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PROTECTING TRADITIONAL KNOWLEDGE IN INTERNATIONAL INTELLECTUAL PROPERTY LAW: IMPERATIVES FOR PROTECTION AND CHOICE OF MODALITIES

TESH DAGNE

ABSTRACT

The need for protecting traditional knowledge (TK) has been acknowledged in discussion and negotiations under the umbrella of a number of inter-governmental organizations that deal with biodiversity, the environment, indigenous peoples' rights, human rights, food and agriculture, among others. It has, however, proved difficult to arrive at a consensus on the proper modality that can serve the needs and desires of Indigenous and Local Communities (ILCs) in their economic and cultural participation. The article examines the imperatives for the protection of TK and explores the modalities of TK protection at the international level for regulating the control of, access to and utilization of biodiversity associated with it. It is argued that any modality of TK protection should incorporate defensive and positive protection that address gaps in protecting TK. Protection of TK should, therefore, involve identifying different modalities, including those based on IP, to fit the nature and use of TK in particular contexts. The article makes a case for a shift in strategy for protecting TK by adopting a pluralistic modalities that address the protection needs of ILCs, depending on the purpose and the context in which the knowledge is practiced.

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I. INTRODUCTION

The legal protection of traditional knowledge (TK) systems and their underlying biodiversity has become critical issue of global concern. Since the coming to force of the Convention on Biological Diversity (CBD), the international community has broadly recognized the need for protecting TK as a way to reward custodians of biodiversity in the utilization of these resources mainly in biotechnology. With the increase in the applications of TK and accompanying biodiversity in biotechnology, efforts to provide for effective protection of TK have continued to dominate discussion and negotiations, albeit without significant success.

The discussion in this article shows a growing realization of the need for the protection of TK in light of the tremendous role TK systems and practices play in the contemporary global economic system. As a specialized branch of the United Nations dealing with intellectual property issues, for example, the World Intellectual Property Organization (WIPO) seeks the protection of TK in “close cooperation with other international agencies and processes” in order to take into account the “full international context of” the protection of TK.¹ In accordance with the mandate from the WIPO’s General Assembly, Intergovernmental Committee on Intellectual Property and Genetic Resources (IGC) currently conducts “text-based negotiations” to achieve “effective protection” through the conclusion of “international legal instruments on TK.”² Even though negotiations started in 2011, it is apparent from the draft text of the WIPO negotiation, most of which is in square brackets, that further negotiations will continue to narrow the numerous differences among the negotiators.³ In addition to WIPO, international efforts to protect TK span across a thicket of legal regimes

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¹ WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Genetic Resources: List of Options*, 1, 13, 11th Sess., (July 3–12, 2007) available at http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_11/wipo_grtkf_ic_11_8_a.pdf

² See WIPO, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Traditional Knowledge and Folklore Agenda Item 35*, 1, 1 43rd Sess. (Sept. 23–Oct. 2, 2013) available at http://www.wipo.int/export/sites/www/tk/en/igc/pdf/igc_mandate_1415.pdf.

³ See WIPO, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Consolidated Document Relating to Intellectual Property and Genetic Resources*, 26th Sess. (February 3 to 7, 2014) available at http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_26/wipo_grtkf_ic_26_4.pdf. The square brackets in the draft text denote inconclusive outcome of the negotiations on numerous issues.

dealing with biodiversity, the environment, indigenous peoples' rights, human rights, food and agriculture, among others.⁴

In the legal and policy domain of IP across these regimes, the protection of TK has brought several issues, two of which will be the focus of special attention in this article: first, issues related to the different ways in which the IP system has been used to misappropriate TK. The article demonstrates this by highlighting the incompatibility between the conventional IP system and the interests of ILCs in respect to TK. Secondly, the article analyses the modalities of TK protection needed, examining the tools that ILCs need to safeguard their interests.

Section II clarifies the defining features of TK in respect to the substantive content of possible protection in intellectual property (IP) law. Section III lays out the imperatives for the protection of TK, highlighting the challenges and difficulties that indigenous and local communities (ILCs) face due to the lack of protection for TK systems and their underlying biodiversity. The discussion in this Section considers conditions that make protecting TK an urgent and necessary measure, assessing the impacts of the existing IP regime. Section IV examines various modalities for protecting TK, such as proposals for defensive community patent system, culture specific protocols of protection, and other methods of protection under existing or amended versions of IP rights as well as those of a public domain approach to protection. Also, the discussion in this Section identifies limitations in dominant approaches for protection in each model. The Section that follows makes a case for a shift in strategy for protecting TK by adopting a pluralistic approach that addresses the protection needs of ILCs depending on the purpose and the context in which the knowledge is practiced.

A well-designed protective system for TK at the international level ought to serve the needs of diverse communities who hold TK, the diversity of different categories of TK, and the various ways of using the knowledge. Thus, this article argues that the search for modality of TK protection should transcend a single model and incorporate defensive and positive protection that addresses gaps in protecting TK. Such a search should involve identifying different modalities, including those based on IP, to fit the nature and use of TK in particular contexts.

II. TRADITIONAL KNOWLEDGE: DEFINITIONAL HURDLE

The phrase "traditional knowledge" is a shorter form of the phrase "knowledge, innovations, and practices of indigenous and local communities embodying traditional lifestyles" under the CBD, or "traditional knowledge, innovations and practices" in WIPO's *Report of Fact-finding Missions (FFM) on Intellectual Property and Traditional Knowledge*.⁵ In looking at the definitional landscape of the term, various theoretical and methodological dilemmas are encountered due to the complexity of the

⁴ These include WIPO, the FAO, and the CBD, among others. See Laurence R. Helfer, Regime Shifting in the International Intellectual Property System, 7 *Perspectives: Teaching Legal Research and Writing* 39-44 (2009).

⁵ Report on Fact-finding Missions on Intellectual Property and Traditional Knowledge, WIPO Publication No. 768, 2001; U.N. Convention on Biological Diversity, *opened for signature* June 5, 1992, 1760 U.N.T.S. 30619, Art. 8(j).(entered into force on Dec. 29, 1993) [hereinafter, "CBD"].

issues that surround it. For the purpose of this article, the definition of TK may involve the description of the distinct elements of the concept from the perspective of: the choice of terminology, identity of the knowledge holders, and the substantive content of what constitutes TK.

A. Choice of Terminology

The relevant literature and some international instruments alternatively use the following terms to refer to TK: “indigenous knowledge,” “tribal knowledge,” “local knowledge,” “folk knowledge,” “community knowledge,” “traditional ecological knowledge,” and various others.⁶ Some of these designations are objectionable either for being too narrow or imprecise.⁷ However, the distinction between TK and indigenous knowledge stands out as worthy of discussion.

The term “indigenous knowledge” is often used interchangeably with TK. But, there are significant policy and legal implications in the choice of terminology between TK and “indigenous knowledge.”⁸ Fundamental to the distinction between the terms “traditional knowledge” and “indigenous knowledge,” is a distinction between “knowledge held in diverse local and traditional contexts,” and “the knowledge systems of peoples identified as having distinct indigenous status,” respectively.⁹ In respect to the latter, the definition of “indigenous peoples” in international law incorporates standards that exclude certain communities who engage in the creation and maintenance of TK from the category of “indigenous peoples.”¹⁰ The categories of people that may not fit international law’s criteria for indigenousness are sometimes referred to as “local communities.”¹¹

“Local communities” may be understood as “farming communities in subsistence farming systems, which do not correspond to the legal descriptions of ‘indigenous peoples’”, or those who “do not wish to use [the indigenous] line of argument to their

⁶ WIPO, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *TK – Operational Terms and Definitions*, Annex I, 3rd Sess. (June 13–21, 2002) (providing a non-exhaustive list of 20 terminologies used to refer to TK); 12 Fordham Intell. Prop. Media & Ent. L.J. 753, 782 (2002).

⁷ See WIPO, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Elements of A Sui Generis System for the Protection of Traditional Knowledge*, 4th Sess., ¶ 27 (December 9–17, 2002).

⁸ SILKE VON LEWINSKI, INDIGENOUS HERITAGE AND INTELLECTUAL PROPERTY: GENETIC RESOURCES, TRADITIONAL KNOWLEDGE AND FOLKLORE 69 (2009) [Hereinafter Von Lewinski].

⁹ *Id.*

¹⁰ International Labour Organization, Convention No.169 Concerning Indigenous and Tribal Peoples in Independent Countries, June 7, 1989, 28 I.L.M.1382. The ILO Convention, the only binding international treaty on indigenous peoples’ rights, defines indigenous peoples as those who have: “[D]escent from the populations which inhabited [a] country, or a geographical region to which the country belongs, at the time of conquest or colonization or the establishment of present state boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions,” *Id.* This definition incorporates factors of time, geographical space, social structure and territorial occupation” in the determination of who “indigenous peoples” are. *Id.*

¹¹ See Center for International Environmental Law Draft Report, *REDD Legal Issues: Indigenous Peoples and Local Communities*, 3–4 (Mar. 30, 2009) (stating that local communities refers to between 1.5 and 2 billion people).

end.”¹² In spite of the different contexts in which the interests of “local communities” and “indigenous peoples” surface in international forums, knowledge held by “local communities” coincides with the knowledge system of “indigenous peoples” in most cases, particularly in the context of agricultural knowledge.¹³ Therefore, the term “traditional knowledge” includes the knowledge of both indigenous and non-indigenous communities including farming communities, who rely on traditional systems of production.

B. Substantive Content

In efforts for TK protection in international IP forums, the substantive content of TK differs based on distinction between TK as a descriptive broader concept (*lato sensu*), and TK in a stricter legal and policy sense (*stricto sensu*).¹⁴ “TK *stricto sensu* refers to the content or substance of knowledge” integrated to or associated with “the genetic resources that are frequently intertwined with TK.”¹⁵ In this sense, TK refers to “technical” knowhow and the underlying biodiversity to which the knowledge is usually *integrated* into or is *associated* with.¹⁶ On the other hand, TK *lato sensu* refers to “technical know-how, knowledge, and also folklore/traditional expressions and manifestations of cultures in the form of music, stories, paintings, handicrafts, languages...”¹⁷ These include expressions of ideas under the categories of traditional cultural expressions and folklore (TCEs/Folklore), cultural property and cultural

¹² RIGHTS TO PLANT GENETIC RESOURCES AND TRADITIONAL KNOWLEDGE: BASIC ISSUES AND PERSPECTIVES 19 (Susette Biber-Klemm & Thomas Cottier eds., 2006).

¹³ The interest of indigenous peoples in relation to traditional knowledge and biodiversity are mainly dealt with in negotiations and discussions under the auspices of WIPO, the CBD, UNESCO and other UN branches in the context of indigenous peoples’ rights. See Curtis M. Horton, PROTECTING BIODIVERSITY AND CULTURAL DIVERSITY UNDER INTELLECTUAL PROPERTY LAW: TOWARD A NEW INTERNATIONAL SYSTEM, 10 J. ENVTL. L. & LITIG. 3 (1995) Whereas, the interests of “local communities” are mainly addressed in the Food and Agricultural Organization (FAO) in the context of discussions and negotiations regarding the utilization of genetic resources for food and agriculture, Farmers’ rights, patents and plant breeders’ rights. See Stephen R. Brush, FARMERS’ RIGHTS AND PROTECTION OF TRADITIONAL AGRICULTURAL KNOWLEDGE, 35 WORLD DEVELOPMENT 1499 (2007).

¹⁴ WIPO, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Consolidated Survey of Intellectual Property Protection of Traditional Knowledge*, ¶ 9 (July 7-15, 2003) available at http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_5/wipo_grtkf_ic_5_7.doc.

¹⁵ Von Lewinski, *supra* note 8, at 69.

¹⁶ Lori Ann Thrupp, LINKING AGRICULTURAL BIODIVERSITY AND FOOD SECURITY: THE VALUABLE ROLE OF AGRO-BIODIVERSITY FOR SUSTAINABLE AGRICULTURE, 76 INT’L AFFAIRS 265, 266 (2000). The concept of “biodiversity” contrasts with that of “biological resources.” *Id.* The term “biological resource” refers to those resources that exist in natural or crude form and to whole organisms, whereas biodiversity, as in “agro-biodiversity” includes not only “a wide variety of species and genetic resources” that exist in nature but also the systems and practices that guide the modes through which agricultural communities produce and manage crops and other resources. *Id.*

¹⁷ WIPO, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Consolidated Survey of Intellectual Property Protection of Traditional Knowledge*, 20 n.44 (July 7-15, 2003) available at http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_5/wipo_grtkf_ic_5_7.doc.

heritage.¹⁸ In the realm of protection, legal and policy domain of TCEs and cultural heritages is distinct from that for TK (and its intrinsic components, genetic resources).

The discussion in this article focuses on major questions that arise in efforts for the protection of TK that is related to biodiversity in the narrow sense. Before delving into discussion of the different modalities for TK protection, it is necessary to address the question of why the protection of TK is required. Answering this question provides context for understanding factors that underlie demands to protect TK and provides a basis to assess the effectiveness of a particular modality of TK protection.

III. PROTECTING TK: RATIONALE

The word “protection” often creates confusion as it means very different things in strict intellectual property law and in ordinary usage. “Protection” in intellectual property is usually perceived as a means enforcing private, exclusive economic rights to a specific creation in order to prevent others from using or reproducing it. “Protection” of TK, on the other hand, implies protecting the whole social, ecological, cultural and spiritual context of that knowledge so that it continues to be produced and reproduced.

The protection of TK is justified on two grounds. First, because of the value and importance that TK offers to ILCs and to the world population at large. Second, TK protection is required in response to the threats and challenges posed to TK systems from the global IPRs system itself. In the first instance, the recognition and protection would serve diverse cultural, biodiversity, socio-economic, and scientific purposes.¹⁹

A. Cultural Significance

TK is important to its holders, ILCs, as an integral part of their cultural heritage.²⁰ Many ILCs consider TK a source of social cohesion, and TK offers a basis for their survival as a community.²¹ The protection of TK is considered part of the implementation of ILCs rights to maintain and to take part in cultural life as recognized in international human rights instruments.²² The protection of TK would

¹⁸ *Id.* TCEs/Folklore are expressions of ideas by ILCs in the exercise of their cultural life; the expressions of TK in a cultural context that are “akin to copyrightable subject matter (e.g., as performances and designs).” *Consolidated Analysis of the Legal protection of Traditional Cultural Expressions/Expressions of Folklore*, WIPO Publication No. 785(E) 1, 27, 96 (2003). On the other hand, the terms cultural property and cultural heritage usually refer to tangible cultural objects. IRINI A. STAMATOUDI, *CULTURAL PROPERTY LAW AND RESTITUTION: A COMMENTARY TO INTERNATIONAL CONVENTIONS AND EUROPEAN UNION LAW 8* (2011) (Cheltenham).

¹⁹ See GEORGE JERRY SEFA DEI, DOROTHY GOLDIN ROSENBERG & BUDD L. HALL, *INDIGENOUS KNOWLEDGES IN GLOBAL CONTEXTS: MULTIPLE READINGS OF OUR WORLD 6* (2000).

²⁰ Robert G. Howell, *The Interconnection of Intellectual Property and Cultural Property*, First People’s Cultural Council 1, 2, www.fphlcc.ca/downloads/interconnection-of-ip-cultural-property.pdf.

²¹ GRAHAM DUTFIELD & UMA SUTHERSANEN, *GLOBAL INTELLECTUAL PROPERTY LAW: COMMENTARY AND MATERIALS*, 327 (2008).

²² See, e.g., G.A. Res. 217(III), U.N. GAOR, 3rd Sess., Supp. No. 13, U.N. Doc. A/810, at Art. 27 (1948); Convention on Economic, Social and Cultural Rights, Dec. 19, 1966, 993 U.N.T.S. 3, Can TS 1976 No. 46, 6 I.L.M. 360, at Art.15; CBD, *supra* note 5, at Art. 8 (j); International Labour Organization, Convention No. 169 Concerning Indigenous and Tribal Peoples in Independent

result in concrete realization of the rights of indigenous peoples to preserve their cultural and spiritual identity.²³

B. Contribution to Biological Diversity and Ecological Integrity

In the present time, the prominent ground on which to justify the protection of TK relates to its importance in maintaining biological diversity and ecological integrity. Since 1987, a United Nations Committee on the Environment and Development report noted the inability of modern science to provide guidelines for managing natural resources. The report called for the recognition of and greater respect for the wisdom inherent in traditional knowledge systems in this respect.²⁴

For these reasons, international environmental agreements, such as the CBD, expressly recognize the interdependence between TK and biodiversity, and devise strategies to preserve the biodiversity by affording protection to the TK.²⁵ Thus, the protection of TK closely relates to the protection of the environment and living resources, as the content of TK is mostly embedded in the biological resources and ecosystems themselves.²⁶

C. Improving and Preserving Socioeconomic Conditions

The protection of TK is also justified in view of significant benefits in broad social and economic terms. First, the protection of TK fulfills the socioeconomic goal of preserving the basic means of survival for a large sector of the world's population in light of the fact that the world's poor satisfy 85% of their needs for food, fuel, shelter, and medicine from TK-based biodiversity resources.²⁷ Approximately 1.4 billion rural

Countries, June 7, 1989, 28 I.L.M.1382 at Art. 15(1).

²³ See STEPHEN B. BRUSH, *Whose Knowledge, Whose Genes, Whose Rights? in VALUING LOCAL KNOWLEDGE: INDIGENOUS PEOPLES AND INTELLECTUAL PROPERTY*, 3 (S.B. Brush & D. Stabinsky, eds., 1996)

²⁴ See U.N. Secretary-General, *Development and International Cooperation: Environment: Rep. of the Secretary-General*, Annex ¶ 71, 74, U.N. DOC. A/42/427 (Aug. 4, 1987). The report notes:

“Their very survival has depended upon their ecological awareness and adaptation... These communities are the repositories of vast accumulations of traditional knowledge and experience that links humanity with its ancient origins. Their disappearance is a loss for the larger society, which could learn a great deal from their traditional skills in sustainably managing very complex ecological systems. It is a terrible irony that as formal development reaches more deeply into rainforests, deserts, and other isolated environments, it tends to destroy the only cultures that have proved able to thrive in these environments.” *Id.*

²⁵ See *Report on Fact-finding Missions on Intellectual Property and Traditional Knowledge (1998-1999)*, WIPO Publication No. 768(E) 1, 16–17 (2001); CBD, *supra* note 5, at Art. 8 (j).

²⁶ Erica Daes, *Protection of the Heritage of Indigenous Peoples cited in David R. Downes & Sarah A. Laird, Innovative Mechanisms for Sharing Benefits of Biodiversity and Related Knowledge: Case Studies on Geographical Indications and Trademarks* 1, 4 (UNCTAD Biotrade Initiative, 1999).

²⁷ See Rosemary J. Coombe, *The Recognition of Indigenous Peoples' and Community TK in International Law* 14 St. Thomas L Rev 275, 279 (2001) [Hereinafter Coombe,

people need farm-saved seeds and local agricultural practice for subsistence.²⁸ In this sense, the protection of TK responds to the sense of perplexity aroused by the “moral gap”²⁹ in global governance whereby over 1.2 billion people live on less than a dollar a day; 46% of the world’s population live on less than two dollars a day; and 20% of the world’s population enjoy over 80% of the global wealth.³⁰

Beyond fairness and equity, proponents of protection for TK aim to prevent the economic loss to biodiversity-rich countries on the cusp of development.³¹ With the increase in the commercial applicability of TK in pharmaceutical and agricultural biotechnology, the lack of protection of TK has prompted the “unregulated and unmonitored taking of biodiversity” through an ever-expanding intellectual property regime.³² First, developing countries lose significant incomes that would likely have been claimed royalties from patents for innovations that utilize TK.³³ Second, as individuals and corporations continue to claim patent rights over TK and its accompanying biodiversity, ILCs may even be unable to use by-products from their own resources unless they pay royalties to others.³⁴

The significance of TK as a means of achieving socioeconomic objectives is not limited to developing countries. Even in industrialized countries, traditional medicine serves as an alternative or complementary medical resource to a large sector of the population. In the US, Australia, Canada or Europe, a large number of the population relies on complementary and alternative traditional medicines.³⁵ Access to alternative and complementary medicinal resources becomes increasingly limited as pharmaceutical and biotechnology companies continue to claim patents in large areas of biodiversity associated with TK for the medicinal, cosmetic and dietary uses.

D. Contribution to Scientific Discovery and Biotechnology Development

The protection of TK is also important to humankind in general because TK systems have contributed significantly to scientific discovery and biotechnology

Recognition].

²⁸ *Id.*

²⁹ David Held, *Cosmopolitanism: Globalisation Tamed?*, 29 REV. INT’L STUDIES 465, 468 (2003).

³⁰ DAVID HELD & ANTHONY G. MCGREW, THE GLOBAL TRANSFORMATIONS READER: AN INTRODUCTION TO THE GLOBALIZATION DEBATE, 40 (2nd ed. 2003).

³¹ See Velasquez G. & Boulet P, *Essential Drugs in the New International Economic Environment*, 77 Bulletin of the World Health Organisation (1999).

³² Emanuela Arezzo, *Struggling Around the Natural Divide: The Protection of Tangible and Intangible Indigenous Property*, 25 CARDOZO ARTS & ENT L. J. 367, 373 (2007) [Hereinafter Arezzo]; see also Coombe, Recognition, *supra* note 27, at 281 (arguing that some NGO monitoring continues to uncover bio-piracy in the vacuum of regulation).

³³ Coenraad J. Visser, *Making Intellectual Property Laws Work for Traditional Knowledge*, in POOR PEOPLE’S KNOWLEDGE: PROMOTING INTELLECTUAL PROPERTY IN DEVELOPING COUNTRIES, 28 (Finger, J. M. & Philip Schuler, eds, 2004); see also David Conforto *Traditional and Modern-Day Biopiracy: Redefining the Biopiracy Debate* 19 J. ENVTL. L. & LITIG. 357, 359–361 (2004).

³⁴ Arezzo, *supra* note 32, at 373 (explaining that ILCs might have to pay royalties on by-products of their own resources when a registered patent utilizes knowledge or practice of the indigenous peoples in the territory where the patent is protected).

³⁵ See generally Michael Frass, 12 THE OCHSNER JOURNAL 45, 54 (2012).

development.³⁶ Technological advancement in genetic engineering since the 1980s has allowed researchers to find and to move genetic sequences responsible for particular traits in a plant, or even to move traits from one species to another.³⁷ Referred to as rDNA genetic engineering, this system of genetic manipulation at the molecular level has opened a new era of research and product development in the areas of specialty food and beverage, pharmacy, agriculture, horticulture, personal care, and cosmetics.³⁸

Screening a huge quantity of molecules to isolate valuable active compounds for agricultural and pharmaceutical use is prohibitively expensive in terms of both time and financial resources because the drastic uncertainty of potential traits requires the screening of all plants.³⁹ TK served as a critical filter that enhances the effectiveness of the screening process.⁴⁰

The motivation to protect TK is not limited to the value and potential importance that it holds. The need to protect TK has also become apparent in light of widespread challenges to TK in the current global IP system. One way in which the need to protect TK is demonstrated is in the context of efforts to prevent third parties' misappropriation and misuse of TK for commercial use through the use of IP.

E. IP Challenges to Traditional Knowledge

The threats and challenges to TK and their underlying biodiversity arise from the role of IP in transforming the practice of bioprospecting into a more abundant form of biopiracy. Bioprospecting is an age-old and relatively innocuous concept that refers to the legitimate discovery of useful biological resources and the attendant knowledge for commercial applications. This practice is usually conducted with the consent or acknowledgement of TK holders. Bioprospecting contrasts with biopiracy, a term coined as a counterpoise to the allegation of "piracy" of IPRs against developing countries.⁴¹ Biopiracy refers to a situation in which biodiversity and its underlying TK are utilized:

Without compensation and/or without the acknowledgment of the intellectual inputs in the development of the useful attributes of the resource

³⁶ See William D. Coleman & Melissa Gable, *Agricultural Biotechnology and Regime Formation: A Constructivist Assessment of the Prospects*, 46 INT'L STUDIES QUARTERLY 489, 493 (2002); David R. Downes, *New Diplomacy for the Biodiversity Trade: Biodiversity, Biotechnology, and Intellectual Property in the Convention on Biological Diversity*, 4 TOURO J TRANSNAT'L L 210 (1993); Charles R. McManis, *The Interface between International Intellectual Property and Environmental Protection: Biodiversity and Biotechnology*, 76 WASH U. L. REV. 255, 268 (1998).

³⁷ See Keith Aoki, *Farm Seeds of Dispute: Intellectual Property Rights and Agricultural Biodiversity*, 3 GOLDEN GATE U. ENVTL. L.J. 79, 137 (2009).

³⁸ See Bernard O'Connor, *Protecting Traditional Knowledge: An Overview of a Developing Area of Intellectual Property Law*, 6 J. WORLD INTELL. PROP. 677, 679 (2003) [hereinafter O'Connor].

³⁹ Arezzo, *supra* note 32, at 372.

⁴⁰ *Id.*

⁴¹ Cynthia M. Ho, *Biopiracy and Beyond: A Consideration of Socio-Cultural Conflicts with Global Patent Policies*, 39 U. Mich. J.L. Reform 433, 450 (2006).

Without gaining the prior informed consent of the holders of TK and owner(s) of the resource in question.⁴²

The biopiracy discourse illustrates inequities in the utilization of genetic resources and their underlying TK through the instrumentality of IPRs in an era that measures economic activities by the extent of production, distribution, and use of knowledge and ideas.⁴³ As instruments to control information and ideas, IPRs in general, and patents in particular are used to allocate rights from the utilization of biodiversity as a basis for “inventions and creativity” in a biotechnological process.

The TRIPS Agreement brought changes in the jurisprudence of IPRs. These changes play a critical role in perpetrating biopiracy.

The conventional standard for the protection of patents is that the subject matter of patentable invention must be “new, must involve an inventive step, and should be capable of industrial application.”⁴⁴ The conventional justification for such protection is utilitarian, that limited monopoly to those who come up with inventions induces innovation and intellectual productivity; if the law does not protect IPRs, there will not be enough incentive to innovate, and thus, society will be without the benefits of innovation.

The TRIPS Agreement incorporates the above conventional standards for the protection of patents, along with other standards in the field of trademarks, copyrights, industrial designs, and geographical indications. In addition, the TRIPS Agreement obliges countries to recognize patents on microbiological life forms.⁴⁵ As a result, patent offices in the industrialized world, notably the United States Patent and Trademark Office (USPTO), easily determine the criteria of “novelty and inventive step” in a manner that enables biotechnology companies in the pharmaceutical and agricultural industries to establish patent rights on different life forms.⁴⁶ This opened the way for patent claims by multinational companies, such as Monsanto, to

⁴² Carlos M. Correa, *Traditional Knowledge and Intellectual Property: Issues and Options surrounding the protection of Traditional Knowledge*, QUNO available at <http://www.geneva.quno.info/pdf/tkmono1.pdf>.

⁴³ See IKECHI MGBEOJI, GLOBAL BIOPIRACY: PATENTS, PLANTS AND INDIGENOUS KNOWLEDGE 13 (2005) [Hereinafter, Global Biopiracy].

⁴⁴ See Agreement on Trade-Related Aspects of Intellectual Property Rights, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, art. 27 (1), Apr. 15, 1994, 33 I.L.M. 1197, 1869 U.N.T.S. 299 [Hereinafter, TRIPS].

⁴⁵ *Id.* at Art. 27.3 (b). The TRIPS Agreement gives WTO members the option to exclude from patentability “plants and animals other than microorganisms” and the “essentially biological processes for the production of plants or animals other than non-biological and microbiological processes.” *Id.*

⁴⁶ See generally U.S. Pat. No. 4,736,866 (filed June 22, 1984) (issued Apr. 12, 1988) (granting the first animal patent to the transgenic mouse); *Diamond v. Chakrabarty*, 447 US 303, 305-06 (1980) (finding genetically modified bacteria patent eligible); *Monsanto Canada Inc. v. Schmeiser*, [2004] 1 S.C.R. 902 (Can.). *But see* Byron Allen & Ikechi Mgbеoji, *Patent First, Litigate Later! The Scramble for Speculative and Overly Broad Genetic Patents: Implications for Access to Health Care and Biomedical Research*, 2 CAN. J. L. & TECH. 83-98 (2003) note 52; also, see Robert P. Merges, *Intellectual Property in Higher Life Forms: The Patent System and Controversial Technologies*, 47 MD. L. REV. 1051 (1987) (discussing patents on life forms).

monopolize the market for “new” plant and animal varieties derived from existing genetic resources and TK through biotechnological processes.⁴⁷

A number of genetically modified (GM) crop varieties are currently subjects of so called gene patents – patents accomplished through acts of isolating and purifying genes outside an animal, plant, or microorganism.⁴⁸ In principle, these acts simply uncover something that already exists, and as such, the rationales for “gene patents” runs against the conventional justification of patents – that protection is needed to reward individuals who come up with innovations and creations that do not previously exist. In the post-TRIPS regime of IP, a more likely effect of IPRs has become their incentive for commercialisation of inventions that already exist, instead of promoting inventions and creativity.⁴⁹ The effect of IPRs in promoting the commercialisation of inventions and in maximizing the profitability of inventions is “distinguish[able] from, and should not be conflated with, the promotion of inventiveness and creativity[]” as presumed by the utilitarian logic.⁵⁰

The shifting of the rationales of IP to “commercial success” and the “profit motive” based on market responsiveness to invention puts “inventive efforts outside the priorities of the larger society.”⁵¹ For example, the patent system is expected to encourage research and development for innovation and creativity regarding medicines for tropical diseases or other chronic diseases for which patients may not necessarily afford to pay. The framing of the patent system purely on market rationale shifts priority in research and development toward cosmetic products, weight-loss medicines, and cosmetics skin care products for which consumers in the Western market are ready to pay high amount of money. Similarly, in agri-food production, research and development on drought resistant, nutritive, and genetically diversified crop varieties often shifts to that of homogenous, pesticide-and herbicide-dependant varieties of GM crops that are suitable for intensive and mechanized agricultural production.

Gene patents are often justified on the significant financial resource expended in “refining the original material, scientific trials and chemical analysis[]” of the bioactive elements in a particular biological material, although technological and digital

⁴⁷ See Vandana Shiva, *War against Nature and the People of the South*, in, VIEWS FROM THE SOUTH: THE EFFECTS OF GLOBALIZATION AND THE WTO ON THIRD WORLD COUNTRIES 116–118 (Sarah Denny Anderson ed., 2000) [Hereinafter Shiva, “War”].

⁴⁸ Cinnamon Piñon Carlarne, *From the USA with Love: Sharing Home-Grown Hormones, GMOs, and Clones with a Reluctant Europe*, 37 *Envtl. L.* 301, 308–309 (2007). Genetically modified (GM) crops are crop varieties that have undergone advanced procedures of “selective transfer of genes from another organism (even another natural species)” (in contradistinction to the technologically supported procedures of breeding through cross-fertilization). *Id.*

⁴⁹ Ikechi Mgbeoji, *Patents and Plants: Rethinking the Role of International Law in Relation to the Appropriation of Traditional Knowledge of the Uses of Plants (TKUP)* (2001) (unpublished JSD Thesis, Dalhousie University) (on file with Dalhousie University).

⁵⁰ See Chidi Oguamanam, *Beyond Theories: Intellectual Property Dynamics in the Global Knowledge Economy*, 9 *WAKE FOREST INTELL. PROP L. J.* 104, 121 (2009) [Hereinafter Oguamanam, “Beyond Theories”].

⁵¹ *Id.* The effect of the patent system in commercialization instead of innovation can be illustrated by the focus of most patent applications in health research where priority is given to pharmaceutical products for aesthetic and cosmetic consumption in Western markets at the expense of research and innovation for neglected diseases in developing countries. See Beatrice Stirner, “Stimulating Research and Development of Pharmaceutical Products for Neglected Diseases” 15 *Eur. J. of Health L.* 391–409 (2008).

advancement have simplified these technical processes.⁵² Biological material that is just isolated and purified from its natural environment has a questionable degree of novelty, which is required to be patentable. As Peter Drahos aptly expressed: “How many people would think that the rock they pick up in the park becomes an invention of theirs after they have washed and polished it?”⁵³

The more problematic aspect of gene patents has to do with the fact that most of the time, they are catalysts for biopiracy because the claimed inventions are most often based on TK of the medicinal and agricultural value of the product that ILCs acquired, maintained and preserved through in inter-generational process of knowledge production and practice. For example, Basmati rice is a landrace that has been grown and developed in the Punjab provinces of India and Pakistan, with export values worth \$350 million and \$250 million respectively.⁵⁴ Basmati is world renowned for its long and slender grain, fragrant aroma, and distinctive taste, a courtesy of trans-generational knowledge and innovation by traditional farmers in the region.⁵⁵

In 1997, RiceTec — a Texas based multinational company — acquired patent rights to a basket of novel strains of rice, agricultural techniques of selecting and breeding particular rice strains, as well as seeds and grains from any crosses.⁵⁶ This encountered strong opposition from India and Pakistan. Representatives of the two countries branded the patent claim as another attempt of biopiracy.⁵⁷ Though their opposition to the patent claims was unsuccessful, India and Pakistan argued that the name “Basmati” denotes specific qualities of the famous Basmati Rice from the Punjab provinces, and thus, RiceTec should not use the word “basmati” in association with its products.⁵⁸ Following India’s challenge, RiceTec agreed to withdraw its claim for an exclusive use of the term “Basmati,” and subsequently, the USPTO prohibited the patent holder from using the word “Basmati.”⁵⁹

⁵² Gavin Stenton, *Biopiracy within the Pharmaceutical Industry: A Stark Illustration of Just how Abusive, Manipulative and Perverse the Patenting Process Can be Towards Countries of the South*, 1 Hertfordshire L. J. 30, 36 (2003); see Gary Stix, *Legal Circumvention: Molecular Switches Provide a Route around Existing Gene Patents* SCI. AM. July, 2002 available at <http://www.scientificamerican.com/article.cfm?id=legal-circumvention> (describing the technical process of genetic isolation and purification involved).

⁵³ Peter Drahos, *Biotechnology Patents, Markets and Morality*, 21:9 EUR. INTELL. PROP. REV. 441, 442 (1999).

⁵⁴ H. V. Chandola, *Basmati Rice: Geographical Indication or Mis-Indication*, 9 J. OF WORLD INTELL. PROP. at 167 (2006). For India and Pakistan, the name Basmati identifies the region of Punjab. *Id.* This case is similar to the Reblochon cheese in France. There is not in the Savoie region a village called Reblochon. Nevertheless, Reblochon identifies a cheese originated in a particular region in the French Alps. *Id.*

⁵⁵*Id.*

⁵⁶ See, U.S. Patent No. 7,642,435 (filed Nov. 9, 2007) (protecting a Rice hybrid); see also S. K. Soam, *Analysis of Prospective Geographical Indications of India*, 8 J. WORLD INTELL. PROP. at 670 (2005).

⁵⁷ The incident witnessed an emotional outburst associated with Basmati rice in India under the sentiment, for example, that “patenting Basmati in the US is like snatching away our history and culture” The Economic Times, Newspaper quoted in BENNY JOSEPH, ENVIRONMENTAL STUDIES 101 (2009).

⁵⁸ See Kranti Mulik and John M. Cresp, *Geographical Indications and the Trade Related Intellectual Property Rights Agreement (TRIPS): A Case Study of Basmati Rice Exports*, 9 J. OF AGRIC. & FOOD INDUS. ORG. 1, 6 (2011).

⁵⁹ *Id.*

There are numerous instances in which the patent and trademark regimes were employed to derive benefits from a plant resource that has significant traditional value. This is the case, for example, in regard to the Kava plant. Kava is a landrace that is native to the Pacific Islands.⁶⁰ It has been in use for many ceremonial and social purposes among traditional communities for as many as 3000 years.⁶¹ Often cultivated in different particular ways depending upon its use, Kava is known for its relaxing and contemplative effects in a social context, analogues to coffee, tea, and alcohol, and in some situations, it is also considered a spiritual and sacred drink.⁶² Besides, it has medicinal use in a range of conditions.⁶³ Although Kava is mainly consumed locally, it has significant commercial value in international trade.⁶⁴

Many European and US companies have taken the opportunity to register trademark rights over a number of terms related to kava, such as “Kava Pure” and “Kavatriil.”⁶⁵ In addition, many companies have established patent rights on kava extracts and on active compounds of the product.⁶⁶ Traditional communities in the Pacific Islands receive neither acknowledgement nor compensation of any form for their role in developing and maintaining the medicinal properties of kava.

Due to sophisticated and successful marketing strategies, the demand for kava has increased. This prompted the communities to shift from traditional production techniques.⁶⁷ The abundance of “mediocre and adulterated material” in the market due to patent-based production of Kava outside the Pacific Islands has resulted in low prices for Kava in international trade. This compels farmers and harvesters to satisfy the demand for kava through large-scale production by expanding cultivated land, resulting in habitat displacement.⁶⁸ Similar trends can be observed in relation to a number of products from developing countries that are becoming increasingly popular in international markets, such as Jasmati rice, Devil’s Claw, Rooibos, and Buchu.⁶⁹

⁶⁰ See VINCENT LEBOT, MARK MERLIN & LAMONT LINDSTROM, *KAVA: THE PACIFIC ELIXIR: THE DEFINITIVE GUIDE TO ITS ETHNOBOTANY, HISTORY, AND CHEMISTRY*, 36–37 (1997).

⁶¹ *Id.*

⁶² See Steven Ratuva, *Commodifying Cultural Knowledge: Corporatised Western Science and Pacific Indigenous Knowledge*, 60 *Int’l Soc. Sci. J.* 153, 159 (2010).

⁶³ Downes, *supra* note 26, at 19; CHRISTOPHER KILHAM, *KAVA MEDICINE HUNTING IN PARADISE: THE PURSUIT OF A NATURAL ALTERNATIVE TO ANTI-ANXIETY DRUGS AND SLEEPING PILLS* (1996).

⁶⁴ Downes, *supra* note 26, at 18, *citing* Joseph B. Verrengia, *Root Effect of Kava: Stress-relieving Herb Poised for Therapeutic Stardom*, *THE ROCKY MOUNTAIN NEWS* 54 A (7 June 1998) (Kava constitutes a key commercial crop to most Pacific Island countries, such as Fiji. Also a study by Natrol, a US nutritional supplement company, reports that total kava production has a value of over US\$40 million per year).

⁶⁵ *Id.*

⁶⁶ See U.S. Patent No. 7,001,620 (filed Apr. 8, 2003) (Kavalactone); U.S. Patent No. 6,541,044 (filed Nov. 17, 2000) (kava-kava root composition and associated methods); U.S. Patent No. 5,770,207 (filed Mar. 17, 1997).

⁶⁷ Downes, *supra* note 26, at 18. The increasing exploitation of Kava has provoked the neglect of the traditional techniques of “multicropping and a waiting period for the kava to reach a certain age and size” in favour of the harvesting of immature Kava which not only jeopardizes the quality of the medicinal product, but also reduces its resource base. *Id.*

⁶⁸ See Zenobia Ismail & Tashil Fakir, *Trademarks or Trade Barriers? Indigenous Knowledge and the Flaws in the Global IPR System*, 31 *INT’L J. OF SOC. ECON.* 173, 178 (2004).

⁶⁹ *Id.*

IV. PROTECTING TK: MODALITIES OF PROTECTION

In light of the problems outlined above, there have been significant efforts to provide for the protection of TK in international IP law and policy. Since the TRIPS Agreement constitutes an overarching global IP Instrument, first efforts for the protection of TK arose within the TRIPS Council of the WTO. However, forms of IPRs under the TRIPS Agreement are inadequate to protect TK and TK-related resources for a number of reasons.

First, most forms of IPRs emphasize, to a large extent, individual intellectual achievements.⁷⁰ As a result, the legal identity of right-holders is inherently individualistic or corporeal. For ILCs, however, “innovations are cultural properties” in the sense that to a large degree, “they are the product and property of a group.”⁷¹ TK is more “a means of developing and maintaining group identity and survival,” than of promoting individual gain.⁷² The modern IPRs do not, in most cases, take account of the collective nature of TK.

Secondly, the subject matter of protection in some IPRs, such as in patents, is required to be “new.”⁷³ TK is rather knowledge built up over time in an incremental fashion.⁷⁴ The focus of the extant IPRs on “new knowledge” through the criteria of novelty and originality puts TK out of the realm of protection because TK is built on knowledge accumulated over generations and continues to evolve in response to changing and emerging needs.

Thirdly, most forms of IP accord their owners a limited term of protection.⁷⁵ TK frequently shows continuity, and is marked by its evolution over time and its cross-generational nature. ILCs emphasize that their TK is a heritage that must be protected in perpetuity, for the lifetime of the culture, not merely for some fixed period.⁷⁶

⁷⁰ TRIPS, *supra* note 44, at Preamble. The preamble to the TRIPS Agreement emphasizes: “intellectual property rights are private rights” available to legal person, implying that such rights are generally owned by individuals or corporations, and not by communities, states or nations. *Id.*

⁷¹ Xavier Seuba, *Human Rights and Intellectual Property Rights*, in Carlos M. Correa and Abdulqawi A. Yusuf, *INTELLECTUAL PROPERTY AND INTERNATIONAL TRADE: THE TRIPS AGREEMENT* 394 (2d ed. 2008).

⁷² Tonina Simeone, *Indigenous TK and Intellectual Property Rights*, PARLIAMENTARY RESEARCH BRANCH POLITICAL AND SOCIAL AFFAIRS DIVISION 1, 5 (2004), <http://www.parl.gc.ca/content/lop/researchpublications/prb0338-e.pdf>.

⁷³ See, e.g., Patent Cooperation Treaty art. 33, June 19, 1970, 28 U.S.T. 7645, 116 U.N.T.S. 231, available at <http://www.wipo.int/pct/en/texts/articles/atoc.htm> [hereinafter PCT]. 35 U.S.C. § 103 (2012) (setting out that in order to be patent eligible, the claimed invention must be nonobvious).

⁷⁴ Chidi Oguamanam, *Localizing Intellectual Property in the Globalization Epoch: The Integration of Indigenous Knowledge*, 11. *IND. J. GLOBAL LEGAL STUD.* 135, 143 (2004).

⁷⁵ See Chidi Oguamanam, *Beyond Theories: Intellectual Property Dynamics in the Global Knowledge Economy*, 9 *WAKE FOREST INTELL. PROP L. J.* 104, 112–113 (2009). According to the “contract-based” argument for the protection of IPRs, “the inventor notionally agrees to disclose her invention to the state, for example, by way of filing a patent specification in consideration or exchange for the exclusive right (monopoly) to exploit the invention for a fixed term. At the expiration of the term, the public is free to exploit the invention without the patent holder’s interference.” *Id.*

⁷⁶ Erica Daes, *Protection of the Heritage of Indigenous Peoples cited in* David R. Downes & Sarah A. Laird, *Innovative Mechanisms for Sharing Benefits of Biodiversity and Related Knowledge: Case Studies on Geographical Indications and Trademarks* 1, 12 (UNCTAD Biotrade Initiative, 1999).

Even in circumstances where TK may qualify for protection under IP regimes, certain challenges arise for the communities that want to benefit from the system. IPRs tend to favour corporeal and other non-indigenous interests, as they are mostly subject to economic power and manipulation.⁷⁷ The procedures for registering the rights are, in general, expensive, complicated, and time-consuming for most TK-holders.⁷⁸

Due to difficulty of achieving TK under the IP regimes in the TRIPS paradigm of the WTO, however, efforts were shifted to other international forums that are entrusted with normative concerns beyond IPRs, such as those based on environment, biodiversity, human rights, health and development. Key regimes of international law that seek to protect TK in areas that directly relate to IP law and policy include the WIPO, the CBD, and the Food and Agricultural Organization (FAO).⁷⁹ The breadth of discussion across the different international regimes marks broad recognition of the relevance of TK in the diverse areas of IP law and policy.⁸⁰ Yet, the extent, nature, and effectiveness of TK protection depend on the instruments chosen as a model for protection. Despite general understanding of the need to provide protection for TK, significant gaps can be found in the range of measures and options discussed and proposed, as is manifest in the WIPO negotiation process for protecting TK. The legal mechanisms to protect TK that are widely accepted in the various forums can generally be grouped into three major categories: an Access and Benefit Sharing model; Sui Generis model; an IP-based model.

A. Access and Benefit Sharing System

Access and Benefit Sharing (ABS) system is a system under the CBD framework to regulate the conditions for access to and use of genetic resources and the sharing of benefits from their utilization with ILCs.⁸¹ By creating a regulated arrangement

⁷⁷ Vandana Shiva, *Protect or Plunder?: Understanding Intellectual Property Rights*, 64 (London: Zed Books, 2001).

⁷⁸ See *Agreed Interpretation of the International Undertaking*, F.A.O. Res. 4/89, Annex I, 25th Sess., at Art. 7 (Nov. 11-29, 1989) (describing the rights registration procedure).

⁷⁹ WIPO *Traditional Knowledge*, <http://www.wipo.int/tk/en/tk/>. See WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Traditional Knowledge, Traditional Cultural Expressions and Genetic Resources: The International Dimension*, 6th Sess. (March 15–19, 2004) available at http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_6/wipo_grtkf_ic_6_4.doc; WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Genetic Resources: List of Options*, 1, 13, 11th Sess., (July 3 to 12, 2007) available at http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_11/wipo_grtkf_ic_11_8_a.pdf. In consideration of the “holistic” nature of TK, and cognizant of the distinct features that persist across different regimes of protection, it is sometimes suggested that the protection of TK be undertaken through “close cooperation” and in coordination with “international agencies and processes.” As such, the WTO, WIPO, FAO sometimes coordinate and integrate their work in the spheres of mutual concern.; *Intellectual Property: Disclosure Talks Try to Clarify CBD-TRIPS Relationship*, BIORES INT’L CTR. FOR TRADE & SUSTAINABLE DEV. (Mar. 17, 2006).

⁸⁰ Weerawit Weeraworawit, *Formulating an International Legal Protection for Genetic Resources, Traditional Knowledge and Folklore: Challenges for the Intellectual Property System*, 11 CARDOZO J. INT’L & COMP. L. 769, 769 (2004).

⁸¹ CBD, *supra* note 5, at Art. 15; The Secretariat of the Convention on Biological Diversity, *Access and Benefit-sharing Factsheet*, SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY

between users and providers of biodiversity, the ABS system aims to contribute to the conservation of biological diversity and the sustainable use of its components through the fair and equitable sharing of the benefits arising from the utilization of genetic resources and associated TK.⁸²

The basis for ABS arrangements are laid down under the CBD. The major ones include recognition of the sovereign rights of States over their natural resources, requirement for users of genetic resources to obtain PIC, conclusion of mutually agreed terms between users and providers, and finally, grant of access to genetic resources for environmentally sound uses. ABS remained an integral part of the ABS system only as voluntary mechanism.⁸³ Despite significant progress in the development of the principles that the CBD introduced, including the conclusion of the Nagoya Protocol and the Bonn Guidelines, there has not been progress on making ABS requirements as mandatory obligations in applications for IP protection.⁸⁴

The requirement of ABS arrangement as a basis for voluntary contractual arrangements, rather than as part of requirements in applications for patents, leaves the existing IPRs system intact. At best, the successful conclusion of ABS arrangement makes the existing IPRs regime more transparent, fair, and equitable.⁸⁵ In this case, the system of ABS falls short of satisfying demands to accommodate TK through reform of the IPRs system.⁸⁶ It is, therefore, questionable as to whether the object of ABS is exploitation of biodiversity resources or their conservation.

The model of ABS is based on the reasoning that TK holders will be incentivized to preserve and conserve biodiversity resources through contractual sharing of benefits, which would be derived from private individuals' patent rights over "inventions" that utilize genetic resources and associated TK. In effect, the current

ABS arrangement is built on and "adopts classical economic assumptions regarding the nature of conservation, and the preferability of private property regimes to systems of common property."⁸⁷ The CBD's focus on economic benefits through individuals' establishment of IP rights on genetic resources and TK may increase TK's commercialization and inevitably, its high utilization.⁸⁸ In effect, this runs contrary

1, 1 (2010); Chidi Oguamanam, *Genetic Resources, Access and Benefits Sharing: Politics, Prospects and Opportunities for Canada after Nagoya*, 22 J. OF ENVTL. L. & PRACTICE 87, 92–94 (2011).

⁸² See The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, Feb. 2, 2011, COP10, preamble, Art.1 [hereinafter Nagoya Protocol].

⁸³ Bonn Guidelines on Access to Genetic Resource and Fair and Equitable Sharing of the Benefits Arising out of their Utilization, Apr. 7–19, 2002, COP6, IV [hereinafter Bonn Guidelines].

⁸⁴ *Id.* The CBD process has contributed to the development of the principles of "access and benefit sharing," "sovereignty over natural resources," "mutually agreed terms," and "prior informed consent." *Id.*

⁸⁵ Coombe Recognition, *supra* note 27, at 282.

⁸⁶ *Id.*

⁸⁷ Noah Zerbe, *Biodiversity, Ownership, and Indigenous Knowledge: Exploring Legal Frameworks for Community, Farmers, and Intellectual Property Rights in Africa*, 53 ECOLOGICAL ECON. 493, 499-500. (2005); Nagoya Protocol, *supra* note 82, at preamble, ¶24; CBD, *supra* note 5, at Art. 8(j). The CBD refers to ILCs as "holders" of TK, and as such, it does not guarantee ILCs' ownership of TK. *Id.*

⁸⁸ See Rosemary J. Coombe, Steven Schnoor & Mohsen Ahmed, *Bearing Cultural Distinction: Informational Capitalism and New Expectations for Intellectual Property*, 40 U.C. DAVIS L. REV. 891, 914 (2007).

to the very purpose of “conservation and sustainable use of biological diversity” that the CBD intends to pursue.⁸⁹

There are also questions as to the practicability of the principles that are considered essential to the success of the ABS system: such as enforcement of the ABS agreements, the lack of organizational and institutional capacity including administrative support and human expertise to accomplish such a mission.⁹⁰

In addition, ABS strategies do not out-rightly prohibit the filing of patents on TK that may have significant spiritual and cultural value to ILCs.⁹¹ Most ILCs oppose any form of commercialization of genetic resources and TK that have spiritual or cultural characters.⁹²

Despite these criticisms, TK protection through ABS remains popular in national and international legal frameworks. The ABS system has developed in the course of negotiations that led to the conclusion of the Nagoya Protocol in 2010.⁹³ The Nagoya Protocol aims to further facilitate the implementation of ABS by providing a strong basis for greater legal certainty and transparency.⁹⁴

B. Sui Generis Modalities of Traditional Knowledge Protection

The *sui generis* option to protect TK incorporates numerous proposals that have variations, each with their own complex conceptual and practical implications.⁹⁵ Overall, the *sui generis* models of protection propose the recognition of tools ingrained in the customary roots of TK. There are two major varieties of TK protection under the *sui generis* model that are briefly explored below.

⁸⁹ CBD, *supra* note 5, at Art. 8(j).

⁹⁰ ACCESSING BIODIVERSITY AND SHARING THE BENEFITS: LESSONS FROM IMPLEMENTING THE CONVENTION ON BIOLOGICAL DIVERSITY, 5–6 (Santiago Carrizosa et al. eds., 2004).

⁹¹ Coombe Recognition, *supra* note 27, at 286.

⁹² See Gregory K. Schlais, *The Patenting of Sacred Biological Resources, the Taro Patent Controversy in Hawai'i: A Soft Law Proposal*, U. HAW. L. REV. 581, 586 (2003); Christine Haight Farley,

Protecting Folklore and Indigenous Peoples: Is Intellectual Property the Answer?, 30 CONN. L. REV. 1, 14–15 (1997) (arguing that a divergence of interest exists among indigenous peoples between the “realist group” who want to be compensated for their contribution, and the “traditional group” who want to “prevent the cultural or psychological harm caused by the unauthorized use of their arts).

⁹³ Nagoya Protocol, *supra* note 82.

⁹⁴ *Id.* at preamble, Art. 6 (3)(a).

⁹⁵ See GRAHAM DUTFIELD, INTELLECTUAL PROPERTY RIGHTS, TRADE, AND BIODIVERSITY: SEEDS AND PLANT VARIETIES 79 (2000). Dutfield identifies five major approaches within the ambit of *sui generis*: 1) community intellectual rights and collective rights to prevent usurpation of TK by foreign interests; 2) intellectual property rights for communities (versus individual innovators); 3) modified plant variety protection (to include community or Farmers' Rights funds based on royalties on protected seeds, grace periods for filing on protected seeds, and exclusion of certain farmer-controlled plant varieties); 4) comprehensive biodiversity legislation governing access, biosafety, intellectual property rights and communal rights; and 5) sectoral community rights regimes for specific categories of biodiversity (e.g. IPRs for medicinal plants and associated indigenous knowledge systems) — a pragmatic approach concentrating on specific areas that need to be addressed, without excluding any attempt to implement a broader legislation. *Id.*

1. *Defensive Community Patent System*

One of the prominent proposals among the *sui generis* variation is referred to as the “defensive community patent” system.⁹⁶ Given the historical flexibility in the criteria for patentability in IP law, this proposal recognizes that the system of IP may “creatively” be modified to provide protection to TK.⁹⁷ The “defensive community patent” model favours the recognition of a strong system of IP that is suited to the salient features of TK in the use of biological resources for biotechnological applications.⁹⁸ As owners of IP rights, ILCs would be in a position to prevent third parties’ establishment of IP rights over their resources. The legal effect of the use of TK without ILCs’ consent would, in this case, be considered an infringement of legally recognized property rights in the IP regime.

As effective and efficient the community patent model sounds, it can be challenging to incorporate it into existing regimes of IP law. Given the limited role of ILCs in international law-making, it is unlikely for industrialized country negotiators to allow a compromise that accommodates TK in a manner suggested under this approach. The stakes are high for industrialized countries – for which IPRs-based products constitute the largest share of exports.⁹⁹ – to recognize robust property rights in the form of communal patent protection for TK. It can be difficult to strike a balance between the rights of ILCs under a communal patent system and the needs of multinational companies who are desperate to find replacements for their patents on profitable drugs and agro-technology products that are set to expire after two decades of the TRIPS Agreement’s enforcement. Even if successful, the defensive nature of the proposed protection may not appeal to the interest of ILCs who may want to capture and control the economic value of their knowledge to fairly participate in the global economy and to satisfy their socioeconomic needs.

2. *Culture Specific Protocols of Protection*

Another *sui generis* option looks to culture specific protocols that need to be developed from the customary roots of TK.¹⁰¹ This option, as Bowrey explains, proposes protective modalities for TK through “an investigation of the practical uses of private law at the community level for the protection of custom.”¹⁰² Fuelled by “disappointing” efforts to protect TK that often yield “compromised and limited” results in international and national law-making efforts to protect TK, this approach calls for the consideration of protective tools that are based on modalities and elements

⁹⁶ See Ikechi Mgbeoji, *Patents and Traditional Knowledge of the Uses of Plants: Is a Communal Patent Regime Part of the Solution to the Scourge of Bio Piracy?*, 9 IND. J. GLOBAL LEGAL STUD. 163, 186 (2001) (discussing options for modifying the patent system); see also James D. Nason, *Traditional Property and Modern Laws: The Need for Native American Community Intellectual Property Rights Legislation*, 12 STAN. L. & POL’Y REV. 255, 261–262 (2001).

⁹⁷ Global Biopiracy, *supra* note 43 (outlining an extensive proposal).

⁹⁸ *Id.*

⁹⁹ Layton, R. and Wiseman, M. (2008), *Distinctive Values in African Exports: How Intellectual Property Can Raise Export Income and Alleviate Poverty*, Light Years IP, Philadelphia.

¹⁰¹ See Kathy Bowrey, *Alternative Intellectual Property? Indigenous Protocols, Copyleft and New Juridifications of Customary Practices*, 6 MACQUARIE L. J. 65, 83 (2006).

¹⁰² *Id.*

compatible with TK's inherent characteristics and history.¹⁰³ This variation of *sui generis* modality is essentially premised on the notion that an adequate protection of TK cannot be guaranteed even by incorporating new elements of IPRs because “structurally many traditional societies do not respond to the western system, but have their own methods of economic, political, social, and cultural articulation.”¹⁰⁴

In its submission to WIPO, for example, the Indigenous Peoples Council on Biocolonialism (IPCB) notes that:

True protection for [indigenous knowledge] cannot be based on IPRs in their existing or adapted form (i.e., community copyright or community marks). New *sui generis* protections should be based on Indigenous peoples' customary laws, which are the true *sui generis* protections.¹⁰⁵

The IPCB distinguishes between “the development of *sui generis* for internal use [and for] external use,” and prefers the former over the latter.¹⁰⁶ WIPO also acknowledges the existence of similar *sui generis* protective tools among ILCs, although most of WIPO's activities in the *sui generis* option generally concentrate on adaptations of extant IPRs to regulate the external use of TK.¹⁰⁷

Evidently, the *sui generis* option of protecting TK through its customary roots represents the most effective approach to provide protection that is comprehensive, yet tailored to the specific context of TK.¹⁰⁸ The prospect for the recognition of this option at the international level seems remote given that TK does not, as yet, seem to be sufficiently integrated with the modern legal infrastructure.¹⁰⁹ The concerns raised in the assessment of the *sui generis* defensive communal patent system may, *mutatis mutandis*, apply to this option.

C. Protection under Existing or Amended Versions of Intellectual Property Rights

Given the effectiveness of IPRs in regulating economic relations, segments of stakeholders have recently become receptive to the possible use of IP as frameworks

¹⁰³ *Id.* at 88.

¹⁰⁴ IIED et al., *Sui Generis Systems for the Protection of Traditional Knowledge*, INFORMATION FOR THE SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY 1, 12 (2005) available at <http://pubs.iied.org/pdfs/G02378.pdf>.

¹⁰⁵ Indigenous Peoples Council, *Communication from the Indigenous Peoples Council on Biocolonialism, Policy Objectives*, WIPO, http://www.wipo.int/export/sites/www/tk/en/igc/pdf/comments_tk_11_04.pdf.

¹⁰⁶ *Id.*

¹⁰⁷ See WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Elements of A Sui Generis System for the Protection of Traditional Knowledge*, ¶34, 4th Sess. (Dec. 9 to 17, 2002) available at http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_4/wipo_grtkf_ic_4_8.pdf; *Report on Fact-finding Missions on Intellectual Property and Traditional Knowledge (1998-1999)*, WIPO Publication No. 768(E).

¹⁰⁸ See Robert G. Howell & Roch Ripley, *The Interconnection of Intellectual Property and Cultural Property (Traditional Knowledge)* in Catherine Bell and Robert K. Paterson, PROTECTION OF FIRST NATIONS CULTURAL HERITAGE 231 (2009).

¹⁰⁹ *Id.*

to protect TK for external use.¹¹⁰ Proposals to protect TK through IP mostly include either the use of existing IPRs, or the use of their modified versions in some cases, or the use of their amended version in others. Examples in the latter category include the application of case law interpreting unmodified statutes of IPRs in a manner that responds to the interest of ILCs. In this line, the Australian Aboriginal artists successfully invoked claims of copyrights and unfair trade practices against carpets imported from Vietnam that replicated Aboriginal arts.¹¹¹ In resolving the dispute that arose, the Federal Court of Australia granted compensatory damages for “personal suffering” to take account of cultural aspects.¹¹² It decided that even though only individuals could be recognized as copyright owners:

[T]here may be scope...for the distribution of the proceeds of the action to those traditional owners who have legitimate entitlements, according to Aboriginal law, to share the compensation paid by someone who has, without permission, reproduced the artwork of an Aboriginal artist.”¹¹³

The jurisprudence developed from this and similar cases have generally helped to introduce the issue of TK into the Australian IPRs establishment.¹¹⁴ For example, the National Indigenous Arts Advocacy Association in Australia adopted the Indigenous Label of Authenticity in 1999 to help promote the marketing of the art and cultural products, and to deter the sale of products that are falsely labeled as originating from Aboriginal peoples.¹¹⁵ The result of the certification of authenticity in this manner, however, has not proved fruitful and thus, the initiative has been abandoned.¹¹⁶

¹¹⁰ WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Review of Existing Intellectual Property Protection of Traditional Knowledge*, 3rd Sess., (June 13-21, 2002) available at http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_3/wipo_grtkf_ic_3_7.pdf [hereinafter Review of Existing IP] (explaining the role of IP for agricultural products in the global market).

¹¹¹ Michael Blakeney, *Milpurrurru and Others v Indofurn Pty Ltd and Others* (1994) 130 ALR 659, ¶ 129 (Austl.).

¹¹² *Id.* at ¶154.

¹¹³ *Id.* at ¶129.

¹¹⁴ See generally *Foster v Mountford* (1976) 29 FLR 233 (Austl.). An attempt to disclose information of religious and cultural significance to particular Aboriginal people, supplied in confidence to the author, was enjoined as a breach of confidence. In *Foster v. Mountford* (1976) 29 FLR 233 (Austl.); A third party recipient of protected confidential information can be readily enjoined so long as the information is still relatively secret. However, the particular proceeding concerned copyright infringement. The case, *Bulun Bulun*, concerned a painting “Magpie Geese and Water Lilies at the Water Hole” created in accordance with the customary law of the traditional community (the Ganabingu people). The Aboriginal artist of the painting that had been infringed was bound by the customary law of his community to not exploit the painting in a manner contrary to the community’s customary law. This was sufficient for the artist to be under a fiduciary obligation to the community requiring him to take reasonable steps to remedy any infringement by a third party. However, the court rejected finding a “native title”, a “community title”, an “equitable title” or an express trust in favor of the community. *Bulun Bulun v. R & T Textiles Pty. Ltd.* (1998), 157 ALR 193 (Austl.).

¹¹⁵ O’Connor, *supra* note 38, at 687.

¹¹⁶ Peter Drahos, *Towards an International Framework for the Protection of Traditional Group Knowledge and Practice*, UNCTAD 32–33 (2004). The failure has been attributed to disagreements as to what constitutes authenticity; the fact that one mark was not seen as being able to accommodate the needs of all indigenous groups and the lack of proper funding for the administration of the mark. *Id.*

New Zealand uses existing IPRs to provide defensive measures of TK protection.¹¹⁷ The New Zealand Trade Marks Act was amended to prohibit the registration of trademarks that would likely offend a significant segment of the community, including the indigenous Maori people.¹¹⁸ In addition, the Act allows the invalidation of a registered mark upon application by a person “culturally aggrieved,” even if the mark is distinctive of a registered owner.¹¹⁹ Bearing in mind the holistic nature of TK, it combines the use of IPRs with initiatives for *sui generis* approach to TK.¹²⁰

In Canada, there has yet to be any amendments to IPRs legislation based on protection for TK and TK-based resources.¹²¹ As a working paper from the Department of Indian and Northern Development indicates, however, indigenous peoples in Canada directly utilize existing Copyrights and Trademark systems to establish rights on the products of their knowledge.¹²² This includes the use of copyrights in the woodcarvings of Pacific coast artists, including masks and totem poles, and in the silver jewelry of Haida artists.¹²³ In the trademark regime, the Department of Indian and Northern Affairs uses the symbol *Igloo* as a certification mark, which identifies Inuit

¹¹⁷ WIPO, *Specific Legislation for the Legal Protection of Traditional Cultural Expressions—Experiences and Perspectives of New Zealand*, Annex II, ¶ 3, WIPO/GRTKF/IC/4/INF/2.

¹¹⁸ Trade Marks Act 2002 (N.Z.). According to New Zealand government officials, “Maori” refers to the indigenous peoples of New Zealand. MAORI CULTURE NEW ZEALAND, http://www.newzealand.com/travel/en/media/topic-index/maori-culture/maori-culture_home.cfm (last visited July 18, 2014). The 2002 Act required the Commissioner to establish an Advisory Committee to provide advice on the registrability of trademarks which contain Maori signs, such as text or imagery. Trade Marks Act 2002 § 179 (1–3) (N.Z.). This took into account the new offensiveness test at Section 17(l) (b): an absolute ground for refusing registration of a trademark that would be likely to offend a significant Section of the community including Maori. Trade Marks Act 2002 § 17 (1) (N.Z.). The 2011 Waitangi Tribunal report recommended the establishment of a new Commission that would replace the Mori trademarks advisory committee, “supported by a small new secretariat, to decide objections to the use of mātauranga Māori, taonga works, and taonga-derived works on a case-by-case basis, as well as to make early declaratory rulings, develop guidelines, maintain a kaitiaki register, and provide advice, amongst other functions.” WAITANGI TRIBUNAL, KO AOTEAROA TĒNEI: A REPORT INTO CLAIMS CONCERNING NEW ZEALAND LAW AND POLICY AFFECTING MĀORI CULTURE AND IDENTITY, 713 (2011).

¹¹⁹ Trade Marks Act 2002 § 73 (N.Z.). Of course, the Act does not prohibit offensive use of a mark as an unregistered mark. Similarly, it does not prevent the non-offensive use of a trademark based on Māori text and imagery that the Maori may want to establish exclusive rights.

¹²⁰ *Id.* See WAITANGI TRIBUNAL, KO AOTEAROA TĒNEI: A REPORT INTO CLAIMS CONCERNING NEW ZEALAND LAW AND POLICY AFFECTING MĀORI CULTURE AND IDENTITY, 390–391 (2011). In a report into claims concerning New Zealand law and policy affecting Māori culture and identity, called the Waitangi Tribunal report, the Te Tai Tokerau and Ngāti Kahungunu tribes mentioned the lack of prevention of commercial exploitation of certain place names as one category of claims relating to omissions of the Crown that breach the promises made in the Treaty of Waitangi.

¹²¹ See Daniel J. Gervais, *Spiritual but not Intellectual? The Protection of Sacred Intangible Traditional Knowledge*, 11 CARDOZO J. INT’L & COMP. L 468, 491–494 (2003) [hereinafter Gervais] (discussing constitutional arguments that may apply to IP claims of ILCs over their traditional knowledge in Canada).

¹²² See Simone Brascoupé & Karin Endemann, *Intellectual Property and Aboriginal People*, 1, 14, 22 (Minister of Indian Affairs and Northern Development, Working Paper No. QS-7018-001-EE-A1, 1999).

¹²³ Review of Existing IP, *supra* note 110, at 121.

artwork as authentic.¹²⁴ In addition, members and groups of Aboriginal peoples protect a number of marks as official marks and certification marks to identify a wide specter of goods and services, ranging from traditional art and artwork to food products, clothing, tourist services, and enterprises.¹²⁵

D. The Public Domain Approach to Protection

Historically, the idea of the public domain is construed in different ways. In the post-TRIPS Agreement movement for the protection of TK, two positions can be identified in regarding the protection of TK from the perspective of the public domain.

In the first, the idea of public domain is invoked as a defensive strategy against the encroachment of property rights to biodiversity and the underlying TK. In this respect, the public domain approach converges with what is called the “access to knowledge” movement and is often raised as a tool to curb the expansive reach of IPRs over “inventions” that utilize TK. In this sense, protecting the public domain from misappropriation by IPRs through different legal strategies is equated to protecting TK.

Secondly, opponents of the protection of TK also embrace the public domain approach to support their claim that TK falls outside the scope of any form of protection.¹²⁶ Some adherents of the public domain approach consider TK and TK-related resources as “raw materials” for invention and, thus, only subjects of real property rights for which owners of TK could not claim any kind of IP-based protection. Even though benefits may be derived through ABS systems, a public domain approach to protecting TK rewards ILCs only as wardens of biodiversity not also as cultivators and owners.¹²⁷

¹²⁴ See Indian and Northern Affairs Canada, *Frequently Asked Questions about the North*, 1, 2 (2001), https://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texttext/info115_1100100016462_eng.pdf

¹²⁵ See, e.g., GENUINE COWICHAN & DESIGN, Registration No. TMA469023 (granting trademark registration to the Cowichan Band Council for a certification mark on the words and design for “Genuine Cowichan Approved” to protect such articles of clothing as sweaters). The following are some of Aboriginal names that are registered, or are in the process of registration as “official marks”: SKATIN, KASKA, QUENEESH, NK’MIP and FIRST NATIONS SUMMIT. Barry Steven Mandelker *Indigenous People and Cultural Appropriation: Intellectual Property Problems and Solutions*, 16 CAN. INTELL. PROP. REV. 367, (2000); Bennett Lee, *Protecting Aboriginal Trademarks*, BROUGHTON LAW (2007) available at <http://www.boughtonlaw.com/2013/07/protecting-aboriginal-marks/>.

¹²⁶ See Jim Chen, *There’s No Such Thing as Biopiracy ... And It’s a Good Thing Too*, 37 McGeorge L. Rev. 1, 22 (2006); Paul J. Heald, *Your Friend in the Rain Forest: An Essay on the Rhetoric of Biopiracy*, 11 CARDOZO J. INT’L & COMP. 519 (2001); Cynthia M. Ho, *Biopiracy and Beyond: A Consideration of Socio-Cultural Conflicts with Global Patent Policies*, 39 U. MICH. J.L. REFORM 433, 468-469 (2006).

¹²⁷ See Madhavi Sunder, *The Invention of Traditional Knowledge*, 70 L. & CONTEMP PROBS 97, 106 (2006) [hereinafter *Invention*]. For example, the CBD purports to benefit ILCs for their role in preserving the public domain through ABS systems. Under the system of ABS guided by the public domain approach, Sunder observes, “traditional knowledge holders may receive remuneration for conserving biodiversity and contributing the raw materials of innovation, but they are not recognized as intellectual property holders in their own right.” *Id.*

The relegation of TK to the public domain denies the intellectual worth and value of TK, and conflates TK with the so-called products of nature.¹²⁸ Treating TK as part of the public domain and presenting it in binary contrast to IP amounts to invalidating TK as “ancient, static, and *natural*, rather than...modern, dynamic, *scientific and cultural invention*.”¹²⁹ In this sense, the idea of public domain considers TK just as a “raw material” for innovation and sharing of benefits with communities who might not have approved the utilization of the knowledge or biodiversity in the first.¹³⁰

V. TOWARDS A PLURALIST APPROACH IN PROTECTING TK

One of the major problems with the number of approaches and legal tools for protecting TK under consideration in different international law forums is that most of the modalities target the protection of TK in its “holistic” context. This is based on the presumption that TK cannot be separated from the cohesive whole and cannot be compartmentalized to fit to existing Western systems of IP, as scientific knowledge can.

While the holistic context of TK holds true for TK, in general, the protection of TK may be achieved through diverse mechanisms that should be fashioned or refashioned to provide protection that is complementary and mutually supportive to a chosen modality of protection. In the face of the diverse modalities for the protection of TK, this article proposes a pluralist approach in which diverse mechanisms may be employed to fit to the diverse ways of applying TK.

The frontiers of “creativity” in the field of TK are expressed through wide areas of practice, such as economic, agricultural, medicinal, spiritual, and cultural due to the various ways of using the knowledge by diverse group of ILCs. As important and pertinent as some of the approaches and modalities – particularly the *sui generis* options – are to the protection of TK, choosing a particular modality of TK protection over another may obscure differences in the needs and interests of ILCs. It might not be feasible or even desirable to find one form of protective regime that covers all aspects of TK, given the role of TK in diverse areas of socio-economic, cultural, ecological and even technological domains. As such, the holistic feature of TK might be better accommodated through protection based on different legal mechanisms that are suited to the different facets of TK for internal use (among the communities) and for external use (outside of the communities).¹³¹

TK for internal use refers to aspects of TK that have significant spiritual and cultural value more than economic ones. For these categories of TK practices,

¹²⁸ JACK RALPH KLOPPENBURG, *FIRST THE SEED: THE POLITICAL ECONOMY OF PLANT BIOTECHNOLOGY*, 185 (2004) (noting “the land races of the Third World, are most emphatically not simple products of nature”); Ikechi Mgbeoji, *Lost in Translation? The Rhetoric of Protecting Indigenous Peoples’ Knowledge in International Law and the Omnipresent Reality of Biopiracy*, in *ACCESSING AND SHARING THE BENEFITS OF THE GENOMICS REVOLUTION*, 118–124 (Peter Phillips & Chika Onwuekwe, eds, 2007); Naomi Roht-Arriaza, *Of Seeds and Shamans: The Appropriation of the Scientific and Technical Knowledge of Indigenous and Local Communities*, 17 *Mich. J. Int’l L.* 919, 921–922 (1995).

¹²⁹ *Invention*, *supra* note 127.

¹³⁰ VANDANA SHIVA, *PROTECT OR PLUNDER?: UNDERSTANDING INTELLECTUAL PROPERTY RIGHTS*, 65 (London: Zed Books, 2001).

¹³¹ See, e.g., *Traditional Knowledge: Key to a Diverse and Sustainable Future, Intellectual Property and Traditional Knowledge*, WIPO Publication No. 920(E) (2009).

defensive approaches, and more pertinently, culture-specific protocols of *sui generis* systems may be important and effective tools. Without necessarily excluding any form of *sui generis* modalities that may be suited to a holistic context of TK protection, however, other methods for positively protecting TK should be considered since a mere defensive system of protecting TK is insufficient to satisfy the needs and expectations of ILCs in the diverse contexts of TK.¹³² This necessity arises for categories of TK that are commercially available, for which, IP-based protection would enable ILCs to acquire economic advantages by fairly participating in the global economy.

For the above reasons, irrespective of the appropriate model of protection for TK in general, efforts should be made to explore whether IP instruments such as geographical indications can serve a purpose as models of IP-based protection for TK-related resources. A large number of TK related agricultural resources have significance to ILCs as a means of supporting their livelihood through economic exchanges. This is the case for a significant variety of agricultural products that are produced through the exercise of traditional skills and techniques such as, for example, in the case of Canadian wild rice (*Manoomin*), Ethiopian Coffee, Basmati Rice, Ghanaian Cocoa, South African Rooibos tea, Kenyan Kericho tea, etc. Consumer appetite for these products is high in international markets. In this context, the proper question is not just whether IP rules allow the misappropriation of and biopiracy of TK, but also, whether IP can be used to empower ILCs to use their knowledge and resources to share fairly in the riches and abundances of the global economy by participating in international trade.¹³³ In relevant circumstances, IP rules should and can be fashioned or refashioned to suit the needs and expectation of ILCs to participate in transactions over their resources in international trade, not to just defensively protect these resources from misappropriation.

¹³² See, e.g., Johanna Gibson, *Audiences in Tradition: TK and the Public Domain*, in INTELLECTUAL PROPERTY: THE MANY FACES OF THE PUBLIC DOMAIN, 182–185 (C. Waelde & H MacQueen, eds., 2007) (arguing that defensive strategies of protecting TK “risk an ongoing paternalism and persistent historicising of the value of knowledge”); David R. Downes, *How Intellectual Property Could Be a Tool to Protect Traditional Knowledge*, 25 COLUM. J. ENVTL. L. 253, 258 (2000) (recognizing the inconsistencies between what IPRs seek to protect and traditional knowledge represents); see generally Madhavi Sunder, IP3, 59 STAN. L. REV. 257 (2006) (showing that the traditional economic model behind current IPRs fails to comprehend what TK is); Coenraad J. Visser, *Making Intellectual Property Laws Work for Traditional Knowledge*, in POOR PEOPLE'S KNOWLEDGE: PROMOTING INTELLECTUAL PROPERTY IN DEVELOPING COUNTRIES, 212 (Finger, J. M. & Philip Schuler, eds., 2004); Terri Janke, *Minding Culture: Case Studies on Intellectual Property and Traditional Cultural Expressions*, WIPO 1, 36 (2003) (stating that trademarks relying on false geographical location markers can be opposed); Daphne Zografos, *Can Geographical Indications be a Viable Alternative for the Protection of Traditional Cultural Expressions*, in NEW DIRECTIONS IN COPYRIGHT LAW, (Fiona Macmillan & Kathy Bowrey ed., 2006); Brad Sherman & Leanne Wiseman, *Towards an Indigenous Public Domain?*, in THE FUTURE OF THE PUBLIC DOMAIN 266 (P. Bernt Hugenholtz & Lucie Guibault, eds., 2006) (calling for a balance to be struck between IPRs and the ability to protect TK).

¹³³ Amartya Sen, Address at Santa Clara University Institute on Globalization (Oct. 29, 2002) cited in Angela R. Riley, *Indigenous Peoples and the Promise of Globalization: An Essay on Rights and Responsibilities*, 414 KAN J.L. & PUB. POL'Y 155, 156 (2000).

VI. CONCLUSION

Different priorities dictate the contents of modalities for protecting TK reviewed thus far. Earlier approaches mainly focused on fending off the reach of IP based on modalities for protecting the public domain which genetic resources and associated TK have been considered to be a part of. The limitations in the modalities as well as the conditions in TK protection discussed thus far necessitate a shift in strategy towards more focused approach that takes into account pertinent realities. The discussion in this article shows a shift from this focus to allow a degree of IP-based enclosure that is necessitated by a desire to enhance the competitiveness and overall empowerment of ILCs in their participation in the global economy. In the diverse contexts of TK, IP-based mechanisms may be used to afford protection to TK holders for their commercially available products.

Thus, the search for an appropriate modality of TK protection should transcend a single model. Some categories of TK can be inherently inappropriate subjects of protection under market-oriented IP tools. The development of *sui generis* defensive regime built upon the inward looking cultural protocols that already exist among the community would, in this case, respond to the needs of ILCs. In circumstances where a particular TK-related agricultural resource is commercially significant, ILCs should have the opportunity to access market-based forms of protection, including those based on IP, to fit the nature and use of TK in particular situations. In this context, formulation of an internationally acceptable regime that incorporates different legal means of TK protection is necessary. Efforts for TK protection at the international level should, therefore, be *geared* towards identifying different regimes based on the nature and use of the knowledge in the respective category. In this sense, IP-based protection through such tools as geographical indications (GIs) may be used to accommodate aspects of TK-based “creativity” in agricultural production.¹³⁴

¹³⁴ See TESHAGER DAGNE, INTELLECTUAL PROPERTY AND TRADITIONAL KNOWLEDGE IN THE GLOBAL ECONOMY: TRANSLATING GEOGRAPHICAL INDICATIONS FOR DEVELOPMENT (2014).