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Is the Protection of Traditional Knowledge Feasible under Intellectual Property Law and Other International Regimes?

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The concept of intellectual property and the protections granted under intellectual property law in today's globalised world have largely followed a Western view of intellectual property rights. Prior to colonisation or the introduction of Western legal systems in many parts of the world, indigenous communities engaged in intellectual creativity and devised their own mediums for protecting their intellectual creations under customary law. Concerns about the piracy of the intellectual creations of traditional communities the world over have projected the issue of protecting traditional knowledge into the international arena. This article explores the possibility of protecting the traditional knowledge of traditional communities under international regimes like the WTO's Agreement on Trade Related Aspects of Intellectual Property Rights and the Convention on Biological Diversity. The discussion also explores the use of domestic law to protect traditional knowledge from piracy.

Keywords: intellectual property protection, piracy, traditional knowledge

1. Introduction – What Is Traditional Knowledge?

Like most academic disciplines, definitions are often subject to different conceptions that normally reflect different schools of thought. In this introductory segment of this article, I do not attempt to present an all-encompassing definition of traditional knowledge (TK). I do however aim to present different views and conceptions captured in different definitions of TK without endorsing or rejecting any particular definition. It is hoped that the different definitions presented, instead of becoming a minefield of controversy, will, rather, shed more light on the several aspects that together form the body of knowledge or discipline termed as traditional knowledge.

Heath and Weidlich define TK as:

... 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 in the industrial, scientific, literary or artistic fields.¹

Mugabe makes a distinction between indigenous knowledge and TK, as to him indigenous knowledge is:

... that knowledge that is held and used by a people who identify themselves as indigenous of a place based on a combination of cultural distinctiveness and prior territorial occupancy relative to a more recently-arrived population with its own distinct and subsequently dominant culture.²

He posits that TK on the other hand is knowledge held by people belonging to a distinct culture. This knowledge may be acquired through distinct modes conditioned by that culture.³ By this distinction, holders of TK may not be indigenous people of a place and their knowledge may also not be indigenous. Traditional knowledge is thus not necessarily indigenous knowledge, though indigenous knowledge is traditional knowledge.⁴

Hansen and Van Fleet have also defined TK as:

... the information that people in a given community, based on experience and adaptation to a local culture and environment, have developed over time, and continue to develop.⁵

From the definitions presented above, it can be said that knowledge produced by members of a community, using their peculiar traditional ways of knowledge creation, preservation and dissemination, is perhaps the most basic underlying conception of TK that runs through these different definitions.

2. The Scope and Nature of Traditional Knowledge

As posited by Heath and Weidlich, TK covers the industrial, scientific, literary or artistic fields of a community's life.⁶ Traditional knowledge thus covers the totality of a community's life. It is knowledge used by traditional communities in areas like agriculture, ecology, medicine, biodiversity, and expressions of folklore like music, dance forms, art and craft.

The notion of the term 'traditional' as used in 'traditional knowledge' is not an indication of age (i.e., how old the knowledge is). Rather, it is a reflection of its tradition-based nature. Its modes of creation, preservation and transmission are peculiar to, and conditioned by, the traditions and culture of the community that creates it.⁷

One cardinal feature of traditional knowledge is that it is collective in nature, and is thus not vested in individuals per se, but rather in the community. Individuals like healers and breeders may be custodians of TK, but ownership is often not seen in individual terms.⁸ Ownership is communal. TK may also be accessible to the whole community, or there may be restrictions on its accessibility.⁹

3. The Increasing Importance of Traditional Knowledge

In recent years there has been increasing international awareness of the importance of TK in areas like medicine, agriculture and ecology. Peter K. Yu thus argues that:

[d]espite the limited attention it has received (until lately), the debate over the protection of folklore, traditional knowledge, and indigenous practices impacts on a wide variety of policy areas, including agricultural productivity, biological diversity, cultural patrimony, food security, environmental sustainability, business ethics, global competition, human rights, international trade, public health, scientific research, sustainable development, and wealth distribution.¹⁰ [d]espite the limited attention it has received (until lately), the debate over the protection of folklore, traditional knowledge, and indigenous practices impacts on a wide variety of policy areas, including agricultural productivity, biological diversity, cultural patrimony, food security, environmental sustainability, business ethics, global competition, human rights, international trade, public health, scientific research, sustainable development, and wealth distribution.¹¹

A high proportion of people living in developing countries, for instance, use traditional medicine instead of 'modern scientific' medicines. The World Health Organisation estimates that up to 80 percent of people in emerging economies rely on traditional medicine for their primary health care needs, while there is a steady increase in the number of people in developed countries using complementary or alternative medicines extracted from herbs.¹² The global commercial value of traditional medicinal

knowledge is on the ascent. For example, the global market for herbal supplements is forecasted to reach \$107 billion in 2017.¹³

It is estimated that about 25 percent of modern medicines are made from plants first used traditionally.¹⁴ For example, the use of quinine to cure malaria is said to have been learnt from indigenous Andean peoples who, it is thought, discovered the healing properties of the cinchona tree by observing feverish jaguars eating from it.¹⁵ Quinine is extracted from the bark of the cinchona tree from Peru.¹⁶

Apart from the area of medicine, the impact of TK in other areas like agriculture and biodiversity is substantial. Breeders in traditional communities (especially in developing countries) are able to come up with high-yielding seeds and livestock through traditional breeding techniques. These seeds and livestock developed through traditional breeding techniques are of invaluable importance to the maintenance of global food security, and yet the appropriation of such knowledge is undertaken without any due compensation to the knowledge holders. Naomi Roht-Arriaza thus contends that:

the appropriation of the scientific and technical knowledge of indigenous and local peoples, of the products of that knowledge, and even of the genetic characteristics of the people themselves has become both notorious and contested. It forms the heart of current debates about conservation of biological diversity, indigenous rights, and genetic resources in agriculture.¹⁷

The growing importance of TK is not just in the commercial field but perhaps more importantly in the area of problem solving for major global issues in areas like medicine, agriculture and biodiversity. This realisation has brought the need for protection of TK to the fore in a lot of intellectual property protection (IPP) forums at both national and international levels. The suitability of using current intellectual property (IP) regimes and other *sui generis* legal systems to protect TK has become one of the topical areas of concern in international politics and academics. An analysis of the extent and limitations of this suitability is presented below.

4. Meaning and Scope of Intellectual Property Rights

Before the suitability of IP regimes for the protection of TK is considered, it is deemed necessary to first present the meaning and scope of intellectual property rights.

Intellectual property rights (IPRs) have been described as:

... the legal protections given to persons over their creative endeavors and [they] usually give the creator an exclusive right over the use of his/her creation or discovery for a certain period of time.¹⁸

Patents, copyrights and trademarks have traditionally been the scope of IPRs. The scope of IPRs has, however, expanded to accommodate areas like geographical indications of origin, trade secrets, industrial designs, integrated circuits and other related rights.

IPRs are granted to holders of patent, trademark, copyright, and other protected works or products, to enable the right holders to prevent unauthorized use of their inventions and creations.¹⁹ Patents, copyrights, trademarks, trade secrets and geographical indications are of particular importance in this presentation, and brief overviews of these aspects of intellectual property are given beneath.

Patent rights are given to an inventor for the sole exploitation of the invention for a specified period of time. This right is granted to the inventor in return for the disclosure of the invention. The disclosure must be explicit enough to enable another who is 'skilled in the art' of the invention to be able to replicate the invention when the specified period of protection elapses.²⁰

Intellectual property in copyrights is granted by law to protect literary and artistic works from unauthorised use. The scope of copyright protection has expanded due to technological developments. Currently computer programs, databases and architectural works are protected under copyright laws.²¹

Trademarks, on the other hand, are insignias that are used by enterprises to distinguish themselves or their products from their competitors in the marketplace. Trademark rights are given to enterprises to allow them the sole use of their marks or signs and to guard against unfair competition.²²

A trade secret or "[u]ndisclosed information covers any secret information of commercial value".²³

Article 22.1 of the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement) defines geographical indications of origin as:

... indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin.

5. Justifications for Intellectual Property Protection

a. The Utilitarian Approach

This approach argues for the protection of the rights of creators of intellectual works, so as to encourage more innovation and development in the production of new works. If the intellectual works of creators or authors are not protected, there will not be an incentive to create more works, since already created works become subject to free-

riding and the creators of these works may not reap any economic benefit for their efforts. Thus, rights create limited monopolies for authors and inventors so that they can economically exploit their works; they become an incentive for further innovations and inventions. As the rights of authors and inventors are protected, the wider society will also benefit from their works. The utilitarian approach in this sense creates a balance between the private rights of the author or inventor and the consequential benefit to the public.²⁴ Article 1 s.8 cl.8 of the U.S. Constitution, for instance, empowers congress to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”

b. The Labour Approach

The labour approach to justifying protection of intellectual property is based on Locke’s labour theory. In Locke’s labour theory, the granting of property rights is justified by the application of labour in the production of goods that are beneficial to society. Private property is thus a reward for the labour injected into producing goods that meet the needs of society.²⁵

This theory has been appropriated to justify IPP. It can be argued that the mental labour exerted by an inventor or an author gives the person the right to have his or her work protected from free-riding by the public. In *Sayre v. Moore*, Lord Mansfield held that “... men of ability, who have employed their time for the service of the community, may not be deprived of their just merits, and the reward of their ingenuity and labour,” thus endorsing the labour theory that justifies intellectual property protection.²⁶

c. Ethical and Moral Rights

Ethical and moral rights of creators of intellectual property have also been adduced in the justification of the protection of intellectual property.²⁷ Authors and inventors according to this theory have natural and human rights over the use of their intellectual creations.²⁸ Unauthorised use of their works is tantamount to an infringement of their natural and human rights, while derogatory use infringes the author’s moral rights.

6. Justifications for Protection of Traditional Knowledge: Are They Any Different from the Justifications for Intellectual Property Protection?

Many reasons and arguments have been adduced as justifications for the protection of TK. Some of these arguments have sought to create similarities between the

justifications for IP protection and those for protection of TK. Other arguments for the protection of TK have, however, sought to present justifications that are distinct from those for intellectual property. A cross-section of arguments is discussed below.

a. Traditional Knowledge as a Knowledge Good

Thomas J. McCarthy has argued that “[b]asically, the subject of all kinds of intellectual property is information. The job of intellectual property law is to create property rights in newly created information.”²⁹ TK, as has been presented earlier in this article, is increasingly becoming important because it contains valuable information that has very important global significance in medicine, agriculture, biodiversity and many other areas. If the basis for IPP is to create property rights for newly created information, then TK may as well qualify for protection. Perhaps the major stumbling block in using this argument as a basis for the protection of TK lies in the fact that traditional knowledge may not be new information. It is normally knowledge handed down from one generation to the other. The condition of novelty or ‘newness’ may thus not be met.

It would, however, be erroneous to conceive of TK as static information passed on from generation to generation without any alteration or improvement by the current holders or their predecessors. Thus, to deny current holders of traditional knowledge the right of protection because their knowledge is not original or new would not be fair. Authors and inventors in western conceptions of intellectual property do not create works from a vacuum. They draw from previous works available to the public and build upon these. One cannot argue that the Wright brothers, for instance, invented the aeroplane without the benefit of the knowledge of previous attempts. Their invention may be described as the culmination of different past efforts which crystallised in their own effort. Boyle thus argues that:

[t]he romantic vision of authorship emphasizes creativity and originality and de-emphasizes the importance of sources, genre, and conventions of language and plot. Thus when economists and legal scholars come to do their analysis, most of them see the issue as the extent of property necessary to motivate and reward the creative spirit, rather than the extent of the public domain necessary to give the magpie genius raw material she needs.³⁰

TK, like intellectual property, is a knowledge good of societal and commercial value.³¹ It is not general knowledge known by everybody. It is ‘scarce knowledge’; a good, that cannot and must not be used without due compensation or reward to the custodians of such knowledge (who are mostly in the developing world).

b. Traditional Knowledge as Knowledge Protected under Customary Laws

There is the misconception that TK is knowledge in the public domain and as such its appropriation without compensation is justified. However, indigenous peoples use customary laws such as taboos and religious protocols to protect the abuse and unfair appropriation of their knowledge in their own communities. The World Intellectual Property Organisation (WIPO) Fact Finding Mission on Intellectual Property and Traditional Knowledge observed that: "... numerous indigenous and local communities have protocols for protection of TK and TK-based innovations under customary law."³² If the value of the knowledge of an indigenous people has moved beyond benefiting their community to benefiting the global community, then there needs to be a global regime that ensures the protection of their knowledge. Like the instrumentalist view of justification of IPP, protection for TK will ensure disclosure of valuable information that will be of benefit to the global community.

c. Equity, Natural and Human Rights

In the traditional conception of copyright, moral rights have to do with the right of the author to prevent any use of his/her creation that is derogatory to their work. Thus, moral rights extend beyond just commercialisation. In Australia for example, a lot of cases have been fought in court over culturally offensive use of Aboriginal art forms. In *Yumbulul v. Reserve Bank of Australia*³³ for instance, the printing of the Morning Star Pole (a piece of aboriginal art by a Galpu clansman) on a commemorative banknote was deemed culturally offensive by the Galpu clan. Also, in *Foster v. Mountford*,³⁴ an anthropology text reproduced images of the Pitjantjatjara Aboriginal people of Australia. The Pitjantjatjara deemed these images as sacred and forbidden to uninitiated members of their group, and as such their reproduction in print was culturally offensive and derogatory. Traditional societies thus have a moral right over their creative work to prevent any kind of derogatory use.

The main thrust of the equity argument for the protection of TK holds that "TK generates value that, due to the system of appropriation and reward currently in place, is not adequately recognised and compensated. The protection of TK would, therefore, be necessary to bring equity to essentially unjust and unequal relations."³⁵ It can also be argued that it is against the natural and human rights of holders of TK to appropriate their knowledge without their consent and due compensation.

7. Protecting TK: Different Approaches and Options

One of the most important reasons for the protection of TK is the protection from loss of valuable knowledge stored up by traditional societies. As the world becomes more uniform culturally and biologically, the uniformity brings with it the attendant threat of a colossal loss of the wealth of information stored up in TK. There is also the economic, psychological and cultural threat to the authenticity of TK from sources foreign to traditional societies.³⁶ The IUCN Inter-Commission Task Force on Indigenous Peoples for example posits that:

... cultures are dying out faster than the peoples associated with them. It has been estimated that half the world's languages – the storehouses of peoples' intellectual heritages and the framework for their unique understandings of life – will disappear within a century.³⁷

Apart from the threat of loss of TK, some indigenous groups are faced with the threat of extinction due to genocide, military aggression, loss of traditional habitats and lands and cultural adjustment policies.³⁸ As Posey argues, “[w]ith the extinction of each indigenous group, the world loses millennia of accumulated knowledge about life in and adaptation to tropical ecosystems.”³⁹

Piracy of the TK of traditional societies is also one of the most important reasons for protection of TK. The piracy of TK, especially by western organisations and individuals, has been made possible because of conceptual legal norms that exclude TK as valuable information and hence consider that it does not meet the requirements for legal protection as property.⁴⁰ TK is normally viewed as knowledge in the public domain and as such its appropriation is undertaken without any benefit-sharing with the creators and custodians of this knowledge.

a. The ‘Legalistic Approach’

The ‘legalistic approach’ has been posited as one of the ways that could be employed to protect TK. This approach is characterised by analysis of the extent to which existing intellectual property laws can be used to protect TK.⁴¹ Heath and Weidlich propose three criteria for protection of TK under the legalistic approach – object of protection; method of protection; and purpose of protection.⁴²

Under the ‘object of protection’ criterion, for instance, indigenous knowledge about a plant with certain healing properties, the plant itself, or processes used by the indigenous community to extract the active healing ingredients of the plant to achieve a processed end product could qualify as an object of protection.⁴³ Resource management or knowledge management could be the purpose for which IP laws would be used to protect TK.⁴⁴ After identification of an object and a purpose for protection of TK, a proprietary or nonproprietary method of protection can then be employed. If a

proprietary method of protection is employed, a policy option of protection under either real property or intellectual property can then be made.⁴⁵

b. Protection under International Systems

i. The TRIPS Agreement

With the coming into force of the TRIPS Agreement, IPP has become an imperative for all members of the World Trade Organisation. Members are obligated under Article 1.1 of the TRIPS Agreement to:

... give effect to the provisions of this Agreement. Members may, but shall not be obliged to, implement in their law more extensive protection than is required by this Agreement, provided that such protection does not contravene the provisions of this Agreement. Members shall be free to determine the appropriate method of implementing the provisions of this Agreement within their own legal system and practice.

Mugabe is of the opinion that the TRIPS Agreement gives room for flexibility in that it allows member states the leeway to “implement in their law more extensive protection than is required by this Agreement”.⁴⁶ The so-called TRIPS-Plus thus offers an opportunity for member states to extend IP protection to TK. The use of patents, copyrights, undisclosed information and geographical indications thus presents policy options in the bid to use TRIPS-Plus as a medium for protecting TK. As such, TK protection policies that start from the domestic level can transcend domestic borders and eventually permeate the international arena through the TRIPS-Plus and bilateral trade agreement options.

Despite the supposed flexibility that TRIPS-Plus is said to provide for protection of TK, there are some quite substantial limitations to such protection. An example is the treatment of patents under the TRIPS Agreement. Article 27.1 provides that “... patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application.” Traditional knowledge goods may fail the ‘new’, ‘inventive step’ and ‘industrial application’ test. The flexibility provided by TRIPS-Plus is dependent on the proviso – “provided that such protection does not contravene the provisions of this Agreement.” Thus, extending patent protection to TK may contravene Article 27.1 and as such be invalidated by it.

Another important consideration is that, if TK products are patented, they would come into the public domain after (at least) 20 years. Traditional communities that have held and protected their knowledge for centuries may not be willing to have their knowledge come into the public domain after just 20 years.

Whereas Article 27.1 is limiting to TK protection, Article 27.3(b) of the TRIPS Agreement may provide some opportunities. It provides that:

members may also exclude from patentability: ... plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof.

According to this provision, the use of patents is not an imperative, because the provision allows the flexibility for protection of plant varieties through “an effective *sui generis* system”. Member states thus have the opportunity to protect certain plant varieties in indigenous communities by the application of *sui generis* systems.

Geographical indications of origin may also offer opportunities for protecting TK under TRIPS Plus. Certain plants that have been cultivated by indigenous communities using the peculiarities of their geographical terrain may provide an opportunity to classify produce from such plants under geographical indications.

Another area of opportunity for protecting TK under the TRIPS Agreement may be ‘undisclosed information’. Article 39.2 states that:

[n]atural and legal persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices so long as such information:

(a) is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;

(b) has commercial value because it is secret; and

(c) has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.

Not all forms of TK are accessible to the whole community. Some forms of TK are exclusively held by people like healers, herbalists and breeders. Such knowledge is secret; has commercial value; and reasonable steps have been instituted under customary laws to make the knowledge secret. Thus the provisions for protection of undisclosed information under the TRIPS Agreement could offer some opportunity to protect some forms of TK under current IP regimes.

Copyrights under the TRIPS do not seem to hold a lot of promise for TK. Communal authorship and ownership is not recognized in Article 1(6) of the Berne Convention (1971), which has been incorporated in the TRIPS. As such, claims of

communal authorship or ownership of TK will not be consistent with the TRIPS. Also, claims of spiritual authorship will have no chance of protection. However, individual artists or authors in traditional communities can have their works protected under copyright if protection is sought in their own right.

Unlike copyrights, trademarks could hold very good prospects for protecting certain forms of TK under provisions in the TRIPS Agreement. Article 15.3 of the TRIPS does not make actual use of a mark a prerequisite for registration. Thus, traditional societies that hold certain signs as sacred can register these signs as trademarks without any intent of commercial use. In Canada for example, ten petroglyphs of religious importance to the Snuneymuxw First Nation have been registered as trademarks in order to prevent their commercial use on items like T-shirts, jewelry and postcards.⁴⁷

ii The Convention on Biodiversity (CBD)

The CBD in its preamble recognizes “the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components”. This recognition of TK, however, appears to be more declaratory, and it is doubtful whether it obligates compliance.

Article 8(j) of the CBD encourages the use of national legislation to protect TK. It states that contracting parties shall, Article 8(j) of the CBD encourages the use of national legislation to protect TK. It states that contracting parties shall:

[s]ubject to national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

The language employed in this provision, however, is not obligatory enough. Protection of TK is subject to individual national legislation. The national legislation is also expected to “respect, preserve and maintain knowledge, innovations and practices of indigenous” peoples. Each national regime thus has the freedom to choose how to respect, preserve and maintain TK.

iii. International Labour Organization Indigenous and Tribal Peoples Convention

Article 15(1) of the International Labour Organization Convention provides that:

[t]he rights of the peoples concerned, *i.e.*, *indigenous people* (italics mine), to the natural resources pertaining to their lands shall be specially safeguarded. These rights include the right of these peoples to participate in the use, management and conservation of these resources.

iv. The Universal Declaration of Human Rights

Article 27(1) of the Universal Declaration of Human Rights (1948) states that “[e]veryone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.” It can be argued that traditional communities have the right under this provision to enjoy the benefits of their arts and scientific knowledge if these are commercialized or appropriated.

v. WIPO-UNESCO Model Provisions for National Laws on Protection of Expressions of Folklore against Illicit Exploitation and Other Prejudicial Actions (the ‘Model Provisions’)

The ‘Model Provisions’ give a non-exhaustive list of expressions of folklore that national laws could protect. The proposed folklore expressions are as follows:

... verbal expressions, such as folk tales, folk poetry and riddles; musical expressions, such as folk songs and instrumental music; expressions by action, such as folk dances, plays and artistic forms or rituals: whether or not reduced to a material form; and tangible expressions, such as: productions of folk art, in particular, drawings, paintings, carvings, sculptures, pottery, terracotta, mosaic, woodwork, metal ware, jewellery, basket weaving, needlework, textiles, carpets, costumes; musical instruments; architectural forms.

The ‘Model Provisions’ serve as a guideline for national legislation and, as such, initiative will have to come from national legislators to pass such laws as will give the required protection to forms of folklore expressions/TK. It must be noted though that the term ‘folklore’ itself has been rejected as being too narrow in its description of the creativity of traditional societies.⁴⁸

c. Protection under National Systems

Protection of TK under national legal regimes (whether under intellectual property laws or other *sui generis* proprietary rights) perhaps offers the greatest opportunities for TK protection. A lot of developing countries have had to institute IP regimes in their domestic systems due to commitments to international treaties. They have not been able to build peculiar domestic IP regimes that draw from their own cultural norms. IP norms thus flow to them from the international level to the domestic level. Countries that were not signatories to the Paris Convention, for instance, had to institute the norms of the Paris Convention through their commitment to the TRIPS Agreement. Protection for geographical indications, for example, found its way into the TRIPS Agreement because the EU states already had strong domestic regimes that protected geographical indications, and they brought these norms to the bargaining table during the TRIPS negotiations. The protection of computer software under copyrights in the TRIPS also came about through bargaining done particularly by the United States. Thus, building strong domestic regimes for the protection of TK could offer opportunities to translate such domestic norms into internationally applicable and enforceable norms in the future, when negotiations on international treaties are being undertaken.

TK protection is particularly important to developing countries, and they need to build strong domestic regimes to protect TK. The Indian Biological Diversity Act of 2000 is an example of a domestic *sui generis* regime aimed at protecting plant genetic resources and TK. This legislation, the first of its kind, establishes a National Biodiversity Authority (NBA). Firms under this legislation must obtain the approval of the NBA when applying for IPRs for any invention originating from a biological resource or TK from India.⁴⁹

One area that holds a lot of promise for the protection of TK under domestic legal systems is the institution of disclosure requirement regimes in the granting of patents. Under such disclosure requirements, individuals or organizations will be mandated to disclose the geographical origin of biological resources when applying for patents for biotechnological inventions.⁵⁰ Benefit-sharing proposals espoused by the Convention on Biological Diversity (CBD) are realizable under disclosure requirement regimes.⁵¹

Recital 27 of the 1998 European Union Directive on the Legal Protection of Biotechnological Inventions, for instance, provides that:

[w]hereas if an invention is based on biological material of plant or animal origin or if it uses such material, the patent application should, where appropriate, include information on the geographical origin of such material, if known; whereas this is without prejudice to the

processing of patent applications or the validity of rights arising from granted patents.

There is, however, debate over whether recitals in EU directives are legally binding and as such whether they obligate compliance.⁵²

8. Conclusion

In conclusion it can be said that the feasibility of protection of TK under IP regimes is more a matter of political will at the national and international levels than of theoretical appropriateness. The boundaries of IP have not been static. They have been extended to protect previously unprotected works like computer software, databases, trade secrets, geographical indications of origin and other related rights. These extensions were inter alia deemed necessary because of their trade-related implications. Their commercial imperatives thus necessitated their protection under IP regimes. So far, the international IP regime has accrued more benefits to developed countries than it has to developing countries. The extension of international IP regimes (especially the TRIPS Agreement) to the protection of TK would unlock benefits that are currently inaccessible to developing countries. The protection of TK has become an imperative because of its immense value in commerce and global problem solving. TK protection may take the form of IPRs or other forms of proprietary rights. Whatever form it takes, TK protection has become an imperative that cannot be glossed over.

Endnotes

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