</sup>

Therefore, we come to understand the meaning of ‘indigenous’ Traditional Knowledge through this section, which will help introduce greater clarity to the study of Traditional Knowledge that the researcher wishes to entail in.

### **CURRENT SCENARIO: NEED FOR A SUI GENERIS SYSTEM AND POLICY FORMULATION**

The World Intellectual Property Organisation (WIPO) undertook a fact-finding mission between 1998 and 1999 to evidence the importance attached to the protection of Traditional Knowledge. It should be pointed out that the Fact Finding Mission on Traditional Knowledge was carried out worldwide covering some selected Countries from North to South and from East to West. The objective of the mission was to identify and explore the intellectual property needs and expectations of new beneficiaries including the holders of indigenous knowledge and innovations, in order to promote the contribution of the intellectual property system to their social, cultural and economic development. The findings of the fact-finding mission revealed the urgent need to protect Traditional Knowledge. It likewise demonstrated that the

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<sup>6</sup> Silke von Lewinski, *Indigenous Heritage and Intellectual Property*, (2003).

conventional intellectual property system was not adequate to protect Traditional Knowledge and to meet the expectations of Traditional Knowledge holders.<sup>7</sup>

A concern has been expressed by a large number of developing countries about the misappropriation of Traditional Knowledge. It was put forward that Traditional Knowledge must be protected at the international level. Misappropriation of Traditional Knowledge often involves the acquisition of such knowledge in one country and the seeking of patents in another country.<sup>8</sup>

Devolution, encroachment, the bio-prospecting rush, lack of appropriate legal systems and a clash of systems all make Traditional Knowledge highly vulnerable to bio piracy. Several traditional plants and related knowledge in Asia, specifically India, have also been allegedly falsely patented by the US patent office, including: Neem, Haldi, pepper, Harar, Mustard, Basmati rice, Ginger, Castor, Jaramla, Karela and Jamun. The African continent has too been plagued by bio piracy—with the case of West Africa's sweet genes and one of the most recent cases involving —Hoodia still unresolved. Some cases have been resolved but clearly demonstrate the problems with the intellectual property system.<sup>9</sup>

Traditional Knowledge is not so-called because of its antiquity. It is a living body of knowledge that is developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity. As such, it is not easily protected by the current intellectual property system, which typically grants protection for a limited period to inventions and original works by named individuals or companies.<sup>10</sup>

Recognizing traditional forms of creativity and innovation as protectable intellectual property would be an historic shift in international law, enabling indigenous and local communities as well as governments to have a say over the use of their Traditional Knowledge by others. This would make it possible, for example, to protect traditional remedies and indigenous art and music against misappropriation, and enable communities to control and benefit collectively from their commercial exploitation. Because the existing international intellectual property system does not fully protect Traditional Knowledge and traditional cultural expressions, many

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<sup>7</sup> Tshimanga Kongolo, *Unsettled International Intellectual Property Issues*, (2008).

<sup>8</sup> *Id* at 47.

<sup>9</sup> Khairiah Salwa Mokhtar, *IOSR Journal of Humanities and Social Science IOSRJHSS*, 59-64, (2012).

<sup>10</sup> World Intellectual Property Organization, *Traditional Knowledge and Intellectual Property – Background Brief*, Available at [www.wipo.int/pressroom/en/briefs/tk\\_ip.html](http://www.wipo.int/pressroom/en/briefs/tk_ip.html). (Last accessed on 27/07/2016)

communities and governments have called for an international legal instrument providing *sui generis* protection.<sup>11</sup>

The current intellectual property rights system cannot protect Traditional Knowledge for three reasons. First, the current system seeks to privatize ownership and is designed to be held by individuals or corporations, whereas Traditional Knowledge has collective ownership. Second, this protection is time-bound, whereas Traditional Knowledge is held in perpetuity from generation to generation. Third, it adopts a restricted interpretation of invention which should satisfy the criteria of novelty and be capable of industrial application, whereas traditional innovation is incremental, informal and occurs over time. A *sui generis*, or alternative law, is therefore necessary to protect Traditional Knowledge.<sup>12</sup>

It was argued that while the existing intellectual property system may be used in certain circumstances to protect Traditional Knowledge, it cannot provide sufficient protection. Consequently, a *sui generis* system is required. In this connection some asserted that there is nothing in the TRIPs agreement that prevents WTO Members from setting up a specific protection regime for Traditional Knowledge that regulates or enforces access to Traditional Knowledge. Another view expressed was that national systems will not be sufficient and therefore there is a need to explore an international system of minimum standards of protection of Traditional Knowledge.<sup>13</sup>

Creating an international enforcement pyramid for Traditional Knowledge is key to a strategy of regulation for Traditional Knowledge, because the actors that are most interested in the enforcement of ownership norms concerning Traditional Knowledge are also likely to have the weakest capacity to take an enforcement action of some kind. For example, Indonesia, a country of some 200 million people and rich in Traditional Knowledge, has approximately 40 registered patent attorneys, with only ten of those having a full practice. An indigenous group that was seeking advice on a matter related to Traditional Knowledge and patents would find it difficult to take the first basic step of finding someone in Indonesia that could provide advice and expertise.<sup>14</sup>

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<sup>11</sup> *Id.*

<sup>12</sup> *Supra* note 2.

<sup>13</sup> *Supra* note 6 at 48.

<sup>14</sup> *Supra* note 1.

Further, in India, the current system of intellectual property rights is not adequate in order to protect Traditional Knowledge. This is due to many factors. The two main legislations wherein the concept of Traditional Knowledge may surface are the Copyright Act and the Patents Act which the researcher wishes to examine briefly. Firstly, the Copyright Act of 1957 can be observed to pose the following issues:

- (a) Necessity of authorship is a hindrance in most groups or societies due to the fact that most traditions have evolved over time and are practiced or adopted by groups and alienating a specific author is not possible neither is it desirable.
- (b) Copyrights are limited by time whereas important traditions and folkloric expressions should be offered permanent protection.
- (c) Copyrights only protect fixed works whereas many folkloric expressions are not of such a nature thereby excluding them from its ambit. This also poses a problem in the sense that many communities do not have or have not utilized means to record their traditions or cultural expressions hence disabling them from acquiring protection under such a law.

Secondly, the Patents Act has its own set of shortcomings such as:

- (a) The first shortcoming is of similar nature to that posed by the Copyrights Act whereby traditional knowledge is held collectively by a community and patents are awarded to individual entities.
- (b) Secondly, patents too are time bound, thereby offering no permanent protection to traditional knowledge as such.
- (c) Thirdly, applications for patents require mandatory disclosure of information which can be detrimental to a community in the case of rejected or delayed applications. It can also lead to the misappropriation of knowledge by an authority. Application procedures are also complex in nature and a patent requires the fulfilment of certain criteria in order to be granted which all forms of Traditional Knowledge may not possess.

- (d) Lastly, not only the application for patents but also enforcement of patents is a time consuming and expensive process which indigenous communities and groups may not possess the resources to follow up.

Similarly, the Designs Act of 2000, the concept of trade secrets, et cetera all pose different hindrances peculiar to them. Hence, we can understand that there is indeed a strong need for a policy to be formulated for the protection of Traditional Knowledge at various levels of national as well as international governance.

Therefore the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore set up by the WIPO to deal with intellectual property, genetic resources, Traditional Knowledge and traditional cultural expressions or expressions of folklore, in its sixth session developed a draft “Objectives and Principles on the Protection of Traditional Knowledge” whereby it is set out that the protection of Traditional Knowledge should aim to:

- (a) Meet the actual needs of holders of Traditional Knowledge;
- (b) Promote conservation and preservation of Traditional Knowledge;
- (c) Empower holders of Traditional Knowledge and acknowledge the distinctive nature of the Traditional Knowledge system;
- (d) Support Traditional Knowledge systems;
- (e) Repress unfair competition and inequitable uses;
- (f) Respect and cooperate with relevant international agreements and processes;
- (g) Promote innovation and creativity;
- (h) Ensure prior informed consent and exchanges based on mutually agreed terms;
- (i) Promote equitable benefit sharing;
- (j) Promote community development and legitimate trading activities;
- (k) Preclude the grant of improper intellectual property rights to unauthorised parties;
- (l) Enhance transparency and mutual confidence; and
- (m) Complement protection of traditional cultural expressions.<sup>15</sup>

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<sup>15</sup> Supra note 6 at 48.

According to the United Nations Declaration on the Rights of Indigenous Peoples, Article 31 states:

*“Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions”.*<sup>16</sup>

Mere granting of such a right is not sufficient in order to prevent exploitation of Traditional Knowledge and it only acts as a remedy after certain misuse or misappropriation has occurred. There is a greater need for a stronger law at both national and international levels in order to act as a deterrent and safeguard such a right as provided by the abovementioned Declaration in all countries irrespective of their affiliation to such international organisations.

## **CHALLENGES TO FOOD SECURITY**

One of the greatest implications of the protection of Traditional Knowledge lies in the field of food security. The interconnection between these two fields is vast and is bridged by farmers’ rights eventually affecting the economic health of a nation state. Therefore, it is imperative to examine the effects of Traditional Knowledge on food security in a country.

Food security is an operational concept that has been used to analyze agro-food production since the green revolution. As a concept, the term ‘food security’ is imprecise and is used in various ways. Since its emergence in the literature in the 1960s and 1970s, the term has been defined in at least 200 ways and it has been described through at least 450 indicators. The FAO acknowledges that the definitional problems surrounding ‘food security’ relate to the operational complexities inherent in the application of the concept to a wide range of technical and policy contexts. As a specialized agency that specifically deals with food and nutrition in

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<sup>16</sup> United Nations Declaration on the Rights of Indigenous Peoples, Article 31, (2007).

all parts of the world, the FAO conceptualizes ‘food security’ as concerned with the ‘availability of world supplies of basic food stuffs’. This understanding of food security stands on the presumption – in the earlier times – that food scarcity is the cause for food insecurity. As a result, Genetically Modified Organisms-based crops have been promoted and their protection through intellectual property rights has been justified on the ground that their protection and wide distribution would ensure ‘food security’ by increasing productivity.

By 2050, the global population is expected to reach 8.9 billion and average per capita food consumption to rise above 3,100 kcal per day, with increased consumption of livestock products. This anticipated 40 percent increase in global population will require a 70 percent increase in agricultural productivity, with a further expansion in crop production to support the increased demand for livestock products. How can this be achieved?

The potential to bring new land into agricultural production is limited. At present, some 1,600 million hectares are under cultivation globally. By 2050, this is expected to rise by just 5 percent (70 million hectares) with the bulk of expansion likely to occur in sub-Saharan Africa and Latin America. A word of warning, however – introducing changes in land use requires great caution to avoid irreparable damage to, or the collapse of, ecological systems. Ninety percent of the required increase in global food production will, therefore, need to come from intensive farming practices and higher yields. But this needs to be done in a sustainable way.

The challenge of securing the world’s food supply calls for further research and incentives to develop innovative agricultural solutions. The revenue potential of intellectual property rights is a key driver of innovation. In the sphere of agriculture, patent law, plant variety protection rights (breeder’s rights) and rights over genetic resources are particularly relevant. To ensure global food security, agricultural innovations need to be affordable and farmers need an incentive to adopt them – in sum, the economic benefit of using these technologies needs to outweigh their cost. While some commentators argue that this does not necessarily translate into higher prices per unit of farm produce, it seems clear that if farmers’ incomes do not rise in real terms then they will be unable to pay for the new technologies and new varieties required to boost agricultural productivity. If farm-gate prices stagnate the question of access to these technologies is likely to become the subject of hot public debate.

Rising levels of food insecurity are likely to intensify debates about the patenting of seeds and fuel calls for compulsory licensing provisions akin to those established to deal with public health crises. Similar debates may also ensue in relation to products that protect plants against pests and disease.

Any debate on seeds must consider the International Union for the Protection of New Varieties of Plants (hereinafter referred to as UPOV) system and its edibility which reside in exceptions to the breeder's right the exception to the breeder's right to use protected varieties to breed new varieties without the authorization of the right holder accelerates breeding and innovation. The so-called "farmers' privilege" which UPOV members have the option to introduce into their national legislation can, however, be a double-edged sword. While it sounds reasonable that a small farmer should be able to use seeds produced on his or her own farm without paying a licence fee, excessive use of this exception can have serious implications for plant breeders and their ability to develop locally adapted varieties. Finding the appropriate balance is a thorny but necessary question for agricultural policy-makers.

The provisions of the International Treaty on Plant Genetic Resources for Food and Agriculture (hereinafter referred to as ITPGR) introduce an important perspective to this question. They seek to establish a concrete balance between accesses to biodiversity for incremental innovation and benefit sharing to reward farmers for on-farm conservation and management of such biodiversity. The principal aim of the ITPGR is to "facilitate the exchange of seeds and other germplasm for research, breeding, and crop development." It essentially creates a multilateral gene pool. Those creating commercial products that incorporate its plant genetic resources must pay a percentage of their profits into a fund used to promote conservation and sustainable use of plant genetic resources except when such a product is available without restriction to others for further research and breeding (e.g. plant varieties protected according to the UPOV system). In such a case a voluntary payment is encouraged. The financial viability of the system hinges on the ability of private parties to be able to create and commercialize derivative products using the bank's materials. In sum, the treaty seeks to manage the intellectual property associated with a defined set of genetic resources resulting from a combination of collective and individual innovation to conserve a public good.

The importance of offering incentives to develop the innovative new technologies that will enable us to meet the challenge of food security in a context of climate change and rapid population growth cannot be overstated. The intellectual property system will, without doubt,

have a key role to play in providing the incentives to foster the innovation required if we are to meet this challenge.<sup>17</sup>

In the contemporary global context most development advocates promote neo liberal policies of ‘free trade’ as a means of achieving food security. The neo liberal logic of comparative advantage in international trade encourages developing countries and their constituents to produce agricultural ‘commodities for exports.’ Based on income derived from these exports developing countries are expected to achieve food security through import of food from industrialized countries, which, by the fact of their biotechnological success, have a ‘comparative advantage’ to monopolise food production. This tendency has resulted in export-led policies in developing countries that shift the focus of agricultural policy from ‘the production of traditional food crops to “commodities for exports”’.

The ‘cultivation of culturally appropriate staples’, is therefore, replaced with the production of few ‘luxury’(high profit) export-oriented commodities’ which mainly include cash crops such as coffee and cocoa beans, sugar, cotton, rubber and tobacco. By 1980/81, for example, traditional tropical products accounted for around 39% of all food exports from developing countries. By the year 2000/2001, this had fallen to around 19%. This increase in the share of non-traditional agriculture exports marks the shift from staple food crops to export oriented commodities. The increase in the share of such non-traditional agricultural exports, particularly horticulture (fruit, vegetables and flowers), was from around 15-22% for the same period.

The shift to export oriented agriculture might not be a problem as such, as long as exports generate income sufficient to support food security through adequate exchange entitlements. However, extra costs due to the intensification of agriculture, as well as reduced prices in international markets because of competition from highly subsidized corporate farming, have caused costs to exceed earnings from the exports of developing countries.

The neo-liberal approach to international trade dictates to developing countries to achieve food security by importing food, instead of producing it. Massive imports of cheap foods at subsidised prices hijack local markets. Highly subsidised industrial food products from industrialised countries flood the domestic markets of developing countries. Consequently, prices for Traditional Knowledge Based Agricultural Products (hereinafter referred to as

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<sup>17</sup> World Intellectual Property Organisation, Protecting India’s Traditional Knowledge, (2011), Available at [www.wipo.int/export/sites/www/wipo\\_magazine/en/pdf/2011/wipo\\_pub\\_121\\_2011\\_03.pdf](http://www.wipo.int/export/sites/www/wipo_magazine/en/pdf/2011/wipo_pub_121_2011_03.pdf). (Last accessed on 27/07/2016)

TKBAP) drop by significant margins. This trend renders farming unprofitable, and pushes local farmers into debt.

In addition, emerging trends in global economic relations – addressed in the section below – have compromised the prospect of international trade to contribute to food security in most developing countries. These trends, combined with impacts of biotechnology on agriculture on the production end, threaten even the accessibility of food, let alone its acceptability and adequacy.

To ensure food security becomes reality in terms of the acceptability, adequacy and accessibility of food, the goals and pillars of food security are currently promoted and discussed under the rubric of food sovereignty, rather than security. The food sovereignty movement is founded on the notion that ‘feeding a nation’s people is an issue of national security – of sovereignty. In this sense, ‘food sovereignty’ speaks to the right of states to maintain and develop their own capacity to produce their basic foods respecting cultural and productive diversity. As well, the notion recognizes the rights of peoples to decide on the foods they wish to produce and consume. In a position statement by Via Campesina, a global farmers’ movement, at the 1996 World Food Summit, it declares that food sovereignty is a logical precondition for the existence of food security:

Long-term food security depends on those who produce food and care for the natural environment. As the stewards of food producing resources we hold the following principles as the necessary foundation for achieving food security. . . Food is a basic human right. This right can only be realized in a system where food sovereignty is guaranteed. . . Food sovereignty is a precondition to genuine food security.<sup>18</sup>

## **ECONOMIC IMPLICATIONS**

Attempts have been made to estimate the contribution of Traditional Knowledge to modern industry and agriculture. For pharmaceuticals, the estimated market value of plant-based medicines sold in OECD countries in 1990 was \$61 billion. Many of the pharmaceutical companies are likely to have used Traditional Knowledge leads in their product development,

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<sup>18</sup> Teshager W. Dagne, *Intellectual Property and Traditional Knowledge in the Global Economy*, (2014).

as demonstrated by biochemist Norman Farnsworth's estimate that of the 119 plant-based compounds used in medicine worldwide, 74% had the same or related uses as the medicinal plants from which they were derived.

A study of the use and value of traditional crop varieties (landraces) for rice breeding in India calculated that rice landraces acquired from India and overseas contributed 5.6 %, or an annual present value of the benefits of \$6.1 million, to India's rice yields. There are no reliable estimates of the total contribution of landraces to the global economy. However, assuming that India's landraces contribute equally to other countries where rice is cultivated, the global value added to rice yields by use of landraces can be estimated at \$400 million per year. But accurately estimating the full value of Traditional Knowledge in monetary terms is impossible, because Traditional Knowledge is often an essential component in the development of other products and because most Traditional Knowledge derived products never enter modern markets. In any case, a great deal of Traditional Knowledge is likely to have cultural or spiritual value that cannot be quantified in any monetary sense.<sup>19</sup>

Applying the economics of intellectual property protection to Traditional Knowledge is anything but straightforward. To begin with Traditional Knowledge is the paradigmatic example of group innovation that takes place over time. Well and truly before anybody thought of the term 'sequential innovation', indigenous communities were engaged in a collective process of incremental improvement of their various techniques and products. Group innovation does not fit with the assumptions of conventional models of intellectual property protection. Conventional intellectual property systems operate on the assumption that it is possible to identify an individual or individuals who can claim clear title to an innovation that itself can be clearly demarcated. Once the innovation is located in groups and complex networks, and the innovation itself takes the form of a living body of knowledge, rather large entitlement and demarcation problems start to surface. It becomes difficult, for example, to decide which individuals can claim ownership, what exactly is the subject of ownership, and how, if at all, ownership is extinguished. These problems exist for all forms of group

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<sup>19</sup> Graham Dutfield, TRIPS-Related Aspects of Traditional Knowledge, Case Western Reserve Journal of International Law, (2001).

innovation, but they are especially pressing for Traditional Knowledge innovation because groups are so dominant in the innovation process.

There is another line of economic thinking that points away from an intellectual property based model of Traditional Knowledge protection. One of the most important observations that came out of WIPO's fact-finding missions was that there was a great deal of uncertainty about how to value Traditional Knowledge. This uncertainty is especially salient in the case of Traditional Knowledge, because Traditional Knowledge, if it is used by a company, will most likely be used as a further input into research by that company. At the time the knowledge is disclosed or the genetic resource handed over to a company, the value of that information cannot be fully known by either party. As Kenneth Arrow noted in his seminal discussion of market failure in innovation markets' the value of information for use in developing further information is much more conjectural than the value of its use in production and therefore much more likely to be underestimated.

The possible implications of uncertainty over the economic value of Traditional Knowledge are considerable. If developing countries commit themselves to a treaty that significantly raises the costs of Traditional Knowledge to companies, the value of which is already uncertain, then the effect will most likely dampen demand. This is particularly so if there are less costly substitutes available (for example, combinatorial chemistry, searching in non-member countries, exploring microbiological diversity in unregulated areas, etc.). The effect of a treaty therefore might also discourage the commercialization of Traditional Knowledge. WIPO's fact-finding mission suggests that at least some indigenous groups would be happy with this outcome, but clearly this would not meet the desires of the countries that are members of the Megadiverse Group. These countries see important commercialization possibilities in the field of Traditional Knowledge.<sup>20</sup>

Traditional knowledge is generally associated with biological resources and is invariably an intangible component of such a biological resource. Traditional knowledge has the potential of being translated into commercial benefits by providing leads/ clues for development of useful practices and processes for the benefit of mankind. The valuable leads/clues provided by Traditional Knowledge save time, money and investment of modern biotech and other

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<sup>20</sup> *Supra* note 1.

industries into any research and product development. Reasonably, we can say that a share of such benefits should accrue to the creators and/or holders of such Traditional Knowledge. Some countries have specific legislation protecting this kind of knowledge while some other countries feel their existing intellectual property rights regime protects such knowledge. As of now, India does not have a specific *sui generis* legislation to protect such Traditional Knowledge and folklore but is in the process of developing such legislation.<sup>21</sup>

The development of such a legislation would enable the country to achieve the much needed balance between excessive commercial exploitation and lack of economic development while ensuring that the sentiments of various stakeholders in society are maintained.

## CONCLUSION

In the increasingly globalised world there is greater interest of foreign entities in domestic affairs in almost all countries. As we are slowly separated from our history there is also greater curiosity inquisition about the different cultures and traditions that prevail. In such scenarios as well, lack of specific laws may pose to be a hindrance in the furtherance of such different interests.

For example, film makers who draw upon indigenous peoples' cultural stories or songs will also encounter intellectual property issues and on-going questions about who can speak for whom and in what context. Librarians, archivists, museum professionals and researchers who utilize any material about indigenous people contained in the vast ethnographic collections spread throughout the world's cultural institutions will also engage with indigenous peoples' interests in intellectual property law. Again this will probably involve intellectual property law in multiple jurisdictions. For example, a collection of 1950s' Aboriginal Australian artworks currently located in a US university will have to engage with Australian copyright law and, if the collection has been digitized, with United States copyright law, as well as other laws relating to the original acquisition of the collection and any loan agreements that might be made with other international institutions.<sup>22</sup> Such complexity of problems bring forth the need for a

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<sup>21</sup> *Supra* note 8.

<sup>22</sup> Dr. Jane Anderson, *Indigenous/ Traditional Knowledge and Intellectual Property*, Center for the Study of the Public Domain, Duke University School of Law, (2010).

uniform, standard yet nation-specific law for intellectual property rights relating to Traditional Knowledge.

Recently amended patent law of India contains provisions for mandatory disclosure of source and geographical origin of the biological material used in the invention while applying for patents in India.<sup>23</sup> Such sort of defensive protection is indeed welcomed but there is a need for a comprehensive structure of law specifically dealing with Traditional Knowledge in order to increase the overall efficiency of the system.

Economic analysis can provide some insight into the costs and benefits of a treaty based approach to Traditional Knowledge, but cannot itself answer the question of whether we ought to protect Traditional Knowledge. Beneath the complexity of protection for Traditional Knowledge there are two basic issues that have to be confronted and usually are not. First, protection of Traditional Knowledge cannot be separated from human rights protection for indigenous people. Second, the protection of Traditional Knowledge is inextricably linked to protection of land rights of indigenous people. These two issues are fundamental, and yet most of the time they are ignored by technocratic discourse aimed at developing models of protection for Traditional Knowledge that treat Traditional Knowledge independently of its holders and its links to land and territory.<sup>24</sup>

Traditional knowledge should be afforded effective protection especially in developing and underdeveloped countries. Such protection should primarily be with regards to, firstly, the recognition of the rights of the original traditional knowledge holders and secondly, the unauthorized acquisition of rights by third parties over traditional knowledge. Due to the prevailing trends of globalization a great degree of international coordination and cooperation is necessary to effectively protect and develop traditional knowledge and any such protective strategy needs to consider the community, national, regional and international dimensions. Further the mechanisms sought to be implemented with regards to traditional knowledge must give subjective consideration to the original holders of the knowledge. Economic aspects of development need to be addressed by such mechanisms. Most importantly such protection should be affordable, understandable and accessible to traditional knowledge holders.<sup>25</sup>

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<sup>23</sup> *Supra* note 2.

<sup>24</sup> *Supra* note 1.

<sup>25</sup> Juhi Chowdhary, Intellectual Property and Traditional knowledge, Legal Services India, (2007).

Therefore, it is important for the policy makers to keep the abovementioned facts in mind and develop a strategy with adequate participation from the stakeholders who are indirectly and more importantly directly affected by the policy as well as by analyzing the costs and benefits of the policy before implication.

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