

ALL HANDS ON DECK: BIOPIRACY & THE AVAILABLE PROTECTIONS FOR TRADITIONAL KNOWLEDGE

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I. INTRODUCTION

A “hit man” sets up camp in a tribal village and explains to the chief that his presence has been approved of by the headman, a community leader of several villages.¹ He says he is there to teach and help educate the children of the village.² The hit man will then send the children to school where a schoolmaster (i.e. the hit man) tells the children to collect plants from the forest and ask their parents about the different ailments they cure.³ The hit man may further tell them that if their parents are unsure, the children should suggest their parents consult with the Shaman to learn the uses.⁴ The hit man tells the children that when enough information about the plants is collected it will be put into a book in the native language for the children to use in the village school.⁵ This unfortunately is not just a story meant to scare children into avoiding strangers. Instead, it is a common way that Northern scientists obtain traditional knowledge without the consent or even knowledge of the indigenous people supplying it.⁶ This common scheme demonstrates the need for realistic protections of traditional knowledge for developing countries.

Issues such as using biological resources and knowledge without the consent of or attribution to the indigenous people from whom it came are becoming increasingly prevalent as developed Northern countries, rich in scientific resources, seek to bioprospect in Southern countries, which are rich in biological resources. It is this power imbalance that has led to cries of misappropriation and biopiracy from developing nations who expend their knowledge and biodiversity but are not reaping the benefits this knowledge confers on Western scien-

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¹ Winston P. Nagan et al., *Misappropriation of Shuar Traditional Knowledge (TK) and Trade Secrets: A Case Study on Biopiracy in the Amazon*, 15 J. TECH. L. & POL'Y 9, 26 (2010).

² *Id.*

³ *Id.*

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

tists. For example, using traditional knowledge has been reported to have “increased the efficiency of screening plants for medical properties by more than 400%,”⁷ but still the providers of the knowledge that leads to a more efficient pharmaceutical industry have yet to receive acknowledgement or remuneration.

The term traditional knowledge and the problems in protecting it also relate to traditional cultural expressions, including traditional folklore, handicrafts, songs, dance, and literature; these traditional cultural expressions, however, are beyond the scope of this Article.⁸ This Article instead focuses on the knowledge of traditional plants and medicines. These biological resources have come to play no small role as medicine develops. As far back as 1999, the estimated market value of plant-based medicines derived from traditional knowledge in Organisation for Economic Co-operation member states⁹ was \$61 billion.¹⁰ Furthermore, one study showed that of the 119 plant-based medicinal compounds used in medicine around the world, 74% had the same (or similar) uses as the plants from which they were derived.¹¹

The United States has been generally unwilling to consider traditional knowledge protectable,¹² but indigenous knowledge should also not be considered a free good available for the taking when the indigenous groups supplying this information are unwilling to provide it or are unaware of the intentions of the scientists seeking it.¹³ Just as scientists and doctors cannot command ownership of a person’s cells without his or her permission,¹⁴ they should not be able to command ownership over the knowledge of another unless it is freely and knowingly given.

Legal scholars and lawmakers have proposed numerous suggestions to solve the international issue of whether traditional knowledge should be protectable. No current ideal solution exists, however, due to the difficulties in defining traditional knowledge and the differing needs

⁷ M.G.K. MENON ET AL., *HUMAN GENOME RESEARCH: EMERGING ETHICAL, LEGAL, SOCIAL, AND ECONOMIC ISSUES* 156 (1999).

⁸ See generally Sean A. Pager, *Folklore 2.0: Preservation Through Innovation*, 2012 UTAH L. REV. 1835 (2012) (providing information about traditional folklore and traditional cultural expression and the issues that they raise).

⁹ *List of OECD Member Countries—Ratification of the Convention on the OECD*, OECD, <http://www.oecd.org/general/listofoeecdmembercountries-ratificationoftheconventionontheoecd.htm> (last visited Dec. 3, 2013).

¹⁰ Graham Dutfield, *TRIPS-Related Aspects of Traditional Knowledge*, 33 CASE W. RES. J. INT’L L. 233, 249-50 (2001).

¹¹ *Id.* at 250.

¹² See *id.* at 273.

¹³ See *infra* note 119 and accompanying text for a description of an occurrence where one such tribe did not want to convey its knowledge but Western scientists pushed until they obtained it.

¹⁴ See *Moore v. Regents of the Univ. of Cal.*, 531 Cal.3d 120, 129-30 (1990).

of individual indigenous groups. This Article discusses some of the most promising protections to safeguard traditional knowledge available to these diverse groups in the legal framework today. Part I of this Article explains what exactly traditional knowledge is. Part II discusses the traditional knowledge debate and the issues that prevent an international solution, including recognizing the differences between cultural and Western property systems, determining what is protectable, and deciding what the terms of this protection should be. Part III discusses the current inadequacies in international treaties and why they are failing to provide the protections they were intended to. Part IV outlines the protections currently available to developing countries seeking to safeguard their traditional knowledge and the pitfalls associated with them, demonstrating that no one-size-fits-all remedy will adequately protect traditional knowledge. Part IV suggests that indigenous communities and countries should choose the appropriate solutions that best fit their individual cultural and economic needs rather than looking for a blanket remedy.

II. WHAT IS TRADITIONAL KNOWLEDGE?

One of the difficulties in finding a solution to the problem traditional knowledge presents is the difficulty in defining what exactly the term “traditional knowledge” means. The World Intellectual Property Organization (WIPO) has loosely defined the term, stating that it includes “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.”¹⁵ Others like scholar Srividhya Ragavan have defined the term as “knowledge, possessed by indigenous people, in one or more societies and in one or more forms, including, but not limited to, art, dance and music, medicines, and folk remedies, folk culture, biodiversity, knowledge and protection of plant varieties, handicrafts, designs, [and] literature.”¹⁶ Still others assert that the knowledge is systematic and imperial and develops ““empirical observations about the local environment, and a system of self-management that governs resource use.”¹⁷

¹⁵ WIPO IGC, *Traditional Knowledge—Operational Terms and Definitions* 11, WIPO Doc. WIPO/GRTKF/IC/13/9 (May 20, 2002).

¹⁶ Srividhya Ragavan, *Protection of Traditional Knowledge*, 2 MINN. INTELL. PROP. REV. 1, 3-4 (2001).

¹⁷ Dutfield, *supra* note 10, at 240 (quoting Martha Johnson, *Research on Traditional Environmental Knowledge: Its Development and Its Role*, in LORE: CAPTURING TRADITIONAL ENVIRONMENTAL KNOWLEDGE 3, 4 (Martha Johnson ed., 1992)).

Defining the “indigeneity” that makes traditional knowledge “traditional” has also been difficult. WIPO has defined “traditional” in this context as meaning, “‘knowledge systems, creations, innovations and cultural expressions’ which have been transmitted from one generation to the next, ... pertaining to a particular people or territory[,] ... [and] that is not necessarily old or static but rather that evolves in response to a changing environment.”¹⁸ This definition shows the breadth of knowledge that can be considered “traditional” and that people who are not indigenous can also hold such knowledge. This raises the question: how is “traditional” knowledge different than any of the other knowledge in the world? What is it about the knowledge of traditional people that makes it different than the ancient knowledge of the Greeks or Romans or that makes it deserving of more legal protection?¹⁹ For example, the ancient Greeks used vinegar to preserve food and fight infections.²⁰ Should this knowledge be protected? It is very old and has been passed on from generation to generation. What makes vinegar different than Madagascan neem?²¹ It is these difficulties in defining traditional knowledge that present one of the biggest impediments to finding a solution to this seemingly inequitable problem.

Regardless of the difficulty in defining traditional knowledge, those opposing the North’s bioprospecting without compensation coined the term “biopiracy” to reflect the “unauthorized exploitation of traditional knowledge without the consent of its indigenous owners.”²² Coining a term to reflect the practice, however, does not create a solution to this complicated problem.

III. DIFFICULTIES IN ESTABLISHING A SOLUTION

The difficulties in defining traditional knowledge are only the beginning to solving the issue of whether scientists seeking traditional knowledge should be required to obtain informed consent and provide compensation. Pragmatically, several other hurdles stand in the way of solving the biopiracy problem; such hurdles are also responsible in large part for the failed attempts to resolve this issue internationally.

¹⁸ J. Janewa OseiTutu, *A Sui Generis Regime for Traditional Knowledge: The Cultural Divide in Intellectual Property*, 15 MARQ. INTEL. PROP. L. REV. 147 (2011) (quoting WIPO IGC, *supra* note 15).

¹⁹ *See id.* at 198-99.

²⁰ *Id.* at 200.

²¹ *See* Ragavan, *supra* note 16, at 11-12 (discussing the neem plant and its properties).

²² Paul Kuruk, *Goadng a Reluctant Dinosaur: Mutual Recognition Agreements as a Policy Response to the Misappropriation of Foreign Traditional Knowledge in the United States*, 34 PEPP. L. REV. 629, 630-31 (2007).

*a. Conflict Between Western Property Systems and Indigenous
Cultural Practices*

Western and other developed countries have established ways to protect knowledge under certain circumstances—intellectual property (IP) rights. From a Western policy perspective, limited monopolies for IP are only granted to “promote the progress of science and useful arts,” not to compensate the author for his or her labor.²³ The United States has used these limited monopolies as an incentive to create and has justified them by ensuring that the information ultimately becomes a part of the public domain to promote the free flow of ideas.²⁴ Therefore, where protection of traditional knowledge would take information out of the public domain and stifle further attempts to invent, Western policy would likely dictate that this knowledge is undeserving of positive protections. Further, traditional knowledge arguably does not create any similar incentive to create, but rather incentivizes the conservation of culture.²⁵ Because of this, under a Western view, traditional knowledge is generally seen as falling within the public domain.²⁶ In support of this, one scholar points to the Supreme Court’s statement that not every “trifling device” deserves monopoly protection.²⁷ In fact, some of the most valuable information does not fall within protectable IP: scientific theorems, mathematical principals,²⁸ and medical procedures.²⁹ This information falls into the public domain either because it is not protectable subject matter or because public policy dictates that the information should belong to the public.³⁰

Other developing countries, however, do not commodify knowledge in this same way, leading to a vast misalignment between traditional knowledge values and Western IP principles. In establishing their own cultural property systems, indigenous groups must decide whether

²³ U.S. CONST. art. 1, § 8, cl. 8.

²⁴ See Rebekah O’Hara, *You Say You Want a Revolution: Music & Technology—Evolution or Destruction?*, 39 GONZ. L. REV. 247, 249-250 (2004).

²⁵ See Michael Factor, *WIPO Sponsors Traditional Knowledge Conference*, IAM MAGAZINE (Nov. 23, 2011), <http://www.iam-magazine.com/reports/Detail.aspx?g=5a6bfa42-de34-4930-8c68-8c84e59366dd> (asserting that traditional knowledge incentive is to conserve folk knowledge and split revenues between product developers and local communities).

²⁶ Kuruk, *supra* note 22, at 632 (defining the public domain to include knowledge and innovation in which no person can establish a proprietary interest).

²⁷ Jim Chen, *There’s No Such Thing as Biopiracy ... And it’s a Good Thing Too*, 36 McGEORGE L. REV. 1, 23 (2006) (quoting *Atlantic Works v. Brady*, 107 U.S. 192, 231 (1883)).

²⁸ OseiTutu, *supra* note 18, at 188 n.163.

²⁹ Brett G. Alten, *Left to One’s Devices: Congress Limits Patents on Medical Devices*, 8 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 837, 837-39 (1998).

³⁰ See *id.* at 845-46.

their cultural traditions fit within Western expectations. For example, indigenous groups must first decide whether they will codify their tribal laws, because a written code may be inconsistent with community values where oral tradition is more prevalent and may require a vast number of resources to create.³¹ Without this codification, however, applying Western IP concepts is seemingly more difficult. Even after deciding whether to codify, tribes will still look to traditional customs and practices—its customary law that has been in place for hundreds of years—to determine the substance of the laws.³² Whether or not tribes decide to codify their laws, this customary law will play a large part in developing the tribal law, and these customary laws can vary even within a single tribe.³³ For instance, in cases where tribal courts need to ascertain specific tribal custom, they may seek testimony from tribal elders, research, or even discussions with other tribes who “once lived in conjunction with the tribe.”³⁴

Even once a tribal customary law has been recognized and incorporated into a property system, these laws may still conflict with Western property ideas. Tribes may still elect “not to identify sacred sites, plants used in traditional Indian medicines, or burial practices to protect such property from desecration or theft.”³⁵ One scholar of American Indian law asserts that “[when] tribes themselves define the parameters of cultural property laws, they are in the best position to determine whether and/or how to reveal culturally sensitive information. In this way, tribes may balance the drawbacks of written law by keeping secret certain specific elements of their cultural heritage.”³⁶ Tribal property systems may then be in direct conflict with Western IP systems that require disclosure and notice of property rights.³⁷

A prime example of these conflicting Western and indigenous property systems can be seen in patent law.³⁸ In the United States, the Patent

³¹ Angela R. Riley, “*Straight Stealing*”: *Towards an Indigenous System of Cultural Property Protection*, 80 WASH. L. REV. 69, 97 (2005).

³² *Id.* at 98.

³³ *Id.* at 99.

³⁴ *Id.*

³⁵ *Id.* at 100.

³⁶ *Id.*

³⁷ See 35 U.S.C. § 112 (2012) (requiring patent specifications); 17 U.S.C. § 411 (2012) (requiring copyrighted material to be registered before a rights holder may bring civil infringement actions).

³⁸ *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 9 (1966) (“If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it.”) (quoting Thomas Jefferson).

Act requires that an invention or process be: (1) novel,³⁹ (2) useful,⁴⁰ and (3) nonobvious.⁴¹ Three main issues arise in attempting to patent traditional knowledge: (1) patentable subject matter, (2) novelty, and (3) inventorship.

First, in interpreting 35 U.S.C. § 101, the U.S. Supreme Court has given patentable subject matter a broad definition⁴² but has been clear that it does not include laws of nature, natural phenomena, or abstract ideas.⁴³ Thus, under this Western system, “knowledge itself is not patentable, but useful products and processes are.”⁴⁴ Unless the product the inventor seeks to patent is substantially different from the product as it is found in nature and is developed from human invention, the patent will not be granted because of the product of nature prohibition.⁴⁵ Second, issues of novelty arise because the invention cannot already be known by others, have been printed in a publication, or been sold within one year of the patent application date.⁴⁶ Traditional knowledge, however, can date back centuries and may be known to innumerable tribe members. Third, traditional knowledge known to entire communities also raises issues involving inventorship because the Patent Act, while allowing joint protections, generally treats “inventiveness as an achievement of individuals.”⁴⁷ In indigenous communities, however, even if an “inventor” is known, the culture may not treat humans as capable of claiming ownership of nature and as such would not claim to be an inventor under Western IP standards.⁴⁸ Even if the tribe knows who the knowledge stemmed from and can identify a person, this person may be an individual deceased for hundreds of years. There is also the possibility that numerous people in the tribe are responsible for its “invention” where an entire community may practice and develop the knowledge. As such, the majority of traditional knowledge involving biological resources, regardless of how valuable,⁴⁹ would not be protectable under U.S. patent laws because of these conflicts.⁵⁰

³⁹ 35 U.S.C. § 102 (2012).

⁴⁰ 35 U.S.C. § 101 (2012).

⁴¹ 35 U.S.C. § 103 (2012).

⁴² The Supreme Court in *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980), declared that it was Congress’s intent to include as patentable subject matter “‘anything under the sun that is made by man.’”

⁴³ Robert A. McFarlane & Robert G. Litts, *Business Methods and Patentable Subject Matter Following In re Bilski: Is “Anything Under the Sun Made by Man” Really Patentable*, 26 SANTA CLARA COMPUTER & HIGH TECH. L.J. 35, 38 (2010).

⁴⁴ Kuruk, *supra* note 22, at 652.

⁴⁵ *Id.* at 653.

⁴⁶ 35 U.S.C. § 102.

⁴⁷ Dutfield, *supra* note 10, at 260.

⁴⁸ *Id.*

⁴⁹ OseiTutu, *supra* note 18, at 167 (“[E]ven if it has some social or economic value, medicinal knowledge about the uses of turmeric or hoodia cannot be protected under the current regime.”).

⁵⁰ Trademark and copyright protections may be available for some traditional cultural expressions; however, traditional cultural expression is outside the scope of

These conflicting property systems raise several practicability questions to protecting traditional knowledge as well. For example, if traditional knowledge is protectable in some way, how long will such protection last? For folklore and traditional cultural expressions, especially rituals, developing countries may desire perpetual protection, and perhaps even retroactive protection.⁵¹ This idea of perpetual protection is directly in conflict with the U.S. concept of *limited monopolies* afforded protection to copyrights—seventy years after the life of the author⁵²—and patents—generally twenty years from application filing.⁵³ Why traditional knowledge itself is more deserving than the IP the United States grants limited protection to is unclear, particularly where the two may have overlapping subject matter. This conflict between the two property systems is likely one reason why WIPO Director General Francis Gurry has said that, even though some advocates may desire it, “perpetual protection is not on the table.”⁵⁴

Another pragmatic issue this protection raises is that this traditional knowledge has been passed down, so the “inventor or inventors” are likely long passed. In this circumstance, who should be compensated? No one? The government? The tribe? The individuals’ living descendants?⁵⁵ None of these solutions is ideal or without its own problems, particularly where tribes and their governments may not agree on issues of sovereignty. This also raises questions about who has the authority to license the knowledge where one inventor is not identifiable. We are thus left with big questions impeding agreement about protection—when valuable knowledge is collectively owned: (1) does this fall within the public domain, (2) can inventors even be determined, and (3) who is deserving of compensation and licensing authority?

this Article. For discussion on protecting these expressions through Western trademark and copyright law, see Kuruk, *supra* note 22, at 649-52, 644.

⁵¹ OseiTutu, *supra* note 18, at 192.

⁵² 17 U.S.C. § 302(a) (2012).

⁵³ 35 U.S.C. § 154(a)(2) (2012).

⁵⁴ Kaitlin Mara, *Perpetual Protection of Traditional Knowledge “Not On Table” at WIPO*, INTELL. PROP. WATCH (Oct. 22, 2009, 4:01 PM), <http://www.ip-watch.org/2009/10/22/perpetual-protection-of-traditional-knowledge-“not-on-table”-at-wipo/>.

⁵⁵ OseiTutu, *supra* note 18, at 197 (stating that while compensating direct descendants for traditional knowledge has been recommended, it would be “a complex and daunting, although not impossible, task”).

b. Does Policy Dictate Another Solution?

On top of questions of pragmatism, public policy questions also arise in considering whether to protect traditional knowledge. On the side of developing nations, considerations of equity seem glaring. Groups in developed countries, some struggling to feed themselves,⁵⁶ can take knowledge known to the indigenous and obtain legal protection through IP laws where they add to the base knowledge in some way.⁵⁷ But the same laws do not necessarily protect those who originally supplied the information and the resources themselves.⁵⁸ Developing countries have accepted the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS),⁵⁹ seeking the benefits afforded members of the WTO, but rather are seeing the prices of their goods go up and the accessibility to those goods go down.⁶⁰ Bioprospectors have also been accused of destroying ecosystems in their quest to obtain medicinal plants.⁶¹ For example, it takes fifteen tons of rosy periwinkle leaves for Eli Lilly & Company to make one ounce of vincristine or vinblastine, thus stripping Madagascar of the viability of its plant life.⁶²

On the side of developed countries, pharmaceutical companies develop these biological resources, invest billions of dollars,⁶³ and ad-

⁵⁶ Press Release, Development & Cooperation, EU Must Act to Combat Biopiracy, Say MEPs, U.N. Press Release (Jan. 15, 2013), available at <http://www.europarl.europa.eu/news/en/news-room/content/20130114IPR05313/html/EU-must-act-to-combat-biopiracy-say-MEPs>. For a discussion on agro-biodiversity and food security in a post-TRIPS regime, see generally Chidi Oguamanam, *Agro-Biodiversity and Food Security: Biotechnology and Traditional Agricultural Practices at the Periphery of International Intellectual Property Complex Regime*, 2007 MICH. ST. L. REV. 215.

⁵⁷ See 35 U.S.C. § 101 (2012).

⁵⁸ OseiTutu, *supra* note 18, at 168.

⁵⁹ Agreement on Trade-Related Aspects of Intellectual Property Rights pmbL., Apr. 15, 1994, 1869 U.N.T.S. 299 [hereinafter TRIPS].

⁶⁰ Laura Grebe, *Requiring Genetic Source Disclosure in the United States*, 44 CREIGHTON L. REV. 367, 375 (2011) (identifying ways that “patent monopolies on the biodiverse resources harm the developing source nations: (1) the patent holder raises the price so high that citizens in the developing country do not have the economic means to access the resource, (2) the patent holder can enforce its patent rights at any time, blocking local production of the resource, and (3) if the resource is an agricultural variety, the patent holder can halt breeding of the particular variety” (citing Richard Stallman, *Biopiracy or Bioprivateering?*, available at www.stallman.org/articles/biopiracy.html (last visited Apr. 13, 2014))).

⁶¹ *Id.* at 370-72.

⁶² *Id.* at 370.

⁶³ Matthew Herper, *The Cost of Creating a New Drug Now \$5 Billion, Pushing Big Pharma to Change*, FORBES (Aug. 11, 2013, 11:10 AM), <http://www.forbes.com/sites/matthewherper/2013/08/11/how-the-staggering-cost-of-inventing-new-drugs-is-shaping-the-future-of-medicine/>.

vance and change the biological resources to create new medicines and drugs to cure diseases. For example, Eli Lilly's two derivations of the rosy periwinkle plant, vinblastine and vincristine mentioned above, function as cancer-fighting alkaloids and treat Hodgkin's lymphoma and childhood leukemia respectively.⁶⁴ Without biological resources from countries like Madagascar, such medicines could not likely be developed. Furthermore, the patented medicine does not foreclose Madagascan use, or any other use, of rosy periwinkle in its natural form, which would be barred from patent protection under the product of nature doctrine.⁶⁵ There is also a concern that bioprospecting will virtually stop if pharmaceutical companies cannot obtain a return on their investment. In this case, life-saving drugs will not be developed and biological resources may become extinct before they can be harvested.⁶⁶ It is also possible that indigenous people will learn from past inequities and fraud and keep information secret in the future. This could further lead to the possibility that these new drugs are not discovered, preventing companies like Eli Lilly from treating childhood cancer, albeit while making \$100 million annually doing so.⁶⁷

These competing policies, equity versus development, serve as just another impediment to solving the problem traditional knowledge raises. Despite the multitude of unanswered questions, countries are still seeking a solution that meets the needs of developing and developed countries.

IV. INTERNATIONAL TREATIES ARE, THUS FAR, INEFFECTIVE

While the seemingly most effective way to protect traditional knowledge would be through international treaties, the discussion above demonstrates the obstacles standing between developing and developed countries' agreement on the issue. While developed countries looking to strengthen their IP laws may never seek to adjust them to protect traditional knowledge, the pilfering of this knowledge without the consent of indigenous groups cannot, and is not, going unnoticed.⁶⁸ International treaties do not currently provide adequate safeguards, but this does not mean that groups like WIPO have stopped trying to find an international solution that developed countries are willing to accept and that offers protections current treaties lack.⁶⁹

⁶⁴ Chen, *supra* note 27, at 2.

⁶⁵ See 35 U.S.C. § 101 (2012).

⁶⁶ Chen, *supra* note 27, at 26, 30-31.

⁶⁷ Grebe, *supra* note 60, at 370-71.

⁶⁸ Nagan et al., *supra* note 2, at 23-27 (describing ways in which bioprospectors secretly obtain information from indigenous groups).

⁶⁹ Catherine Saez, *Protecting Traditional Knowledge: WIPO Members Back*

a. TRIPS

The World Trade Organization requires that countries seeking to become member states also accept the terms of TRIPS, which is intended to “reduce distortions and impediments to international trade and tak[e] into account the need to promote effective and adequate protection of IP rights.”⁷⁰ TRIPS requires countries to provide protections under a Western IP system by setting minimum protection standards, imposing the burdens of creating IP systems on developing countries.⁷¹ For example, under TRIPS, countries must provide protection in some way for copyrights, related rights, trademarks, geographical indications, industrial designs, patents, layout-designs of integrated circuits, trade secrets, and anti-competitive practices.⁷²

The United States and developed countries pushed to require these minimum standards to protect their established interests and continue to be unwilling to accept suggestions that TRIPS implement traditional knowledge protections.⁷³ While the question of why developing countries must conform their systems to protect Western knowledge and yet not receive protection for their own knowledge has been raised, Western states with more political power have answered this question by pointing to their protectable subject matter requirements.⁷⁴ As such, indigenous communities are not obtaining any more protection for their knowledge under TRIPS than they would under traditional Western IP systems, which provide an ill fit.⁷⁵

*b. Convention on Biological Diversity & International Treaty
on Plant Genetic Resources for Food and Agriculture*

The Convention on Biological Diversity (CBD) would provide some of the best protections for traditional knowledge, with one caveat—the United States is unwilling to ratify it.⁷⁶ One hundred fifty-seven

To The Drafting Table, INTELL. PROP. WATCH (Apr. 22, 2013, 9:08 PM), <http://www.ip-watch.org/2013/04/22/protecting-traditional-knowledge-wipo-members-back-to-the-drafting-table/> (describing the IGC’s draft articles on the protection of traditional knowledge addressing “the subject matter of protection, beneficiaries, scope of protection, and limitations and exceptions”).

⁷⁰ TRIPS, *supra* note 59, pmbl.

⁷¹ Dutfield, *supra* note 10, at 271.

⁷² *See Uruguay Round Agreement: TRIPS Preamble*, WORLD TRADE ORG., http://www.wto.org/english/docs_e/legal_e/27-trips_02_e.htm (last visited Dec. 3, 2013).

⁷³ Kuruk, *supra* note 22, at 679-80.

⁷⁴ *Id.* at 679-82.

⁷⁵ *See supra* Part II.

⁷⁶ *List of Parties*, CONVENTION ON BIOLOGICAL DIVERSITY, <http://www.cbd.int/information/parties.shtml> (last visited Dec. 3, 2013).

countries have ratified the CBD, which provides protection for traditional knowledge through patent protection, sovereignty and access rights, and preservation of indigenous rights.⁷⁷ Article 8(j) requires a member state to

*[s]ubject to its 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.*⁷⁸

The fact that the United States has not ratified the CBD, and further that even if it did ratify the CBD the United States would only be required to provide the protections afforded by national legislation, demonstrates the level of protection truly available under the CBD: none.

The CBD further offers protections through sovereignty and access. Article 15 recognizes “the sovereign rights of States over their natural resources, [and] the authority to determine access to genetic resources rests with the national governments and is subject to national legislation.”⁷⁹ These sovereignty provisions would allow member states to enact legislation to limit access to their biological resources or control access through a tax. However, such legislation would need to be drafted or already enacted to be effective, perpetuating the same problems as simply using Western IP systems: these systems are not in place and may likely be contrary to indigenous ideals.⁸⁰

Article 15 further provides that member states must take legislative measures with the “aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources.”⁸¹ This provision purports to compensate indigenous communities for their traditional knowledge contributions, but in reality lacks the specificity and force, like Article 8, needed to be effective.⁸²

⁷⁷ *Id.*

⁷⁸ Convention on Biological Diversity art. 8(j), June 5, 1992, 1760 UNTS 79, available at <http://www.cbd.int/history/default.shtml>.

⁷⁹ *Id.* at art. 15.

⁸⁰ See *supra* notes 31-37 and accompanying text (discussing indigenous customary property law development).

⁸¹ Convention on Biological Diversity, *supra* note 78, at art. 15.

⁸² Ragavan, *supra* note 16, at 32 (criticizing the CBD’s benefits-sharing provision as nonspecific or conferring certain benefits).

Under the CBD, therefore, member countries may benefit if they: (1) have national legislation in place to restrict access to their biological resources; (2) are working with other member states; and (3) work with member states that recognize indigenous rights in their national legislation—none of which provide protection against U.S. misappropriation of resources.

The International Treaty on Plant Genetic Resources for Food and Agriculture (FAO Treaty) provides similar protections by granting local farmers rights to make decisions, protect traditional knowledge of plant genetic resources, and equitably participate in conversations regarding their traditional knowledge.⁸³ The FAO Treaty falls subject to the same perils of the CBD, however, because it also provides protection subject to national legislation, and the United States has not ratified the treaty.⁸⁴

WIPO also established the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) to undertake negotiations and create an international legal instrument to protect traditional knowledge.⁸⁵ The United States, however, only agreed to support the committee to the extent that it is “not on a ‘norm setting track’; that is to say, that its work is not intended to feed into a process which would end with the creation of a treaty or recommendations.”⁸⁶ Therefore, the IGC has also been ineffective in providing protections for traditional knowledge.

c. Sui Generis Treatment

Due to the inability of international treaties to meet the needs of developing countries in regards to traditional knowledge, some scholars have called for a sui generis approach to providing protection.⁸⁷ Sui generis protection would create a new intangible property right that would exclude anyone besides the rights holder from using the knowledge

⁸³ International Treaty on Plant Genetic Resources for Food and Agriculture art. 9, Nov. 3, 2001, S. TREATY DOC. NO. 110-19, available at <http://www.fao.org/Legal/treaties/033t-e.htm> [hereinafter FAO Treaty].

⁸⁴ Kuruk, *supra* note 22, at 665, 666 n.230.

⁸⁵ *Intergovernmental Committee*, WIPO, <http://www.wipo.int/tk/en/igc/> (last visited Dec. 3, 2013).

⁸⁶ Kuruk, *supra* note 22, at 676.

⁸⁷ Paul Kuruk, *The Role of Customary Law Under Sui Generis Frameworks of Intellectual Property Rights in Traditional and Indigenous Knowledge*, 17 IND. INT'L & COMP. L. REV. 67, 71-80 (2007) (discussing regional and national frameworks for establishing sui generis rights in traditional knowledge). See generally Eliana Torelly de Carvalho, *Protection of Traditional Biodiversity-Related Knowledge: Analysis of Proposals for the Adoption of a Sui Generis System*, 11 MO. ENVTL. L. & POL'Y REV. 38 (2003).

without consent, and this protection would be available without having to meet other IP requirements.⁸⁸ This would provide protection to knowledge that falls outside the mold of Western IP protection.⁸⁹

While creating a completely new “property” right may seem to be a tenable solution, so far attempts to protect traditional knowledge through a sui generis regime have been unsuccessful.⁹⁰ For example, the CBD and Article 8(j)⁹¹ purport to offer a sui generis approach to protecting traditional knowledge, but as shown above, this “protection” looks better on paper than in practice.⁹² Individual countries and regions have also attempted to create sui generis systems under domestic law to protect against biopiracy. The Pacific Region developed the Model Law for the Protection of Traditional Knowledge and Expressions of Culture (Pacific Model Law).⁹³ This model law would provide traditional knowledge holders with rights as “holders of traditional cultural rights” that would be inalienable, exist perpetually, and be valid whether or not they appear in a material form.⁹⁴ The Pacific Model Law would make it a criminal offense to use this knowledge without consent and would also allow the rights holder to bring civil suit against the alleged misappropriator.⁹⁵

Attempts to create national sui generis protection have been based largely on customary law.⁹⁶ This means that countries may not have jurisdiction to apply customary law to non-natives—the source of the biopiracy problem.⁹⁷ There may also be problems enforcing these laws across borders because the enforcing nation may be denied personal jurisdiction if the non-native is no longer in the country.⁹⁸ Therefore, even though this national legislation is a step toward better protection, jurisdictional problems haunt this solution to the point that it may not provide any protection at all because those whom the country has jurisdiction over are those least likely to break the law.

⁸⁸ OseiTutu, *supra* note 18, at 155.

⁸⁹ Kuruk, *supra* note 87, at 72.

⁹⁰ See generally OseiTutu, *supra* note 18 (asserting that a sui generis protection will suffer the same pitfalls as attempting to protect traditional knowledge under Western IP protections).

⁹¹ Convention on Biological Diversity, *supra* note 78, at art. 8(j).

⁹² See *supra* notes 76-82 and accompanying text.

⁹³ Model Law for the Protection of Traditional Knowledge and Expressions of Culture, *reprinted in* Secretariat of the Pacific Community, Pacific Regional Framework for the Protection of Traditional Knowledge and Expressions of Culture 3-15 (2002).

⁹⁴ Kuruk, *supra* note 87, at 76.

⁹⁵ *Id.* at 77.

⁹⁶ BLACK’S LAW DICTIONARY 443 (9th ed. 2009) (“[l]aw consisting of customs that are accepted as legal requirements of obligatory rules of conduct; practices and beliefs that are so vital and intrinsic a part of a social and economic system that they are treated as if they were laws”).

⁹⁷ Kuruk, *supra* note 87, at 105-06.

⁹⁸ *Id.* at 106-07.

Scholars question the benefit of a sui generis system and the expansion of intangible property rights because such models are generally still based on IP models and present similar gaps in protection.⁹⁹ A sui generis system that does not address the inequalities in the current system or better define the scope of the rights provides very little in terms of actually advancing protections and may even “hinder access to affordable knowledge goods, including for indigenous and local communities.”¹⁰⁰ Therefore, while the idea of a sui generis system to protect traditional knowledge seems better in theory, indigenous communities have not seen these benefits in practical application.

V. CURRENT POSSIBLE PROTECTIONS IN PLACE AND THEIR PITFALLS

One single international solution to all developing nations’ individual problems through an international treaty or sui generis regime has been so far unsuccessful. As such, it is time for tribes and nations to look first to their own needs and how they would like to protect their own traditional knowledge through legal means already available. In looking toward solutions that developing nations and developed nations can both agree on, and tailor to their own individual needs, these legal protections offer a better prospect for fighting against the unconsented exploitation of traditional knowledge and biological resources.

a. Trade Secrets

One of the most feasible means currently available to protect traditional knowledge is through the use of trade secrets. Under the Restatement (Third) of Unfair Competition, “[a] trade secret is any information that can be used in the operation of a business or other enterprise and that is sufficiently valuable and secret to afford an actual or potential economic advantage over others.”¹⁰¹ Under this construction, indigenous communities could seek just compensation for their trade secrets, i.e. traditional knowledge, without having to commodify this knowledge in the same way that patenting would necessitate by requiring an inventor and prior art disclosure.¹⁰² Trade secret law would allow indigenous communities to keep their knowledge secret and impose a duty on those using it with consent to similarly keep it confidential.¹⁰³

⁹⁹ Ragavan, *supra* note 16, at 25-36; OseiTutu, *supra* note 18, at 155-56.

¹⁰⁰ OseiTutu, *supra* note 18, at 154.

¹⁰¹ RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 (1995).

¹⁰² See *supra* note 38-43 and accompanying text (describing patent claim requirements).

¹⁰³ Chen, *supra* note 27, at 21-22.

Western countries also recognize trade secret protection, alleviating the issues that unratified treaties present: domestic and international enforcement.¹⁰⁴

Using and preserving knowledge in this way is not new or uncommon.¹⁰⁵ For example, people in Melanesia trade their knowledge for goods like pigs or for money.¹⁰⁶ A project in Ecuador, Transforming Traditional Knowledge into Trade Secrets, has also met success, showing that trade secret law does provide protection where licensing agreements can be perfected.¹⁰⁷ Additionally,

[a]n NGO called Ecociencia is documenting the botanical knowledge of the participating indigenous groups, and registering it in closed-access databases. Checks are made to see whether each entry is not already in the public domain and whether other communities have the same knowledge. If an entry is not in the public domain, the community or communities with the knowledge have a trade secret.¹⁰⁸

Once a trade secret is established, the community can then license this knowledge and negotiate benefits for its community. As of 2001, six indigenous groups had provided 8,000 entries to the database, 60% of which had not been disclosed through publication.¹⁰⁹ Three companies had expressed interest in licensing this knowledge, demonstrating its potential.¹¹⁰ While this novel program sets the stage for indigenous trade secret protection, it may not be the ideal system for assisting the tribes in recognizing trade secret value if it precludes more than one tribe from obtaining a trade secret for the same information. For example, under Western trade secret systems, even if knowledge is shared by more than one community, the indigenous group may still have a trade secret so long as it provides a benefit over competitors.¹¹¹ Thus, to provide the

¹⁰⁴ Nagan et al., *supra* note 1, at 42 (describing 28 U.S.C. § 1350 and its potential ability to provide holders of traditional knowledge an international tort claim with jurisdiction in the United States).

¹⁰⁵ See generally A. Arthur Schiller, *Trade Secrets and the Roman Law: The Actio Servi Corrupti*, 30 COLUM. L. REV. 837 (1930).

¹⁰⁶ Dutfield, *supra* note 10, at 246-47 (quoting LAMONT LINDSTROM, KNOWLEDGE AND POWER IN A SOUTH PACIFIC SOCIETY 119 (1990)).

¹⁰⁷ *Id.* at 259.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ See RESTATEMENT (THIRD) OF UNFAIR COMPETITION, *supra* note 101, § 39 (requiring trade secret information to be “sufficiently valuable and secret to afford an . . . advantage over others”).

breadth of protection developing countries seek, the tribes should be made aware that they may possess a trade secret even if another tribe does as well.

Another successful trade secret agreement concerned a small Peruvian tribe and a California corporation, Shaman Pharmaceutical, Inc. The company sought the tribe's traditional knowledge of plant medicines, and the tribe agreed to provide the information, but only in return for short- and long-term benefits to the tribe.¹¹² In the short term, the tribe obtained benefits of immediate need, like medical care and forest conservation; in the long term, they were also to receive a portion of the profits.¹¹³ One benefit this agreement did not provide to the tribe, however, was any right to the patent.¹¹⁴ Therefore, while trade secrets offer some protection to indigenous communities for their traditional knowledge, bargaining power and an ability to recognize the importance and value of such knowledge are essential to any real indigenous benefit.¹¹⁵

Applying trade secret law to traditional knowledge, however, still has other drawbacks: traditional knowledge is known to an entire community (or region), and there is no protection against accidental disclosure, reverse engineering, or independent invention, to list a few.¹¹⁶ The fact that the knowledge is known to a community may not in and of itself be damning. Even if an entire community holds the knowledge, the community's knowledge would still be considered a trade secret so long as it offered some potential competitive advantage and was kept secret.¹¹⁷

If traditional knowledge cannot be kept a secret or properly licensed to maintain its confidentiality, trade secret law will offer little protection. In Ecuador, bioprospectors secretly obtained information from the Shuar natives despite their unwillingness to provide information or sign a contract.¹¹⁸ The National Cancer Institute Register subsequently published the information, making it public knowledge and unprotectable under trade secret law.¹¹⁹ Thus, keeping knowledge secret may not be as easy as it seems, particularly where legally educated Westerners may attempt to bargain with indigenous peoples with little benefit to the indigenous communities in mind.¹²⁰ One egregious example of this was an attempt by a group representing a U.S. botanical garden that approached Shuar citizens with a contract that would have

¹¹² Ragavan, *supra* note 16, at 21-22.

¹¹³ *Id.* at 22.

¹¹⁴ *Id.*

¹¹⁵ *See id.* at 21.

¹¹⁶ Chen, *supra* note 27, at 22.

¹¹⁷ *See* RESTATEMENT (THIRD) OF UNFAIR COMPETITION, *supra* note 101, § 39.

¹¹⁸ Nagan et al., *supra* note 1, at 47.

¹¹⁹ *Id.*

¹²⁰ *See id.* at 48.

“exchanged everything of economic value to them for two scholarships to an American institution.”¹²¹ To fight against these types of misappropriations, Ecuador has joined the Andean Community (CAN) with four other Andean nations to, among other things, address common law IP.¹²² CAN, under Decision 486, addresses industrial secrets by protecting Shuar shaman healing knowledge, like that sought by the Americans.¹²³ As such, there may be internal procedures for tribes to seek remuneration for stolen knowledge, but these avenues are restricted by jurisdictional complications similar to the *sui generis* legislative attempts of other nations.¹²⁴

Trade secret law would also not protect against the reverse engineering of any products the indigenous people make and use.¹²⁵ Therefore, scientists and bioprospectors would have the open opportunity to reverse engineer any products sold that are based on traditional knowledge and attempt to find out the biological resources used, making the trade secret knowledge and any licenses moot if the biological resources are easily determinable.

b. Develop and Publish Prior Art as a Defensive Strategy

Developing nations may decide that rather than positive protection, defensive measures may best fit their needs. Defensive measures could allow developing nations to stop others from patenting their knowledge (without added benefit) in the first instance, rather than through litigation to challenge a patent already granted. Tribes could accomplish this by publishing traditional knowledge and thereby intentionally making the knowledge public and not “novel” as required for a patent application.¹²⁶ While this may seem counterintuitive, depending on the knowledge, tribes may not be seeking possible protections themselves, rather just seeking to stop U.S. companies from profiting from knowledge they have had for centuries.

Turmeric is a prime example of this situation. Natives of India have long used turmeric, a native Indian plant, as a cooking spice and as a traditional medicine to heal wounds.¹²⁷ Two Indian expatriates based in the United States obtained an American method patent for use

¹²¹ *Id.*

¹²² *Id.* at 44.

¹²³ *Id.* at 45-47.

¹²⁴ *See supra* notes 96-99 and accompanying text for a discussion of the jurisdictional complications associated with customary law.

¹²⁵ Chen, *supra* note 27, at 22.

¹²⁶ 35 U.S.C. § 102 (2012).

¹²⁷ OseiTutu, *supra* note 18, at 165.

in healing wounds.¹²⁸ The Council of Scientific Industrial Research in India challenged the turmeric patent claiming the use was not novel because turmeric had been used in this way in India for thousands of years.¹²⁹ In fact, the Council proved that an Indian medical association had previously published the beneficial uses of turmeric.¹³⁰ The patent was therefore not claiming a novel use, and the patent was revoked.¹³¹ Here the Indian natives did not seek compensation for the knowledge that they had been using for thousands of years, instead they simply sought to stop others from profiting from the same knowledge.

Publishing knowledge to establish it as prior art, however, also has its drawbacks. First, the community may wish to keep its knowledge a secret and actually profit from it, depending on how widely known the knowledge is. Also, publishing this knowledge would not stop pharmaceutical companies from inventing beyond the prior art or developing new medicine from the plants. The costs of publishing, both economically and culturally, may make this solution less attractive than trade secret protection. This defense strategy may be helpful though in keeping costs of medicines and other goods down by preventing American patents where the knowledge has been available and published. This may also cause pharmaceutical companies to lose interest in researching and developing drugs based on these biological resources, thus limiting the tribes' abilities to license their traditional knowledge and profit from it in the future.

This defense strategy also will not pragmatically help developing countries in actually revoking patents that have been granted. It is unquestionable that judicial proceedings required to invalidate a patent issued in spite of traditional knowledge prior art would be very costly and burdensome.¹³² These communities then, even if they desired to, may not have the monetary or language resources to challenge these patents, regardless of the fact these undeserving patents may deny access to goods the communities should be entitled to without paying licensing fees.¹³³

¹²⁸ *Id.* (citing U.S. Patent No. 5,401,504 (filed Dec. 28, 1993)).

¹²⁹ *Id.* at 165-66.

¹³⁰ *Id.* at 166.

¹³¹ *Id.*

¹³² Jacques de Werra, *Fighting Against Biopiracy: Does the Obligation to Disclose in Patent Applications Truly Help?*, 42 *VAND. J. TRANSNAT'L L.* 143, 157 (2009).

¹³³ Grebe, *supra* note 60, at 375-76.

c. Bilateral Agreements

Another solution developing countries may find in their best interest is to contract directly with developed countries like the United States, at least until an international treaty protecting their interests is a viable option. The United States has entered into several “TRIPS Plus” bilateral agreements with countries who are willing to implement IP protections beyond the minimum standards required in TRIPS.¹³⁴ The United States has entered such agreements with countries like Cambodia, Ecuador, Singapore, and Vietnam.¹³⁵

Developing countries seeking protections not offered by TRIPS, or other agreements the United States is willing to ratify and enforce, can consider similar bilateral agreements to protect their knowledge. Under such a bilateral agreement, developing countries could require that scientists obtain traditional knowledge with the informed consent of the indigenous people to ensure protection of this knowledge where it is not freely or knowingly given.¹³⁶ The United States is not likely willing to accept terms similar to those that TRIPS already offers, so developing countries will need to determine what other concessions they are willing to offer to obtain reciprocal protection for their traditional knowledge.¹³⁷ These countries must also take care when deciding whether bilateral agreements best fit their needs because the United States and European Union have also been accused of unduly pressuring nations with inadequate IP protections by threatening trade restrictions.¹³⁸

For countries that are willing to concede certain terms outside of TRIPS, however, the United States has restricted the importation of “cultural property illegally exported from countries that are parties to the agreements.”¹³⁹ Bolivia, Ecuador, El Salvador, Guatemala, Mexico, and Peru have already entered agreements such as these with the United States to protect their cultural resources.¹⁴⁰ These agreements demonstrate that the United States is not entirely unwilling to protect traditional knowledge so long as it gets to decide and negotiate the terms of such protection. These agreements are also more likely to be enforced than other agreements’ terms that are “subject to national legislation”¹⁴¹ because the United States has directly contracted to provide these protections.

¹³⁴ Kuruk, *supra* note 22, at 693.

¹³⁵ *Id.* For a discussion of these TRIPS plus bilateral agreements and arguments for adopting the treaty of adhesion doctrine in implementing changes in international intellectual property, see generally Donald P. Harris, 2007 Mich. St. L. Rev. 185.

¹³⁶ See Kuruk, *supra* note 22, at 707.

¹³⁷ *Id.* at 693-94.

¹³⁸ Dutfield, *supra* note 10, at 275.

¹³⁹ Kuruk, *supra* note 22, at 694.

¹⁴⁰ *Id.*

¹⁴¹ See *supra* notes 78-79, 84 and accompanying text.

While bilateral agreements may be one of the most practicable ways to obtain protection for traditional knowledge to date, not all developing countries may be willing to concede more terms than they are already subject to through TRIPS, which has thus far failed to provide most of them with significant benefits.¹⁴² Further, these bilateral agreements would not apply to any non-parties so would have no effect on bioprospectors, or biopirates, who are not exporting the goods back to the United States or another developed country with whom an agreement had been reached.¹⁴³ Developing countries also may not have the resources to negotiate several individual bilateral agreements with different nations to obtain this protection, thus limiting its effectiveness.

VI. CONCLUSION

The misappropriation of traditional knowledge is a serious and ever-looming problem that currently seems to be without a solution. Impediments to forming a solution come from an inability to define traditional knowledge, determine the terms of protection, and resolve differences between Western and indigenous property systems. Several attempts at international agreements and treaties have been made, but none currently provide adequate protection for traditional knowledge to prevent the patenting of indigenous knowledge or the exploitation of biological resources without consent. Another impediment to resolving the issue is the idea that one international treaty, declaration, or *sui generis* approach can fit the cultural and economic needs of all indigenous communities. The question is not which single solution is best; the question is which solution is best for the Shuar natives, or the Indian natives, or the Ecuadorian natives. The inability to define the “indigenous” or “traditional,” if nothing else, teaches that proposing any individual solution to meet all needs is naïve. Developing countries should consider their own individual needs and then use the means available—trade secrets, defensive publication to establish prior art, and bilateral agreements—to obtain the specific benefits they are seeking.

¹⁴² See OseiTutu, *supra* note 18, at 160.

¹⁴³ Kuruk, *supra* note 22, at 712-13.