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A Trade Secret Approach to Protecting Traditional Knowledge

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Article

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I. INTRODUCTION

Many indigenous and local communities[1] object to the way their communally developed agricultural strains, folklore, and traditional medicines—their "traditional knowledge"—serve as free building blocks for the patents and copyrights of outsiders, often without any recognition, compensation, or control over the way this information is used. Traditional knowledge provides certain multibillion dollar industries, including pharmaceuticals, cosmetics, and agriculture, with useful leads for product discovery and development.[2] Intellectual property law readily recognizes these industries' "innovations." But it often turns a blind eye to the incremental and seemingly unscientific contributions of traditional knowledge holders, who are some of the world's poorest people.

Consider the following hypothetical: for generations, members of an indigenous group in Madagascar have consumed the leaf of a local plant for various medicinal purposes, including the relief of indigestion. A Western researcher working on behalf of a pharmaceutical company visits the area to gather information about the uses of local plants. He stays for several months, trying to establish a relationship with members of the group, particularly those identified as healers or medicine men. Initially, they are wary of sharing their knowledge, but the researcher persuades them of his trustworthiness. He is

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1. The phrase "indigenous and local communities" is widely used in the existing scholarly literature on traditional knowledge (TK), as well as in national and international laws concerning TK. Neither the term "indigenous" nor "local community" has a precise, internationally agreed-upon definition. *See, e.g.*, Rosemary J. Coombe, *The Recognition of Indigenous Peoples and Community Traditional Knowledge in International Law*, 14 ST. THOMAS L. REV. 275, 277 (2001) (discussing the ambiguity of these terms); Benedict Kingsbury, *"Indigenous People" in International Law: A Constructivist Approach to the Asian Controversy*, 92 AM. J. INT'L L. 414, 415 (1998) (discussing the lack of an agreed meaning for "indigenous people"). For the purposes of this Article, I use the phrase "indigenous and local communities" in a manner similar to scholars' use of the term "long-term occupant communities," to

> include those groups that have been variously described as First Nations or Native Americans, as well as aboriginal, indigenous, and tribal populations, peoples, or communities . . . [and] socio-cultural groups that may not fall easily under existing definitions of "indigenous" or "tribal" peoples, but which nonetheless have lived for long periods of time in particular areas and often depend upon the natural resources of those locales for their livelihood and sustenance.

Gregory Maggio, *Recognizing the Vital Role of Local Communities in International Legal Instruments for Conserving Biodiversity*, 16 UCLA J. ENVTL. L. & POL'Y 179, 181-82 (1998); *see also* Paul J. Heald, *The Rhetoric of Biopiracy*, 11 CARDOZO J. INT'L & COMP. L. 519, 519 n.3 (2003).

2. Exact figures are unknown, but by some estimates, the annual global markets for products in the healthcare, agriculture, horticulture, and biotechnology sectors derived from these resources lie between $500 and $800 billion. *See* Kerry ten Kate & Sarah A. Laird, *Bioprospecting Agreements and Benefit Sharing with Local Communities*, *in* POOR PEOPLE'S KNOWLEDGE: PROMOTING INTELLECTUAL PROPERTY IN DEVELOPING COUNTRIES 133, 134 (J. Michael Finger & Philip Schuler eds., 2004). But some commentators note the increasing shift toward other inputs. *See, e.g.*, Graham Dutfield, *Legal and Economic Aspects of Traditional Knowledge*, *in* INTERNATIONAL PUBLIC GOODS AND TRANSFER OF TECHNOLOGY UNDER A GLOBALIZED INTELLECTUAL PROPERTY REGIME 495, 505 (Keith E. Maskus & Jerome H. Reichman eds., 2005) [hereinafter INTERNATIONAL PUBLIC GOODS] ("[A]dvances in biotechnology and new drug discovery approaches based, for example, on combinatorial chemistry, genomics, and proteomics will in the long term *reduce* industrial interest in natural products and their associated TK.").

allowed to observe the preparation of traditional medicines utilizing the leaf of this plant. The researcher returns home to the company, taking samples and the information he has learned. Company scientists subsequently isolate the active chemical responsible for the plant's therapeutic effects, obtain U.S. and European patents, and mass-produce a profitable drug that has fewer side-effects than the plant consumed in raw form. The group receives no notice, attribution, or compensation.

In response to the seeming inequity of this scenario and others, indigenous and local communities, their advocates, and developing country governments have, for over a decade, pressed for traditional knowledge protection in the form of internationally recognized intellectual property rights. But while the issue of traditional knowledge protection has elicited public sympathy, meaningful international agreement has been difficult to achieve for a number of reasons.

First, the term "traditional knowledge" lacks a clear definition and encompasses a diverse body of information. Broadly, it refers to the "agricultural, environmental, medicinal knowledge" of indigenous and local communities, developed communally over generations.[3] Examples include knowledge of herbal remedies, plant-breeding techniques, and the suitability of animal pelts for human clothing. Some commentators also use the term traditional knowledge to include "traditional cultural expressions" (TCEs), such as folklore, songs, and dances.[4] In this Article, I use the term "traditional knowledge" to refer primarily to agricultural, environmental, and medicinal knowledge.

Second, indigenous and local communities differ in their relationships with dominant cultures and their degrees of interest in commercializing or profiting from traditional knowledge. Some regard Western conceptions of property and the commodification of traditional knowledge with suspicion (echoed in much of the scholarly literature), while others are eager to embrace new forms of economic opportunity and recognition.

Third, the communal and intergenerational characteristics of traditional knowledge pose theoretical and practical challenges for modern intellectual property regimes. At a theoretical level, creating new sui generis rights or

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3. In recent publications, the World Intellectual Property Organization's Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (WIPO IGC) has used this fairly broad working definition:

> [T]he know-how, skills, innovations, practices and learning that form part of traditional knowledge systems, and knowledge embodying traditional lifestyles of indigenous and local communities, or contained in codified knowledge systems passed between generations. It is not limited to any specific technical field, and may include agricultural, environmental and medicinal knowledge, and any traditional knowledge associated with genetic resources.

World Intellectual Property Organization [WIPO] Intergovernmental Comm. on Intellectual Prop. & Genetic Res., Traditional Knowledge & Folklore, *The Protection of Traditional Knowledge: Revised Objectives and Principles*, at 27, 16th Sess., WIPO Doc. WIPO/GRTKF/IC/16/5 (Jan. 22, 2010) [hereinafter WIPO, *Traditional Knowledge Objectives*].

4. The WIPO IGC distinguishes between TK and traditional cultural expressions (TCEs). *See Traditional Cultural Expressions (Folklore)*, WIPO, http://www.wipo.int/tk/en/folklore (last visited Mar. 21, 2011).

adapting existing laws to accommodate this subject matter does not mesh easily with the prevailing justification for intellectual property rights: to provide inventors and authors with ex ante incentives to create. Traditional knowledge has, after all, been created for centuries without the carrot of an intellectual property right. And given the unprecedented expansion of intellectual property rights over the last three decades, even progressive intellectual property scholars are skeptical of any further erosion of the public domain.[5] At a practical level, the challenges for those seeking traditional knowledge rights are also daunting. For example, how does one identify the proper owners of rights in traditional knowledge when the original creators are long deceased or when multiple neighboring communities have similar healing practices or agricultural knowledge?

Despite these challenges, traditional knowledge advocates have articulated compelling reasons for increased protection. By and large, advocates have worked outside of the economic incentives discourse that dominates contemporary intellectual property theory. Viewing the conventional intellectual property discourse as too narrow or too hostile to their concerns, they have relied instead on the language of human rights, indigenous rights, and biodiversity preservation. They have argued that enabling traditional knowledge holders to control the uses and collect on the value of their contributions may be critical to their economic and cultural survival, and it encourages their maintenance of biodiversity that benefits the entire world.[6]

These preservation and human rights objectives are enshrined in a number of international environmental and human rights instruments.[7] But these treaties are largely advisory in practice and lack the enforcement muscle of international intellectual property agreements, notably the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS),[8] which is linked to the World Trade Organization's dispute resolution system.[9] Consequently, traditional knowledge advocates seek recognition and rights within the TRIPS framework—even as they resist framing their arguments in the language of IP.

This resistance has consequences, as it encourages scholars, commentators, and developed country governments to dismiss traditional knowledge protection as a well-meaning fringe issue better addressed outside

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5. *See infra* notes 110-115 and accompanying text.

6. *See, e.g.*, Kristen A. Carpenter, Sonia K. Katyal & Angela R. Riley, *In Defense of Property*, 118 YALE L.J. 1022, 1103 (2009) (describing the dependence of indigenous survival on groups' intangible property, which "may be the greatest commodifiable good they possess in a global economy"); Rosemary J. Coombe, *Protecting Traditional Environmental Knowledge and New Social Movements in the Americas: Intellectual Property, Human Right, or Claims to an Alternative Form of Sustainable Development?*, 17 FLA. J. INT'L L. 115, 115 (2005).

7. *See infra* notes 68-72 and accompanying text.

8. Agreement on Trade-Related Aspects of Intellectual Property Rights art. 41, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, 1869 U.N.T.S. 299, 33 I.L.M. 1195 (1994) [hereinafter TRIPS]. TRIPS requires all World Trade Organization (WTO) members to strengthen protection for intellectual property and to provide the same treatment ("national treatment") for foreign owners. *Id.* art. 3.

9. *See infra* note 39 and accompanying text.

the international IP framework. Deep differences between the purposes of traditional knowledge protection and the existing IP framework also raise concerns about the suitability of IP rights for traditional knowledge. Can such a regime be workable and enforceable at the international level and still respond to the concerns of traditional knowledge holders? To date, much of the scholarly literature suggests that traditional knowledge protection is largely incompatible with existing intellectual property doctrines and underlying justifications.

In this Article, I argue that the doctrinal and normative divide between traditional knowledge protection and intellectual property law has been overemphasized, and that trade secret law can help narrow it. First, in terms of doctrinal fit, trade secret doctrine offers a viable model for protecting a subset of traditional knowledge that is not already publicly available. Broadly speaking, trade secret law imposes liability for the wrongful acquisition, use, or disclosure of valuable information that is the subject of reasonable secrecy efforts. While various scholars have acknowledged trade secret law's potential for traditional knowledge holders,[10] its possibilities have yet to be examined in sufficient depth.

Notably, trade secret law operates without patent law's stringent requirements of novelty, nonobviousness, and identifiable inventors, its temporal constraints, and the expense of a patent application. And unlike other categories of intellectual property, trade secret law may accommodate the conflicting privacy and commercialization concerns of traditional knowledge holders. That trade secret law applies only to relatively secret, as opposed to publicly available, information may frustrate some traditional knowledge holders—particularly those whose knowledge is already publicly available. But a limiting principle of relative secrecy prevents traditional knowledge protection from becoming an unbounded cause of action for any behavior by outsiders that traditional knowledge holders deem objectionable. By contrast, a broader misappropriation approach, which is currently under discussion at the World Intellectual Property Organization's Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (WIPO IGC), may pose such potential for overreach.[11]

Second, in addition to its practical import, the underlying justifications of trade secret law offer a useful normative guide for theorizing traditional knowledge protection and linking it to the broader purposes of intellectual property law. Trade secret law emerged from a complicated stew of rationales, and scholars have struggled to understand how it advances the stated goals of intellectual property law. As Mark Lemley has recently observed, however, trade secret law serves the broader "disclosure" purposes of intellectual

10. *See, e.g.*, Graham Dutfield, *TRIPS-Related Aspects of Traditional Knowledge*, 33 CASE W. RES. J. INT'L L. 233, 259-60 (2001) ("Conceivably, a considerable amount of TK could be protected under trade secret law."); Daniel J. Gervais, *The Internationalization of Intellectual Property: New Challenges from the Very Old and the Very New*, 12 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 929, 967 (2002) (noting that trade secret law "seem[s] adaptable to traditional knowledge"); Srividhya Ragavan, *Protection of Traditional Knowledge*, 2 MINN. INTELL. PROP. REV. 1, 20-22 (2001).

11. *See infra* notes 205-222 and accompanying text.

property law.[12] By regulating information sharing in certain minimally fair ways, trade secret law can promote trust and efficient collaboration between parties that would otherwise be too distrustful of one another to disclose information.

This is a valuable insight for the traditional knowledge debate. Like trade secret law more generally, the protection of traditional knowledge can serve the broader purposes of intellectual property law by lessening holders' distrust in negotiating with outsiders and encouraging the disclosure of valuable secret information to more productive users (for example, to the drug company that can create a medicine with fewer side effects and distribute it to wider audiences). Anecdotal evidence suggests that absent traditional knowledge protection, indigenous and local groups are becoming warier of sharing information with outsiders who are in a position to improve and commercialize it.[13] In fact, they may go (and some have gone) to greater lengths to prevent the flow of any information to outsiders—in one example, by banning the entry of all outside researchers into their community.[14]

Thus, while the concerns illuminating the traditional knowledge debate may be diverse, encompassing human and indigenous rights, cultural diversity, and biodiversity preservation, traditional knowledge protection can nonetheless further an important purpose of existing IP laws: to encourage disclosure and information sharing on fair terms. In making this comparison to trade secret law, I critique the oversimplified justification for modern intellectual property law as providing incentives to create. Intellectual property law can and should encourage parties of unequal economic power to collaborate and share information on fair terms.

The Article unfolds in four parts. Part II sets the stage by defining traditional knowledge and describing the cultural and political shifts that led to its emergence as a subject of international controversy. Part III considers the three predominant approaches commentators and scholars have taken to understand and rationalize traditional knowledge protection—what I loosely term the preservation approach, the human rights approach, and the conventional IP approach. Parts IV and V revisit the conventional IP approach and expand upon it by examining trade secret doctrine in depth. Part IV assesses the merits and limitations of trade secret law for the protection of traditional knowledge. And Part V considers how the "disclosure" justification of trade secret law—and intellectual property law more broadly—can inform a more compelling IP theory for traditional knowledge protection. Part VI concludes.

12. Mark A. Lemley, *The Surprising Virtues of Treating Trade Secrets as IP Rights*, 61 STAN. L. REV. 311, 313-14 (2008).

13. *See infra* notes 247-250 and accompanying text.

14. *Id.*

II. UNDERSTANDING THE TRADITIONAL KNOWLEDGE DEBATE

A. *Problematic Generalizations*

One of the greatest challenges when assessing the need for international protection of traditional knowledge or the form it might take is the sheer diversity of indigenous group practices and organizations. Each group has unique customary practices and different relationships with the dominant culture and national government.[15] While any discussion of traditional knowledge protection requires some definitional generalization, it is important to clarify at the outset several misconceptions that often skew the terms of the debate. These misconceptions include the nature of traditional knowledge-holding societies, the "ownership" of knowledge within traditional societies, and the extent to which traditional knowledge can be new and innovative. I address them only briefly, as they are well documented in the literature.[16]

First, policymakers and commentators often embrace a narrow conception of traditional knowledge holders as tribal populations that exist wholly outside of the "cultural mainstream" of their respective countries and whose behaviors have barely changed over time.[17] As Graham Dutfield rightly observes, we must be wary of such a "fixed and dogmatic" conception of what traditional knowledge holders look like.[18] These groups are comprised not only of "culturally distinct tribal people" but also of "traditional rural communities that are not necessarily removed from the cultural mainstream of a country."[19] Nor is all traditional knowledge necessarily sacred to these communities.

The *ayahuasca* vine controversy is an illustrative example of the potential skewing effects of overgeneralization. *Ayahuasca*—or "vine of the soul" in Quechua—is a South American hallucinogenic plant that generations of native Amazonian peoples have used for religious and other purposes. In the late 1980s, an American scientist patented a claimed "new" variety of *ayahuasca*, based on samples he obtained from Ecuador. Years later, after the news worked its way to tribal leaders, who were aggrieved by the patenting of a plant they viewed as sacred, a federation of Amazonian Indians collaborating with nongovernmental organizations (NGOs) challenged the U.S. patent. They argued that the invention not only lacked novelty, but also violated morality because the plant was sacred to indigenous people.[20] The *ayahuasca* example is

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15. *See* Antony Taubman & Matthias Leistner, *Traditional Knowledge*, *in* INDIGENOUS HERITAGE AND INTELLECTUAL PROPERTY: GENETIC RESOURCES, TRADITIONAL KNOWLEDGE AND FOLKLORE 59 (Silke von Lewinski ed., 2d ed. 2009).

16. *See generally* GRAHAM DUTFIELD, INTELLECTUAL PROPERTY, BIOGENETIC RESOURCES AND TRADITIONAL KNOWLEDGE 91-96 (2004) (discussing characteristics of traditional knowledge-holding societies).

17. *Id.* at 92.

18. *Id.* at 93.

19. *Id.*

20. For descriptions of this controversy, see, for example, MICHAEL F. BROWN, WHO OWNS NATIVE CULTURE? 107-08 (2003); David R. Downes, *How Intellectual Property Could Be a Tool To Protect Traditional Knowledge*, 25 COLUM. J. ENVTL. L. 253, 279-80 (2000); and Philip Schuler, *Biopiracy and Commercialization of Ethnobotanical Knowledge*, *in* POOR PEOPLE'S KNOWLEDGE, *supra* note 2, at 169-70.

often invoked to illustrate intellectual property's ultimate hostility to and incompatibility with the unique anticommodification concerns of indigenous groups.

Some traditional knowledge is, of course, so spiritually significant to certain groups that they would oppose its commercialization under any circumstances. But this is not the whole story. Traditional knowledge holders are not a monolithic group with monolithic interests. Some, like the rural Kerala farmer who seeks to patent a high-yield method for planting rubber trees, or the indigenous Congolese artisan who aims to market her wares abroad, may be eager to enhance the commercial value of their knowledge.[21] Other groups, like the Aguarana Indians of Peru or the Kani people of Southwestern India, may not be thrilled by the idea of commercializing their knowledge, but are even less thrilled by the idea of outsiders reaping all the benefits once the "cat gets out of the bag." In that case, they may prefer the "second best" solution of capturing a fair portion of the commercial profit.[22] Adopting too rigid a conception of traditional knowledge holders can lead policymakers and commentators to conflate these differing concerns and interests.

Another common misconception concerns "ownership" of traditional knowledge within these communities. Policymakers often assume that knowledge is shared freely and that traditional communities are hostile to any conceptions of "property" or "ownership." But while these communities may be less individualistic, diversity exists here, too. Many traditional societies have complex, local customary laws[23] governing traditional knowledge, akin to intellectual property.[24]

And finally, one particularly troublesome misconception is that of

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21. Madhavi Sunder, *The Invention of Traditional Knowledge*, 70 LAW & CONTEMP. PROBS. 97, 98 (2007); *see also* J. Michael Finger, *Introduction and Overview* to POOR PEOPLE'S KNOWLEDGE, *supra* note 2, at 1, 3 (describing several examples of "enhancing the commercial value of poor people's knowledge in which there are no worries about this use being culturally offensive to members of the community").

22. Carol M. Rose, *Property in All the Wrong Places?*, 114 YALE L.J. 991, 997 (2005); *see also* BROWN, *supra* note 20, at 112-14 (describing the bioprospecting and benefit-sharing agreements between a federation of Aguaruna Indians in Peru and Western pharmaceutical companies, and the Indians' desire to "'find new formulas for collaborating with industry . . . and opportunities to exploit the economic value of [their] resources'" (quoting Interview by Michael F. Brown with Sara Sara in Lima, Peru (July 18, 2001)); Finger, *supra* note 21, at 20 (describing the fifty-fifty split of license and royalty income between the Kani people of southwestern India and an Indian research institute in the development of the drug Jeevani, which is based on the anti-fatigue properties of a wild plant known to the Kani).

23. The term "local customary law" (or law governing a traditional community) is used here to avoid confusion with the concept of international customary law (governing relations between states). *See* Antony Taubman, *Saving the Village: Conserving Jurisprudential Diversity in the International Protection of Traditional Knowledge*, *in* INTERNATIONAL PUBLIC GOODS, *supra* note 2, at 521, 555 (using that term).

24. For example, the community may be collectively responsible for maintaining resources, but local customary law may recognize the special status of certain individuals (like healers or medicine men) with respect to traditional knowledge. Such individuals may be recognized as informal creators or inventors distinct from their community. Local customary law may also impose restrictions on the way traditional knowledge is shared within the community and with outsiders. *See, e.g.*, DUTFIELD, *supra* note 16, at 95; Downes, *supra* note 20, at 258; Taubman & Leistner, *supra* note 15, at 77.

traditional knowledge (TK) as old and unchanging—hence the "traditional" moniker.[25] Traditional knowledge is not merely handed down from generation to generation, static and sealed in time. It evolves, improves, and is traditional only in the sense that its creation and use comprise part of the cultural traditions of a community.[26] As commentators have noted, "TK has always been adaptive because adaptation is the key to survival in precarious environments."[27]

B. *Traditional Knowledge Protection in the Global Limelight*

In his influential book, *Who Owns Native Culture*, anthropologist Michael Brown observed, "In the late 1980s ownership of knowledge and artistic creations traceable to the world's indigenous societies emerged, seemingly out of nowhere, as a major social issue."[28] Yet it was not from nowhere that the issue burst onto the international stage. Traditional knowledge's emergence as an issue of global importance can be traced to at least two major political and legal shifts: (1) the unprecedented expansion and internationalization of first-world style intellectual property rights, most notably with the passage of TRIPS; and (2) the increased global recognition of indigenous peoples' rights.

Other international agreements may have preceded it,[29] but TRIPS expanded, strengthened, and homogenized global intellectual property standards in unprecedented ways.[30] First, the high minimum standards mandated by TRIPS curtailed much of the flexibility that countries previously enjoyed in tailoring national intellectual property laws.[31] Subject to limited

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25. The misleading nature of the term "traditional" knowledge has led some commentators to reject it. *See, e.g.*, Olufunmilayo B. Arewa, *TRIPS and Traditional Knowledge: Local Communities, Local Knowledge, and Global Intellectual Property Frameworks*, 10 MARQ. INTELL. PROP. L. REV. 155, 164-66 (preferring the term "local knowledge"); Sunder, *supra* note 21 (preferring the term "poor people's knowledge").

26. Daniel Gervais, *Traditional Knowledge and Intellectual Property: A TRIPS-Compatible Approach*, 2005 MICH. ST. L. REV. 137, 140-41.

27. DUTFIELD, *supra* note 10, at 95; *see also* Peter Drahos, *A Networked Responsive Regulatory Approach to Protecting Traditional Knowledge*, *in* INTELLECTUAL PROPERTY, TRADE & DEVELOPMENT: STRATEGIES TO OPTIMIZE ECONOMIC DEVELOPMENT IN A TRIPS PLUS ERA 385 (Daniel Gervais ed., 2007); Finger, *supra* note 21, at 35 (noting that traditional knowledge holders often lack an understanding of the "commercial/legal tools needed to collect the value of their novelty"); Sunder, *supra* note 21, at 109-13 (listing examples).

28. BROWN, *supra* note 20, at ix.

29. *See, e.g.*, Paris Convention for the Protection of Industrial Property of Mar 20, 1883, *done* July 14, 1967, 21 U.S.T. 1583, 828 U.N.T.S. 305; Berne Convention for the Protection of Literary and Artistic Works of Sept. 9, 1886, *concluded* July 24, 1971, 25 U.S.T. 1341, 1161 U.N.T.S. 3 [hereinafter Berne Convention].

30. For a description of the industry lobbying efforts that led to the passage of TRIPS, see SUSAN K. SELL, PRIVATE POWER, PUBLIC LAW: THE GLOBALIZATION OF INTELLECTUAL PROPERTY RIGHTS 96-120 (2003).

31. TRIPS, *supra* note 8, art. 27. Prior to TRIPS, some countries such as India did not recognize patents in pharmaceutical products, only pharmaceutical processes. This flexibility allowed for a thriving generics industry. Several firms could produce the same drug, so long as they found an alternate way of producing it. TRIPS eliminated such flexibility by requiring patents to be available for "any inventions, whether products or processes, in all fields of technology," subject only to limited exceptions. In terms of required standards, TRIPS is a floor, not a ceiling. But under the national treatment principle of TRIPS, if a country does provide stronger intellectual property to its own citizens, it must generally extend those same rights to the citizens of other member countries. For a description of patent protection variation among countries prior to TRIPS, see generally PAUL GOLDSTEIN,

exceptions, countries must make patents available "for any invention, whether products or processes, in all fields of technology," including pharmaceuticals, modified micro-organisms, and microbiological processes (such as those used in biotechnology), "provided that they are new, involve an inventive step and are capable of industrial application." Moreover, while countries can exclude from their patent laws "plants and animals other than micro-organisms, and essentially biological processes," they must protect plant varieties.[32]

The controversial protection of plant varieties and bioengineered goods is particularly relevant to the emergence of traditional knowledge protection as a hot global topic.[33] Several countries oppose patents on any life forms, man-made or otherwise, and resent the TRIPS requirement that such patents be recognized.[34] Controversial U.S. and European patents on inventions derived from developing country genetic resources and traditional knowledge—such as patents for neem-based pesticides—further fueled the fires.[35] These widely publicized cases led advocates for indigenous groups, local farmers, and developing country governments to coin the term "biopiracy."[36] This term describes the industrial practice of patenting products based on traditional knowledge or genetic resources, without providing compensation or

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INTERNATIONAL INTELLECTUAL PROPERTY LAW 354 (2d ed. 2008).

32. TRIPS, *supra* note 8, art. 27(3)(b) (requiring protection "either by patents or by an effective *sui generis* system or by any combination thereof").

33. *See* Dutfield, *supra* note 16, at 260 (describing the convergence of "biodiplomacy and intellectual property diplomacy" as a result of this requirement). The genesis of the requirement that patents be extended to bioengineered goods—an explicit nod to the biotechnology sector—can be traced to the controversial decision in *Diamond v. Chakrabarty*, 447 U.S. 303 (1980), in which the U.S. Supreme Court permitted the patenting of a genetically engineered, oil-eating microbe, as well as earlier cases that allowed the patenting of isolated and purified chemical compounds, *see, e.g.*, Merck & Co. v. Olin Mathieson Chem. Corp., 253 F.2d 156, 164 (4th Cir. 1958) (upholding a patent on purified Vitamin B-12). Following *Chakrabarty*, inventors have obtained patents on "anything under the sun that is made by man," *Chakrabarty*, 447 U.S. at 309, from isolated genetic sequences to modified plants and animals. *See* Sabrina Safrin, *Hyperownership in a Time of Biotechnological Promise: The International Conflict To Control the Building Blocks of Life*, 98 AM. J. INT'L L. 641, 645-46 (2004).

34. Even in the United States, the seemingly limitless scope of biotechnology patents are contested, as exemplified by a recent district court decision invalidating patents held by Myriad Genetics on genes linked to breast and ovarian cancer. *See* Ass'n for Molecular Pathology v. U.S. Patent & Trademark Office, 702 F. Supp. 2d 181 (S.D.N.Y. 2010); John Schwartz & Andrew Pollack, *Cancer Genes Cannot Be Patented, U.S. Judge Rules*, N.Y. TIMES, Mar. 30, 2010, at B1.

35. In the case of neem, a type of tree native to South and Southeast Asia, the specialty chemicals company W.R. Grace obtained U.S. and European patents on pesticides derived from neem extracts. For centuries, Indian farmers have used a mixture of soaked neem seeds and alcohol as a pesticide. Grace's patents covered processes that increased the shelf life and storage of azadirachtin, an active agent in neem; the company claimed their patents were improvements on the traditional process because the neem mixture used by farmers begins to degrade if not used within a few days. A number of advocacy groups challenged these patents in 1995, arguing that Grace's extraction process did not sufficiently differ from the traditional process. In 2000, the European Patent Office revoked Grace's patent on grounds that it was not novel, but the U.S. patent remains valid. The U.S. neem example demonstrates the difficulty of challenging patents for products or processes derived from traditional knowledge and genetic resources through chemical isolation or a genetic engineering process, because of the way novelty is assessed under U.S. patent law. For discussions of the neem and other "biopiracy" controversies, see, for example, Shubha Ghosh, *Traditional Knowledge, Patents, and the New Mercantilism (Part II)*, 85 J. PAT. & TRADEMARK OFF. SOC'Y 885 (2003); and Schuler, *supra* note 20, at 159, 161-76.

36. *See* Dutfield, *supra* note 10, at 237 (describing the coinage of the term as "part of a counterattack strategy on behalf of developing countries").

recognition to source countries or communities.[37]

Not only does TRIPS homogenize and strengthen minimum standards in unprecedented ways, but its formidable enforcement mechanism also stands in stark contrast to previous international intellectual property instruments. Unlike other agreements, "TRIPS has teeth."[38] Because it is linked to the WTO's dispute resolution system, member states must comply and submit to mandatory adjudication of disputes initiated by member governments or risk retaliatory trade sanctions.[39] Developing countries agreed to the draconian conditions imposed by TRIPS in exchange for favorable trade treatment and the promise of foreign direct investment.[40] The troubling politics of TRIPS, and its linkage to the WTO enforcement mechanism, have triggered numerous, trenchant critiques, which I will not recreate here.[41]

Around the same time that TRIPS began to shake the international IP landscape, indigenous groups began to demand increased recognition of and control over their culture and traditional knowledge. Over the past few decades, indigenous groups have become more politically salient. They cooperate globally on a variety of common issues, including the protection of indigenous resources and knowledge from appropriation.[42] Due in no small part to their

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37. *See, e.g., id.*; Vandana Shiva, *Bioprospecting as Sophisticated Biopiracy*, 32 SIGNS: J. WOMEN CULTURE & SOC'Y 307 (2007). Vandana Shiva is one of the most prominent critics of "biopiracy." Some commentators have criticized the term for oversimplifying the inequity or resting on an imprecise understanding of intellectual property concepts, such as novelty. *See, e.g.*, 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).

38. Lawrence R. Helfer, *Regime Shifting: The TRIPS Agreement and New Dynamics of International Intellectual Property Lawmaking*, 29 YALE J. INT'L L. 1, 2 (2004).

39. *See id.* (describing the WTO's dispute settlement system). Only member governments can initiate dispute settlement proceedings in the WTO; private individuals, companies, and NGOs do not have direct access to the dispute settlement system. But these nongovernment entities can and often do pressure WTO member governments to bring disputes where another member violates their obligations. And several WTO member governments have "formally adopted internal legislation under which private parties can petition their governments to bring a WTO dispute." *Introduction to the WTO Dispute Resolution System*, WTO, http://www.wto.org/english/tratop_e/dispu_e/disp_settlement_cbt_e/c1s4p1_e.htm (last visited Mar. 22, 2011); *see also* Ruth L. Okediji, *The International Relations of Intellectual Property: Narratives of Developing Country Participation in the Global Intellectual Property System*, 7 SING. J. INT'L & COMP. L. 315, 337 (2003) (describing TRIPS's minimum obligations for remedies, administrative and judicial processes, and border controls).

40. For a more nuanced view of the politics of TRIPS, see Amy Kapczynski, *The Access to Knowledge Mobilization and the New Politics of Intellectual Property*, 117 YALE L.J. 804, 848 (2008) (explaining that the "success of TRIPS required not just pressure and transfer payments, but also interventions in the realm of ideas" in order to "produce the acquiescence of developing countries"—i.e., the industry lobby "made the case that TRIPS was not only good for American business, but also good for global innovation, and for developing countries specifically").

41. In brief, strong Western-style IP rights disproportionately benefit developed countries, stifle the further development of countries that have not passed a certain threshold of development, and pose serious risks to global health by raising the costs of needed medicines. *See* Okediji, *supra* note 39, at 340-41 (describing some of the numerous critiques). Such critiques continue even after the passage of TRIPS, as the United States, Europe, and Japan negotiate TRIPS-plus bilateral agreements that impose even stricter minimum requirements, and as the United States and other countries negotiate the Anti-Counterfeiting Trade Agreement (ACTA), a treaty that would establish further strengthening of IP in the realm of counterfeit goods. For the first public draft of ACTA, see Anti-Counterfeiting Trade Agreement (Apr. 2010) (public predecisional/deliberative draft), *available at* http://trade.ec.europa.eu/doclib/docs/2010/april/tradoc_146029.pdf.

42. *See, e.g.*, U.N. Econ. & Soc. Council, Subcomm. on Human Rights, Written Statements Submitted by International Indian Treaty Council 3, U.N. Doc. E/CN/4/2003/NGO/127 (Mar. 17, 2003);

efforts, the U.N. General Assembly drafted and adopted the Declaration of the Rights of Indigenous Peoples (DRIPS).[43] With respect to traditional knowledge, the Declaration recognizes the rights of "indigenous peoples . . . to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions," as well as "their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions."[44]

C. *Forms of IP and the Limits of "Positive" and "Defensive" Protection*

What do traditional knowledge holders want in terms of protection? As previously noted, the variations among and between indigenous and local communities complicate this question. The meaning of meaningful protection depends on whether groups are more concerned with finding opportunities to benefit from commercialization or with curbing the cultural, social, and psychological harm from another's unauthorized use. Even within a particular group, both concerns may be present, depending on whether the traditional knowledge at issue is of a secular or sacred nature. Generally, commentators discuss traditional knowledge protection in terms of two broad categories: "defensive" protection and "positive" (or "offensive") protection.[45]

Defensive protection is often described as the protection of traditional knowledge *against* outsiders' acquisition of intellectual property rights based on traditional knowledge. Defensive protection measures tend to focus on the patent system. Attempts to invalidate the *ayahuasca* and neem-related patents are examples of defensive protection.[46] Another common defensive measure is the creation of traditional knowledge databases, to which patent examiners can refer when assessing relevant prior art.[47]

By contrast, positive (or offensive) protection is the protection of

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see also Stephen R. Munzer & Kal Raustiala, *The Uneasy Case for Intellectual Property Rights in Traditional Knowledge*, 27 CARDOZO ARTS & ENT. L.J. 37, 51 (2009) ("Indigenous peoples increasingly cooperate globally on a range of shared issues, such as land tenure and language preservation."). For example, it was an organization representing indigenous groups that first uncovered and challenged the U.S. patent relating to the *ayahuasca* vine. *See* Ho, *supra* note 37, at 451 & n.65; *see also* Kapczynski, *supra* note 40, at 825-28 (discussing the efforts of farmers' rights advocates to build an international campaign against neem-related patents).

43. Declaration of the Rights of Indigenous Peoples, G.A. Res. 61/295, U.N. Doc. A/RES/61/295 (Sept. 13, 2007) [hereinafter DRIPS], *available at* http://www.un.org/esa/socdev/umpfii/documents/DRIPS_en.pdf. In the mid-1990s, the United Nations seriously began to address indigenous rights and commissioned a working group and a special rapporteur to create a Draft Declaration of the Rights of Indigenous Peoples and Principles and Guidelines for the Protection of the Heritage of Indigenous People in 1994. *See, e.g.*, U.N. Econ. & Soc. Council, Subcomm. on Prevention of Discrimination & Prot. of Minorities, Draft Declaration on the Rights of Indigenous Peoples, U.N. Doc. E/CN.4/Sub.2/1994/2/Add.1 (1994) [hereinafter Draft Declaration]; Erica-Irene Daes, *Intellectual Property and Indigenous Peoples*, 95 AM. SOC'Y INT'L L. PROC. 143, 147 (2001).

44. DRIPS, *supra* note 43, art. 31(1).

45. WIPO, INTELLECTUAL PROPERTY AND TRADITIONAL KNOWLEDGE, BOOKLET NO. 2, at 11-12 (2010), *available at* http://www.wipo.int/freepublications/en/tk/920/wipo_pub_920.pdf.

46. *Id.* at 21-22, 26.

47. *See infra* Subsection II.C.2.

traditional knowledge *by* intellectual property rights[48]—for example, the holder's acquisition of an existing intellectual property right, an adapted IP right specifically focused on traditional knowledge, or a new sui generis right in traditional knowledge.[49] Though much has been made of the distinction between these two categories of protection, they blur in practice.[50] Both categories pose certain obstacles for traditional knowledge holders, discussed below.

1. *Positive Protection and the Hurdles of Patent and Copyright*

Traditional knowledge is often assessed through the lens of patent law, insofar as it concerns traditional medicinal or agricultural practice. It otherwise is assessed through the lens of copyright law, insofar as it concerns traditional cultural expressions, such as folklore or native artwork. These IP forms are generally inhospitable to traditional knowledge holders.

Governments award patents for certain inventions and discoveries that are new, useful, and nonobvious in light of the previous knowledge (or "prior art") for a set period of time (usually twenty years from the date of application). In addition, patent applications must describe the invention in enough detail to enable others skilled in the art to make it—the "enablement" requirement.[51] Copyright protects original forms of expression, such as novels, musical compositions, and artwork, for a longer but still set period of time. In addition, many countries, including the United States, require copyrightable material to be fixed in a tangible medium—the "fixation" requirement.[52] When the term of protection for a patent or copyright ends, the protected work or creation enters the public domain, to be more or less "freely" used by others.[53]

Certain characteristics of traditional knowledge make patent or copyright protection unlikely.[54] For example, since patents and copyrights are temporally

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48. Coenraad J. Visser, *Making Intellectual Property Laws Work for Traditional Knowledge*, *in* POOR PEOPLE'S KNOWLEDGE, *supra* note 2, at 207, 212.

49. Dutfield, *supra* note 2, at 497; WIPO, *supra* note 45, at 17.

50. Obtaining positive protection may be contingent on effective defensive protection—i.e., preventing outsiders from obtaining IP rights based on the same traditional knowledge. Visser, *supra* note 48, at 212. And positive protection may be necessary where mere defensive protection measures, like traditional knowledge databases, are insufficient to deter outsiders' use. As the WIPO IGC has observed, defensive protection measures are not directed at preventing outsiders from *using* traditional knowledge without permission; they only prevent them from obtaining IP rights, like patents, based on traditional knowledge. WIPO Intergovernmental Comm. on Intellectual Prop. & Genetic Res., Traditional Knowledge & Folklore, *Practical Mechanisms for the Defensive Protection of Traditional Knowledge and Genetic Resources within the Patent System*, at 2, 5th Sess., WIPO Doc. WIPO/GRTK/IC/5/6 (May 14, 2003).

51. 35 U.S.C. § 112 (2006).

52. 17 U.S.C. § 102 (2006). Fixation is not, however, a universal requirement. The Berne Convention explicitly provides that it is the decision of individual countries "to prescribe that works . . . shall not be protected unless they have been fixed in some material form." Berne Convention, *supra* note 29, art. 2(2).

53. The public domain is a complicated concept. IP scholars offer various understandings of the public domain. *See, e.g.*, James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 LAW & CONTEMP. PROBS. 33 (2003); Pamela Samuelson, *Enriching Discourse on Public Domains*, 55 DUKE L.J. 783 (2006).

54. Despite the limitations of patent and copyright laws in addressing the unique temporal,

limited, long-standing traditional knowledge usually won't qualify for protection. Instead, modern IP laws consider it part of the public domain.[55] Also, substances found in nature that do not involve some kind of technical intervention are typically excluded from the subject matter of patent.[56] Moreover, the unwritten nature of traditional knowledge conflicts with patent's "enablement" and copyright's "fixation" requirements.[57] And while patent applications must identify the actual inventor or groups of inventors responsible for creating the invention, the communal and incremental development of traditional knowledge often makes it difficult or even impossible to identify specific creators within the community.[58] Finally, the prohibitive up-front expense of acquiring a patent is a significant practical limitation for traditional knowledge holders.[59]

In comparison to patent and copyright, other categories of intellectual property, such as trademark,[60] geographical indications (GIs),[61] and trade secret,[62] seem more promising to traditional knowledge holders. These forms of intellectual property do not, for example, have a set term of protection; they are potentially indefinite. And they are certainly cheaper to obtain than patents. But trademarks and GIs can only protect the words and symbols associated with

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oral, and communal aspects of TK, they have been used successfully, in some cases, to secure offensive protection. *See* WIPO, *supra* note 45, at 18-20.

55. Not surprisingly, many traditional knowledge holders object to the application of the "public domain" concept to traditional knowledge. *See* Taubman, *supra* note 23, at 544.

56. For a discussion of this distinction, see Safrin, *supra* note 33, at 645 ("Patents will not be granted for genetic material as found in nature, such as a gene while in a plant or a fish. A patent, however, can be obtained when that gene has been removed and isolated, and a useful function for it identified. An isolated and purified gene does not exist in that form in nature.").

57. The oral nature of traditional knowledge not only prevents it from being patentable (or copyrightable), but U.S. patent law does not recognize unpublished foreign "prior art." Thus, even unpublished traditional knowledge that is widely known and used in a foreign country cannot invalidate a U.S. patent. By contrast, prior unpublished domestic use can constitute prior art in the United States, a geographic disparity that does not exist in the European Union, where foreign knowledge need not be published to constitute prior art. This disparity has triggered calls for reform. *See, e.g.*, Margo A. Bagley, *Patently Unconstitutional: The Geographical Limitation on Prior Art in a Small World*, 87 MINN. L. REV. 679, 729-36 (2003).

58. *See* Dutfield, *supra* note 10, at 242-43; Gervais, *supra* note 26, at 141. The problem of identification is compounded where multiple indigenous communities use the same traditional knowledge. Such practical difficulties, though significant, should not be overstated. As Daniel Gervais has argued, "[C]ollective ownership of marks is well accepted," so why should patents or copyrights be any different? Gervais, *supra* note 26, at 149; *see also id.* ("Collective or communal ownership [of TK] is recognized in several land-related treaties . . . .").

59. *See, e.g.*, Dutfield, *supra* note 10, at 255-56 (estimating that in the United States, "it costs about $20,000 to prepare and prosecute a patent application, including legal and filing fees").

60. Trademark law protects registered words or symbols that help consumers identify the firm that produces a product. WTO members are expected to provide for registration of trademarks, and the owner of a registered trademark can prevent third parties from using similar signs that are likely to cause consumer confusion. TRIPS, *supra* note 8, arts. 15-16.

61. GIs provide trademark-like protection to distinctive goods, usually agricultural products or foodstuffs, whose quality and reputation stem from the geographical area in which they are produced—e.g., "Champagne." TRIPS, *supra* note 8, arts. 22-23. Because GIs are by definition "descriptive," they would not merit ordinary trademark protection. Like TK, the protection of GIs is a topic of controversy. *See, e.g.*, Kal Raustiala & Stephen R. Munzer, *The Global Struggle over Geographic Indications*, 18 EUR. J. INT'L L. 337 (2007).

62. Trade secret law, discussed in greater depth in Parts IV and V, protects a wide range of potentially commercially valuable information that entities attempt to keep secret. *See infra* notes 124-138 and accompanying text.

traditional knowledge, not the use of the knowledge itself. For this reason, they may be of limited relevance for some indigenous and local communities.[63]

2. *Traditional Knowledge Databases and the Limitations of Defensive Protection*

Defensive protection efforts have largely focused on creating databases of traditional knowledge to increase the likelihood that patent examiners will locate and consider traditional knowledge during "prior art" searches.[64] National governments and NGOs are spearheading a wide range of documentation efforts. Notably, the Indian government has developed a Traditional Knowledge Digital Library (TKDL), containing approximately thirty million pages of Indian traditional knowledge and translated in five languages.[65]

But for many traditional knowledge holders, disclosure of traditional knowledge in publicly available databases is a double-edged sword. By making otherwise secret or inaccessible knowledge public, this form of defensive protection can actually facilitate the unauthorized use of traditional knowledge that the community wishes to prevent. For example, let's say an indigenous group provides information to the TDKL regarding a plant's ability to relieve indigestion. Now suppose an outsider learns of this hitherto unknown or inaccessible information, isolates the active compound responsible, and creates a new drug that does not exist in nature and has fewer side effects than other drugs on the market. If it is novel, useful, nonobvious, and adequately described, the new drug is patentable. Documentation can thus have the perverse effect of "tipping off outsiders to knowledge that will ultimately aid them."[66]

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63. *See* Downes, *supra* note 20, at 269-70. But to the extent that there are traditional signs, symbols, and terms associated with TK, some local communities have used trademarks, certification marks, and GI laws successfully to protect against unauthorized use. For example, the Seri people of Mexico, facing competition from mass production, registered the Arte Seri trademark to protect authentic ironwood products produced by traditional methods from an indigenous species of tree, the Olneya testota tree. *See* WIPO, *supra* note 45, at 19. And commentators increasingly point to GIs in particular as a potential tool for indigenous and local communities seeking to profit from their traditional knowledge. *See, e.g.*, Sunder, *supra* note 21, at 114 (describing GIs as "poor people's intellectual property rights").

64. *See, e.g.*, WIPO, *supra* note 45, at 27; Taubman & Leistner, *supra* note 15, at 85-87. In addition to this "practical aspect," defensive protection also has a "legal aspect"—for example, reforming patent laws to consider unpublished traditional knowledge as relevant prior art. *See* WIPO, *supra* note 45, at 27.

65. *See* Munzer & Raustiala, *supra* note 42, at 52; *About TKDL*, TRADITIONAL KNOWLEDGE DIGITAL LIBRARY, http://www.tkdl.res.in/tkdl/langdefault/common/Abouttkdl.asp?GL=Eng (last visited Apr. 30, 2011). The TKDL is arranged according to the International Patent Classification so as to be easily searchable by patent examiners looking for invalidating prior art. Munzer & Raustiala, *supra* note 42, at 52.

66. WIPO Intergovernmental Comm. on Intellectual Prop. & Genetic Res., Traditional Knowledge & Folklore, *supra* note 50, at 2. But where national documentation efforts focus on "common knowledge" throughout the region—for example, the Ayurveda system of traditional medicine—there is less concern of this sort. *See id.*

III. THREE THEORETICAL APPROACHES TO TRADITIONAL KNOWLEDGE PROTECTION

Several international conventions and agreements address the subject of traditional knowledge,[67] including the Convention on Biological Diversity (CBD),[68] the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR),[69] the aforementioned U.N. DRIPS,[70] and the U.N. Educational, Scientific and Cultural Organization (UNESCO) Convention for the Safeguarding of Intangible Cultural Heritage.[71] In addition, the WIPO IGC received its "strongest mandate to date" in the fall of 2009 to develop an international legal instrument to ensure the effective protection of traditional knowledge, genetic resources, and traditional cultural expressions by 2011.[72]

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67. The "density" of rules and institutions that touch on the subject of traditional knowledge is emblematic of international IP rulemaking more generally. *See, e.g.*, Lawrence Helfer, *Toward a Human Rights Framework for IP*, 40 U.C. DAVIS L. REV. 973, 980-81 (2007) (describing the shift from a unimodal phase of IP rulemaking to the modern "'regime complex'—a multi-issue, multi-venue, mega-regime in which governments and NGOs shift norm creating initiatives from one venue to another"); Kal Raustiala, *Commentary: Density and Conflict in International IP Law*, 40 U.C. DAVIS L. REV. 1021, 1023 (2007) (describing the "increasingly dense system of international institutions, and rising competition and conflict among differing rules and institutions").

68. Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79 [hereinafter CBD]; *see also infra* notes 74-83 and accompanying text (discussing the CBD's approach to protecting traditional knowledge in detail).

69. International Treaty on Plant Genetic Resources for Food and Agriculture, *opened for signature* Nov. 3, 2001 [hereinafter ITPGR] (entered into force June 29, 2004), *available at* ftp://ftp.fao.org/docrep/fao/011/i0510e/i0510e.pdf. Also referred to as the International Seed Treaty or the Farmers Rights Treaty, the ITPGR requires member states to take measures to protect and promote farmers' rights, which the Food and Agriculture Organization defines as "rights arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources, particularly those in the centres of origin/diversity." Food & Agric. Org. [FAO], *Farmers' Rights*, FAO Res. 5/89 (Nov. 29, 1989), *available at* http://www.farmersrights.org/about/fr_history_part4.html; *see also* KEITH AOKI, SEED WARS: CONTROVERSIES AND CASES ON PLANT GENETIC RESOURCES AND INTELLECTUAL PROPERTY 126-27 (2008) (describing the impact of the CBD and ITPGR).

70. *See supra* notes 43-44 and accompanying text.

71. Convention for the Safeguarding of the Intangible Cultural Heritage art. 1, Oct. 17, 2003, 2368 U.N.T.S. 35, *available at* http://unesdoc.unesco.org/images/0013/001325/132540e.pdf. The 2003 UNESCO Convention seeks to "safeguard the intangible cultural heritage," "ensure respect" and appreciation for these materials, "raise awareness" of their importance, and "provide for international cooperation and assistance." *Id.* at 36. Prior to this Convention, the term "cultural heritage" typically focused on tangible objects, such as cultural relics. Intangible cultural heritage encompasses traditional knowledge and folklore. This Convention, as well as the 2005 Convention on the Protection and Promotion of the Diversity of Cultural Expressions, Oct. 20, 2005, 45 I.L.M. 269, *available at* http://unesdoc.unesco.org/images/0014/001429/142919e.pdf, are more aspirational than obligatory. For a discussion of these conventions, see Naomi Mezey, *The Paradoxes of Cultural Property*, 107 COLUM L. REV. 2004, 2013-14 (2007); and Peter K. Yu, *Cultural Relics, Intellectual Property, and Intangible Heritage*, 81 TEMP. L. REV. 433, 434-35 (2009).

72. Press Release, WIPO, International Conference Calls for Concrete Outcomes on TK, GRs, & TCEs, Press Release No. PR/2009/G16 (Nov. 13, 2009), *available at* http://www.wipo.int/pressroom/en/articles/2009/article_0049.html; WIPO General Assembly, *Matters Concerning the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge, and Folklore*, 38th Sess., WIPO Doc. WO/GA/38/9 (Aug. 15, 2009). This text is to be based on existing WIPO documents, with three documents providing the basis for the committee's work on genetic resources, TCEs and TK, respectively: WIPO Intergovernmental Comm. on Intellectual Prop. & Genetic Res., Traditional Knowledge & Folklore, *Genetic Resources: List of Options*, 9th Sess., WIPO Doc. WIPO/GRTKF/IC/11/8A (June 3, 2007); WIPO Intergovernmental Comm. on Intellectual Prop. & Genetic Res., Traditional Knowledge & Folklore, *The Protection of Traditional Cultural Expressions/Expressions of Folklore: Revised Objectives and Principles*, 9th Sess., WIPO Doc.

Efforts in each of these venues are grounded in different theoretical approaches to the question of why traditional knowledge should be protected, and they focus on a different set of concerns. On the one hand, IP mechanisms may be thought of as one device in a toolkit to reach any number of concerns—be they concerns stemming from human rights, indigenous rights, cultural heritage preservation, or biodiversity conservation. On the other hand, deep differences between the purposes of conventional intellectual property rights regimes and traditional knowledge protection are troubling. They raise doubts about the viability of IP rights in traditional knowledge and their prospects for actually addressing the concerns of traditional knowledge holders.[73]

The existing attempts of advocates, commentators, and scholars to understand and assess the legitimacy of traditional knowledge protection may usefully be put into three (somewhat oversimplified) categories: the preservation approach, the human rights approach, and the conventional IP approach. In this Part, I survey these approaches. Each approach offers important contributions and invites a different set of criticisms. The preservation approach faces certain practical limitations and is troubling in its emphasis on state control of genetic resources (and associated traditional knowledge). The human rights approach to traditional knowledge protection is, at least thus far, likely too expansive and uncertain to be practicable. The conventional IP approach to traditional knowledge is both underdeveloped and underappreciated—issues that Parts IV and V examine in further depth.

A. *The Convention on Biological Diversity and the Preservation Approach*

The preservation approach frames traditional knowledge protection through the lens of biodiversity preservation. This approach has, more than any other, succeeding in triggering international and national action with respect to traditional knowledge protection.[74] The CBD was adopted in 1992 in response

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WIPO/GRTKF/IC/9/4 (Jan. 9, 2006); WIPO, *Traditional Knowledge Objectives*, *supra* note 3. The forthcoming WIPO instrument is the subject of ongoing disagreement and discussion; for example, it is still unclear whether the agreement, or any of its provisions, will be legally binding. *See* Kaitlin Maira, *WIPO Traditional Knowledge Committee Moving Toward Legal Agreement*, INTELL. PROP. WATCH (May 7, 2010), http://www.ip-watch.org/weblog/2010/05/07/wipo-traditional-knowledge-committee-moving-toward-legal-agreement. For an interesting discussion of the relationship between the WTO and WIPO, see Graeme B. Dinwoodie & Rochelle C. Dreyfuss, *Designing a Global Intellectual Property System Responsive to Change: The WTO, WIPO, and Beyond*, 46 HOUS. L. REV. 1187, 1193-97 (2009) (noting that the relationship between the two organizations is "opaque" and that it is unclear whether new developments within WIPO will affect WTO obligations).

73. *Cf.* Pamela Samuelson, *Privacy as Intellectual Property?*, 52 STAN. L. REV. 1125, 1129 (2000) (making similar observations in assessing the desirability of granting intellectual property rights in individuals' personal data).

74. In its preamble, the CBD recognizes the "close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components." CBD, *supra* note 68, pmbl. Article 8 of the CBD requires parties, "as far as possible and as appropriate" and "subject to its national legislation," to "respect, preserve and maintain" traditional knowledge that is "relevant for the conservation and sustainable use of biological diversity and promote [its] wider application with the approval and involvement of the holders of such knowledge . . . and encourage the

to growing concern over the depletion of the world's biological diversity. As of March 2011, 193 countries were party to the CBD.[75] The United States has signed the Agreement but has not ratified it.[76]

Following the CBD, a number of developing countries enacted laws regulating access to genetic resources and associated traditional knowledge within national borders—for example, requiring prior informed consent (of the government in addition to, or in lieu of, the relevant community) and benefit sharing.[77] But generally, the effect of these provisions does not extend beyond national borders. Thus, for example, while the South African government can prosecute access violations that occur within the country, it can do little to restrain corporate behavior that takes place entirely outside the country.[78] Moreover, where access regimes require the permission of multiple and hard-to-identify stakeholders, they may unintentionally lead to an "anticommons."[79] Thus, "[r]ather than engendering impressive economic gains" for developing countries and indigenous groups, the CBD and the national access laws it inspired may be "driving companies away from bioprospecting activities" altogether.[80]

Commentators have also expressed concern that the CBD "frames traditional knowledge and biological resources through the lens of state

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equitable sharing of the benefits arising from the utilization of such knowledge." *Id.* art. 8.

75. *List of Parties*, CONVENTION ON BIOLOGICAL DIVERSITY, http://www.cbd.int/information/parties.shtml (last visited Mar. 29, 2011).

76. *See, e.g.*, Coombe, *supra* note 21, at 276; Dutfield, *supra* note 10, at 260.

77. For a description of various countries' CBD-inspired access legislation, see WIPO Intergovernmental Comm. on Intellectual Prop. & Genetic Res., Traditional Knowledge & Folklore, *Composite Study on the Protection of Traditional Knowledge*, 5th Sess., at 33-40, WIPO Doc. WIPO/GRTKF/IC/5/8 (Apr. 28, 2003), *available at* http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_5/wipo_grtkf_ic_5_8.pdf; and Taubman & Leistner, *supra* note 15, at 144-45. Prior informed consent provisions are, in effect, property rules that permit traditional knowledge holders to deny others access to the protected resource unless they find the terms acceptable. *See* Anupam Chander & Madhavi Sunder, *The Romance of the Public Domain*, 92 CALIF. L. REV. 1331, 1364-66 (2004) (discussing national access laws).

78. Strict (and sometimes, unpredictable) access regulations can also have the unintended consequence of directing firms toward alternate ways of obtaining the same resources—e.g., from suppliers in countries where the rules governing access and use are less onerous or nonexistent. A recent example illustrates some of these difficulties with the existing CBD-inspired framework. Nestle faces allegations of biopiracy for its use of two native South African plants, rooibus and honeybush, without having obtained the government's permission, a requirement of the South African Biodiversity Act, implemented pursuant to the CBD. *See* Biodiversity Act 10 of 2004 (S. Afr.). A Nestle subsidiary filed several international patent applications to treat various hair and skin conditions based on these plant extracts. Nestle contends that it neither obtained the plants in South Africa nor did research on them in that country; instead, the plants were obtained from South African suppliers in Switzerland and France and researched there. The CBD's rules governing the ownership of *ex situ* resources (i.e., resources no longer in their country of origin) are far from clear, and the issue is a matter of ongoing international discussion. *See Food Giant Nestle Accused of Biopiracy*, BRIDGES WKLY. TRADE NEWS DIG., June 2, 2010, at 8-9, *available at* http://ictsd.org/downloads/bridgesweekly/bridgesweekly14-20.pdf.

79. As Michael Heller explains, an "anticommons" arises when too many entities have rights to exclude others from a resource, which can lead to waste or underconsumption of the resource. *See* Michael Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 624 (1998).

80. Safrin, *supra* note 33, at 655-57 (describing the 2001 collapse of a bioprospecting project in Chiapas, Mexico aimed at drug discovery from plants widely used by the highland Maya after "nearly two years trying to obtain the prior informed consent" of all the relevant groups, including "approximately eight thousand villages and some nine hundred thousand Mayan-speaking people").

sovereignty, and vests ownership of these resources in the state," which might have drastically different priorities with respect to these resources than indigenous groups.[81] Because the CBD recognizes states' sovereign rights over the genetic resources within their borders, and given the close relationship between genetic resources and traditional knowledge, do states have, in effect, control over traditional knowledge?[82] Where true, that is problematic, as some of the worst examples of indigenous group marginalization have come at the hands of the national governments.[83] And it raises the question of who, in practical terms, is the beneficiary of the CBD's preservation ethic—indigenous groups or the developing country governments that may or may not advance their interests?

B. *The Human Rights Approach and Its Uncertain Intersection with IP*

The human rights approach to traditional knowledge touts the "primacy" of human rights obligations over other economic policies and agreements.[84] But it is unclear what this "primacy" means (or should mean) when it comes to using (or constraining) intellectual property mechanisms to protect traditional knowledge. As commentators have observed, international human rights law has an ambivalent and undertheorized relationship with intellectual property law.

International human rights law and intellectual property law evolved independently for much of their history. But as human rights regimes and intellectual property regimes have each expanded, so have the intersections between them.[85] Laurence Helfer describes the emergence of this trend in the 1990s, when U.N. human rights bodies acknowledged indigenous groups'

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81. Rebecca M. Bratspies, *The New Discovery Doctrine: Some Thoughts on Property Rights and Traditional Knowledge*, 31 AM. INDIAN L. REV. 315, 328 (2007); *see also id.* at 329-31 ("While state ownership can give states the needed leverage to protect traditional knowledge, state ownership can also hasten the dispossession of indigenous groups as states clamor for foreign investment." (footnote omitted)). Article 15 of the CBD emphasizes the "sovereign rights of States over their natural resources," including biological and genetic resources, which many regard as a departure from the prior view of genetic resources as belonging to the common heritage of mankind. CBD, *supra* note 68, art. 15. For a critique of this move to sovereign ownership of genetic resources, see Safrin, *supra* note 33, at 658 (describing the risk posed to the "autonomy and interests" of indigenous groups).

82. India's legislation restricting access to genetic material makes this conflation explicit. It broadly prohibits foreign persons or corporations from "obtain[ing] any biological resource occurring in India or *knowledge* associated thereto" for research, survey, or commercial utilization without the prior approval of India's National Biodiversity Authority. The Biological Diversity Act § 3(1), No. 18 of 2003, INDIA CODE (emphasis added), *available at* http://envfor.nic.in/divisions/biodiv/act/bio_div_act_2002.pdf. The law also authorizes the National Biodiversity Authority to secure equitable benefit sharing for use of "accessed biological resources, their by-products . . . *and knowledge* relating thereto." *Id.* § 21(1) (emphasis added).

83. *See* Drahos, *supra* note 27, at 393.

84. Peter K. Yu, *Reconceptualizing Intellectual Property Interests in a Human Rights Framework*, 40 U.C. DAVIS L. REV. 1039, 1092-93 (2007); *see also* Ho, *supra* note 37, at 476-77 (describing U.N. documents that address biopiracy concerns and emphasize the "primacy" of human rights obligations "over competing economic policies and agreements").

85. While international IP treaties emerged in the late nineteenth century, the international human rights regime only began in the post-World War II era. *See* LAWRENCE HELFER & GRAEME W. AUSTIN, HUMAN RIGHTS AND INTELLECTUAL PROPERTY: MAPPING THE GLOBAL INTERFACE, at xi-xii (2011).

rights to recognition of and control over their culture, including traditional knowledge.[86]

The Draft Declaration of the Rights of Indigenous Peoples[87] and the Principles and Guidelines for the Protection of the Heritage of Indigenous People[88] (and later, the finalized Declaration[89]) recognized indigenous groups' broad rights to protect and control traditional knowledge. But, as Helfer observes, these documents embody a "decidedly skeptical approach to intellectual property protection": "[A] human rights-inspired analysis of traditional knowledge views intellectual property as one of the problems facing indigenous communities, and, only perhaps, as part of a solution to these problems."[90]

More broadly, the increasingly apparent intersection between human rights rhetoric, rules, and institutions and intellectual property has triggered various concerns. For starters, the two communities seem to speak "very different languages": while intellectual property commentators tend to focus on the economic "trade-offs between incentives and access," human rights commentators "engage in a discourse of absolutes," emphasizing "categorical rights and responsibilities."[91] Another concern is that absent a clearer understanding of human rights law's engagement with intellectual property issues, actors on both sides of the intellectual property divide will simply invoke human rights rhetoric to bolster arguments for strengthening or weakening IP standards in treaties and national laws.[92] Absent "greater normative clarity . . . such 'rights talk' risks creating a legal environment in which every claim (and therefore no claim) enjoys the distinctive protections that attach to human rights."[93]

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86. Laurence R. Helfer, *Toward a Human Rights Framework for Intellectual Property*, 40 U.C. DAVIS L. REV. 971, 982 (2007).

87. Draft Declaration, *supra* note 43.

88. Special Rapporteur of the Subcomm. on the Prevention of Discrimination & Prot. of Minorities, *Protection of the Heritage of Indigenous Peoples*, Comm'n on Human Rights, U.N. Doc. E/CN.4/Sub.2/1995/26, Annex (June 21, 1995) (by Erica-Irene Daes).

89. DRIPS, *supra* note 43.

90. Helfer, *supra* note 67, at 983-84. ("On the one hand, the documents urge states to protect traditional knowledge using legal mechanisms that fit comfortably within existing intellectual property paradigms—such as allowing indigenous communities to seek injunctions and damages for unauthorized uses. But the documents also define protectable subject matter more broadly than existing intellectual property laws, and they urge states to deny patents, copyrights, and other exclusive rights over 'any element of indigenous peoples' heritage' that does not provide for 'sharing of ownership, control, use and benefits' with those peoples.").

91. HELFER & AUSTIN, *supra* note 85, at 504-05.

92. *See* Yu, *supra* note 84.

93. Helfer, *supra* note 67, at 976; *see also* HELFER & AUSTIN *supra* note 85, at 512-21 (describing in detail their human rights framework for IP); *id.* at 521 (suggesting that "[a]ll other things equal, . . . governments should favor measures compatible with the existing intellectual property regime over measures that are inconsistent with it," unless credible evidence exists that IP-inconsistent measures are "likely to achieve more extensive human rights benefits"); Helfer, *supra* note 67, at 1018 (suggesting a human rights framework for IP that "first specifies the minimum outcomes—in terms of health poverty, education, and so forth—that human rights law would require of states," and then "work backwards to identify different mechanism available to states to achieve those outcomes," IP law being merely one of those mechanisms).

C. *An IP Approach to Traditional Knowledge?*

If a preservation approach prioritizes biodiversity preservation, and a human rights approach prioritizes human rights concerns, then an IP approach prioritizes the conventional purposes of intellectual property law.[94] By and large, this approach has posed a seeming dead end to proponents of traditional knowledge protection because of its emphasis on incentives to create, the limited application of moral rights and labor-desert principles, and increased concern for the public domain.

1. *Incentives To Create*

Intellectual property protection in the United States (and increasingly, in much of the world) has been about generating incentives to create. Patents and copyrights are viewed as tools to solve an economic public goods problem: nonrivalrous and nonexcludable intellectual goods are easily copied, and in the absence of state-created rights to exclude, creators cannot recoup their costs and will therefore stop creating.[95] The descriptive and prescriptive limitations of this theory in capturing the actual dynamics of creation are a matter of spirited debate among intellectual property scholars.[96] But the incentives-to-create rationale continues to dominate the intellectual property discourse.

Not surprisingly, the assertion of new or expanded traditional knowledge rights has fared rather poorly under this rationale. The story goes something like this: if indigenous groups and local communities have developed healing and agricultural practices for generations without the carrot of an intellectual property right, then new rights are unnecessary to provide incentives to create.[97]

As for future improvements to traditional knowledge, some scholars have suggested that here too the incentives-to-create rationale fails to justify

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94. *See e.g.*, Munzer & Raustiala, *supra* note 42, at 56-80 (analyzing claims for TK protection under nine major theories of property and intellectual property).

95. *See, e.g.*, WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 74-76 (2003) (explaining IP's optimization task); Mark Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1031 (2005).

96. For example, a number of "social norms" scholars have studied the role of intellectual property norms in various contexts, including in academia, where creators are often motivated by nonpecuniary incentives, such as curiosity. *See, e.g.*, Robert Merges, *Property Rights Theory and the Commons: The Case of Scientific Research*, 13 SOC. PHIL. & POL'Y 145 (1996); Arti K. Rai, *Regulating Scientific Research: Intellectual Property Rights and the Norms of Science*, 94 NW. U. L. REV. 77 (1999); Katherine J. Strandburg, *Curiosity-Driven Research and University Technology Transfer*, *in* 16 ADVANCES IN THE STUDY OF ENTREPRENEURSHIP, INNOVATION AND ECONOMIC GROWTH 97 (Gary D. Libecap ed., 2005). Other scholars have argued for "broader" normative purposes for intellectual property that go beyond incentives to create. *See, e.g.*, Madhavi Sunder, *IP*^{3}, 59 STAN L. REV. 257, 331 (2007) (advocating a cultural theory of intellectual property that focuses on social relations).

97. *See, e.g.*, Reto Hilty, *Rationales for the Legal Protection of Intangible Goods and Cultural Heritage*, 40 INT'L REV. INTELL. PROP. & COMPETITION L. 883, 890 (2009) ("Nor are we confronted with subject matter for which legal instruments would be required to provide incentives in order to prevent market failure . . . ."); Munzer & Raustiala, *supra* note 42, at 73 (arguing that if the real concern is "keep[ing] others from purloining [indigenous groups'] handiwork," then TK protection "cannot be defended on the basis of an incentive to innovate"); Sabrina Safrin, *Chain Reaction: How Property Begets Property*, 2007 NOTRE DAME L. REV. 1917, 1941 ("According intellectual property protection to tradition does not encourage new works. These works already exist.").

alteration of the existing intellectual property regime because "standard IP rules will suffice."[98] This latter argument, however, glosses over the real challenges associated with protecting and encouraging small "grain-sized" innovation—for example, innovation that, in patent law terms, does not rise to the requisite level of novelty and nonobviousness.[99] More significantly, to the extent that scholars assess traditional knowledge through the lens of economic incentives, their focus often centers on incentives to create. As I discuss in Part V, other incentives rationales—in particular, incentives to disclose—may support more robust forms of traditional knowledge protection.

2. *Non-Economic Rationales: Moral Rights and Labor-Desert*

Non-economic rationales for intellectual property rights, such as moral rights and labor-desert principles, offer some (underexplored) support for traditional knowledge rights.

Moral rights derive from the recognition that each individual possesses a distinct personality deserving of protection—a "right of personality" that extends to an individual's intellectual creations and persists even after copies of the work enter the marketplace.[100] In many European countries, authors have "moral rights" in the works they create that are distinct from the purely economic rights that copyright law grants to authors.[101] Commonly recognized moral rights include the right of attribution (i.e., the right to be identified as the author of the work) and integrity (i.e., the right to protect the work from alterations harmful to the author's reputation).[102]

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98. Stephen Munzer and Kal Raustiala, for example, point to the

> important tension . . . between innovation and the focus on tradition and long-standing practice. The more a group innovates now with regard to shared knowledge or folklore, the less traditional it is and the more it seems like contemporary knowledge or innovation of the sort protected, or not protected, by standard IP rights. If one thinks of TK as a living tradition, and if that tradition has had a recent burst of innovation, then IP rights may be justified because of that innovation, but the traditional aspect of the TK plays a comparatively small role in the justification. The force of a claim for a new IP right . . . is weaker the more the focus of the right rests of innovation by living persons. By the same token, if incentives to innovate in the future are the issue, then the standard IP rules will suffice . . . .

Munzer & Raustiala, *supra* note 42, at 73-74.

99. *See e.g.*, Jerome Reichman, *Of Green Tulips and Legal Kudzu: Repackaging Rights in Subpatentable Innovation*, 53 VAND. L. REV. 1743, 1746-47.

100. *See* Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957 (1982) (justifying property protection based on a concept of "personhood").

101. The term "moral right" roughly translates the French term "droit moral." Pursuant to the Berne Convention, there are many countries that protect the moral rights of authors (the United States being a notable exception). The two most commonly discussed moral rights countries are France and Germany.

102. Article 6*bis* of the Berne Convention, *supra* note 29, provides for the protection of attribution and integrity rights. Some jurisdictions, notably France and Germany, also recognize authors' moral rights of divulgation or disclosure (i.e., the right to decide when and under what circumstances to divulge the work) and withdrawal (i.e., the right to withdraw all published copies of the work if the work no longer represents the author's views or otherwise would be detrimental to the author's reputation). *See* Neil Netanel, *Alienability Restrictions and the Enhancement of Author Autonomy in United States and Continental Copyright Law*, 12 CARDOZO ARTS & ENT. L.J. 1, 24-34 (1994). By contrast, the United States provides very limited moral rights protection—and only for visual artists. *See* Visual Artists Rights Act of 1990, 17 U.S.C. § 106A (2006).

But since moral rights are understood primarily as rights rooted in the personality of the *individual*, and not group-based knowledge,[103] they offer limited support for traditional knowledge rights.[104] Also, given the close link between moral rights and authorship (in fact, they are often referred to as "author's rights"), this theoretical justification may not extend beyond traditional cultural expressions.[105]

Lockean or labor-desert theories, on the other hand, are linked to merit. That is, a person who labors upon resources that are un-owned or "held in common" has a natural property right to the fruits of his or her efforts, and the state has a duty to enforce or protect that natural right.[106] While labor-desert theories are often discussed in the context of the individual, they need not be.[107] The more contentious issue is whether a labor-desert principle should extend to inheritors of traditional knowledge. Munzer and Raustiala argue, for example, that the justificatory force of labor-desert is "distinctly limited" unless it pertains to the "originators" of traditional knowledge: "It is hard to see why their remote descendants should deserve an IP right in TK that they did not originate."[108] But others disagree. Robert Merges, for example, suggests that descendants of originators may serve as a "good enough" kind of representative.[109]

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103. *See, e.g.*, Hilty, *supra* note 97, at 890 (suggesting the limitations of a moral rights rationale for traditional knowledge protection because "[w]e are neither in a position to identify an individual right holder who could be deemed to have created or invented the subject matter in question"); *see also* Safrin, *supra* note 97, at 1941 (arguing that "[m]oral rights justifications also have little explanatory purchase because the people who created the traditional works are long gone").

104. Some scholars, however, have suggested "transmuting" the idea of a moral right of the individual into a "community right." Munzer & Raustiala, *supra* note 42, at 68-69.

105. *See, e.g*, Netanel, *supra* note 102, at 2 (explaining that moral rights idea is based on the notion of "literary and artistic works as inalienable extensions of the author's personality"); *see also* Samuelson, *supra* note 73, at 1150 (noting the limitations of extending the moral rights concept as a theoretical justification for rights in personal data because of the "special status of authorship").

106. William Fisher, *Theories of Intellectual Property*, *in* NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 168, 170 (Stephen R. Munzer ed., 2001). As Locke wrote in his Second Treatise of Government, "Whatsoever then he removes out of the state that Nature hath provided, and left it in, he hath mixes his Labour with, and joined to it something that is his own, and thereby makes it his Property." JOHN LOCKE, TWO TREATISES OF GOVERNMENT 287-88 (Peter Laslett ed., Cambridge Univ. Press 1988) (1690). For discussions of the Lockean justification for IP, see generally Wendy J. Gordon, *On Owning Information: Intellectual Property and the Restitutionary Impulse*, 78 VA. L. REV. 149 (1992); and Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L.J. 1533 (1993).

107. Munzer & Raustiala, *supra* note 42, at 59. *See generally* Robert Merges, *Locke for the Masses: Property Rights and the Products of Collective Creativity*, 36 HOFSTRA L. REV. 1179 (2008).

108. Munzer & Raustiala, *supra* note 42, at 59. In a somewhat different vein, Paul Heald suggests that even if Lockean labor theory entitles traditional knowledge holders to enjoy the fruit of their labor—i.e., no one can stop them from using their TK—it "does little to justify a broader right to exclude others from their own gathering activities, especially when that gathering does no apparent harm to the commons. . . . As long as bio-prospectors do not deprive [TK-holders] of information and resources, it is difficult to find a sanction for their behavior in Locke." Heald, *supra* note 1, at 527-28.

109. Merges, *supra* note 107, at 1190 (likening the failure of IP to adequately recognize dispersed creativity in the modern age—e.g., open source software—to its failure to recognize traditional knowledge). Merges argues:

> A vexing problem in IP law has been efforts to figure out how to protect and reward useful knowledge of various kinds that is developed and maintained by traditional communities . . . . In these cases, the current inhabitants of traditional leadership roles are assumed to adequately represent the generations past and future who have an interest in

3. *Traditional Knowledge and the Public Domain*

More broadly, the issue of traditional knowledge protection occupies an awkward normative place within the intellectual property discipline. Some context is useful here. Over the past few decades, intellectual property has been engaged in a tug of war. On the one hand, exclusive rights in information have broadened at home and abroad, to the great benefit of corporate owners of intellectual property. Public choice and political capture theories aside, commentators have attributed this expansion to various conceptual factors—for example, the trope of the "romantic author,"[110] or the infusion of real property rhetoric with its strong language of exclusion and condemnation of "free-riding."[111] Intellectual property expansionists have relied on the argument that "[i]f some intellectual property is desirable because it encourages innovation . . . more is better."[112] On the other hand, a number of intellectual property scholars have excoriated this "second enclosure movement."[113] These scholars highlight the importance of a vibrant and accessible public domain for the efficient production of intellectual goods.[114]

Proponents of traditional knowledge protection fit in neither camp. They do not fit in the standard protectionist camp because the unique aspects of traditional knowledge creation clash with the "romantic author" trope and the prevailing incentives-to-create story. Nor do they fit in the public domain camp, with its emphasis on open access. For many indigenous groups, unrestricted access is "the problem, not the solution."[115] Proponents of traditional knowledge protection thus find themselves at odds with other groups within the broader IP and development movement.

For example, in the context of a campaign to convince WIPO to adopt a

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> protecting and profiting from the traditional knowledge. There is no pretense that this is perfect or even procedurally fair representation. But it is assumed to be the best we can do. . . .
>
> What is needed in cases of dispersed creativity is to identify similar representative people or entities. They may not speak perfectly for all contributors, but they can be assumed to be good enough.

Id.

110. *See, e.g.*, JAMES BOYLE, SHAMANS, SOFTWARE, AND SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY, at x-xi (1996) (concluding that "we are driven to confer property rights in information on those who come closest to the image of the romantic author, those whose contributions to information production are most easily seen as original and transformative," which "leads us to have *too many* intellectual property rights"); Keith Aoki, *(Intellectual) Property and Sovereignty: Notes Toward a Cultural Geography of Authorship*, 48 STAN. L. REV. 1293, 1335-38 (1996); Martha Woodmansee, *The Genius and the Copyright: Economic and Legal Conditions of the Emergence of the Author*, 17 EIGHTEENTH CENTURY STUD. 425, 426 (1984) (arguing that the romantic author is a social construction). *But see* Mark Lemley, *Romantic Authorship and the Rhetoric of Property*, 75 TEX. L. REV. 873, 886 (1997) (arguing that the romantic authorship trope has limited explanatory force with respect to the development of intellectual property).

111. *See* Lemley, *supra* note 95, at 1031-32.

112. *Id.* at 1031 ("The thinking is that creators will not have sufficient incentive to invent unless they are legally entitled to capture the full social value of their inventions.").

113. James Boyle, *The Second Enclosure Movement and the Contraction of the Public Domain*, 66 LAW & CONTEMP. PROBS. 33, 37-40 (2003).

114. *See, e.g.*, Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. REV. 354, 378-86 (1999); Boyle, *supra* note 110.

115. BROWN, *supra* note 20, at 237; Rose, *supra* note 22, at 996.

"development agenda," a broad coalition of advocacy groups drafted an Access to Knowledge (A2K) Treaty.[116] The treaty's central aim is to sustain open models of innovation and to establish users' rights in information at the international level.[117] Amy Kapczynski describes the A2K mobilization's embrace of public domain concepts as a tool to "unify groups working in different areas of IP and as anchors for arguments about the damage that strong IP does to public welfare."[118]

While A2K advocates' emphasis on the public domain has proven effective in securing important gains, particularly in the area of access to medicines, it "creates tension" with traditional knowledge advocates.[119] Instead of "rejecting IP outright or rejecting the economic framing of the field," A2K advocates have been able to make their claims "sound in languages not of fundamental human rights or distributive justice, but of information economics, innovation systems, and the need for well-functioning markets."[120] By contrast, proponents of traditional knowledge protection have been largely unable—or unwilling—to make arguments that sound in a language familiar to IP, to invoke existing justifications for IP law, or effectively to link their claims to the broader IP framework.

To be sure, commodification concerns may have stronger resonance in the traditional knowledge context than in other IP contexts.[121] But while engaging the conventional IP approach may be controversial as a normative matter in the traditional knowledge context, it is undoubtedly important as a pragmatic matter. As Munzer and Raustiala rightly observe, "[B]ecause proponents of TK generally seek protection in the form of IP rights under international law, . . . [they] need to show how the arguments and rules which they favor lend themselves to and fit within the existing framework [and justifications] of international IP law."[122]

In Parts IV and V, I describe how a richer understanding of trade secret law in the traditional knowledge context can help narrow the perceived doctrinal and normative divide between traditional knowledge protection and intellectual property law.

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116. Kapczynski, *supra* note 40, at 806; *see* Treaty on Access to Knowledge (May 9, 2005) (draft), http://www.cptech.org/a2k/a2k_treaty_may9.pdf.

117. Kapczynski, *supra* note 40, at 806.

118. *Id.* at 858-59.

119. *Id.*

120. *Id.* at 867-68.

121. Sunder, *supra* note 96, at 275 (noting the concerns of commodification theorists about the "propertization" of identity and cultural ossification); Taubman, *supra* note 23, at 558 (noting that "[t]he very conception of TK as a form of IP" suggests to some "a form of alienation, reduction, or commodification of an holistic cultural and spiritual heritage, a trivialization of cultural identity that is viewed with skepticism"); *see also* Mezey, *supra* note 71, at 2005 (arguing that ideas of cultural property are ill equipped to resolve cultural disputes, because property is fixed and controlled by its owner, while culture is dynamic, messy and unstable, and maintaining that cultural property claims problematically tend to "fix" and "sanitize" culture in order to make sense of it as a form of property).

122. Munzer & Raustiala, *supra* note 42, at 57-58.

IV. TRADE SECRET LAW: A PRACTICAL PATH FORWARD FOR THE TRADITIONAL KNOWLEDGE DEBATE

Trade secret law has important implications for the traditional knowledge debate. Trade secret law offers a practical path forward in the current international impasse; it can protect a subset of traditional knowledge that is relatively secret—i.e., not publicly available. In this Part, I explain the requirements of trade secret law and its relevance and limitations for traditional knowledge holders. And I suggest it is a narrower and more workable alternative to the broader misappropriation approach under discussion at the WIPO IGC, which may penalize the use of even publicly available traditional knowledge.

A. *The Basics of Trade Secret Law*

While its precise origins are disputed,[123] the modern form of trade secret law is a nineteenth-century creation of Anglo-American courts. Given trade secret law's relatively recent vintage and common law origins, it is not firmly entrenched outside of common law countries.[124] This is beginning to change, however, as TRIPS and other bilateral and regional agreements require countries to protect trade secrets.[125] Since trade secret law is well developed in the United States, I begin there.

Typically, trade secret law imposes three basic requirements: (1) a broad subject matter requirement of information that derives actual or potential economic value because it is not generally known; (2) the trade secret holder took reasonable precautions under the circumstances to keep the information secret; and (3) the defendant obtained the secret by violating an express (e.g., contractual) or implied duty, or though other "improper means."[126]

Significantly, trade secret law encompasses far broader subject matter than patent law. While patents cover *inventions* that are useful, novel, and nonobvious in light of the existing knowledge, "[v]irtually any useful

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123. At least one scholar traces trade secret-like protection to the Roman Empire. *See* A. Arthur Schiller, *Trade Secrets and the Roman Law: The Actio Servi Corrupti*, 20 COLUM. L. REV. 837, 837-38 (1930). As early as the Renaissance, most European nation-states protected the secret processes and ideas of guild cartels and other businesses from third party usurpation. Lemley, *supra* note 12, at 315 n.8.

124. Lemley, *supra* note 12, at 315-16.

125. JAMES POOLEY, TRADE SECRETS § 15.02[2] (2010), 2002 WL 32164610. For a brief overview of trade secret law in various WTO jurisdictions, see *id.* § 15.05 (noting the similarity between trade secret laws in Canada, Japan, and China and trade secret laws in the United States).

126. *See* ROBERT P. MERGES, PETER S. MENELL & MARK A. LEMLEY, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 36-37 (5th ed. 2010). The Uniform Trade Secrets Act (UTSA), enacted in some form by most states, defines trade secrets as follows:

> [I]nformation, including a formula, pattern, compilation, program, device, method, technique, or process that:
>
> (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and
>
> (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

UNIFORM TRADE SECRETS ACT § 1(4) (amended 1985), 14 U.L.A. 433 (1990) [hereinafter UTSA].

information can qualify as a trade secret."[127] The information need not be novel or nonobvious. Even very slight improvements to known processes or discoveries of what does not work ("negative know-how") may qualify.[128] The information need not have actual economic value; *potential* economic value is sufficient.[129] The information need not be "technological" in nature, as the law covers business information like customer lists, financial projections, and marketing plans.[130] And unlike patent law, neither the identification of individual trade secret creators nor a formal application process is required for trade secret protection.

Trade secret law is thus a useful reminder that for over a century, the same corporate entities that contest the protection of traditional knowledge because it is old, communally and incrementally developed, lacking in novelty, and its precise individual creators unknown, have regularly invoked the protections of trade secret law to protect information that is . . . old (e.g., the century-old Coca-Cola formula), communally and incrementally developed, lacking in novelty, and its precise individual creators unknown.

For all its breadth, however, trade secret law offers weaker exclusionary rights than patent law. Trade secrets are not property rights against the world in the traditional sense, because the right to exclude applies only when information is obtained improperly.[131] Where a party develops the idea independently or reverse engineers a lawfully obtained product to learn the secret, no liability attaches, and that entity can do what it wants with the information. By the same token, multiple entities may simultaneously "own" the same trade secret if they developed it independently. This is an important difference from patent law, and one that makes trade secret law more suitable for traditional knowledge, where multiple neighboring groups may have long used the same knowledge.

Another important difference from patent (and copyright) law is that trade secret protection is not limited to a specific term of years, so longstanding traditional knowledge may still qualify. But trade secret law does, as the name suggests, apply only to *secret* information. Secrecy here, however, means relative secrecy, not absolute secrecy. In other words, confidential information can be shared with others who are aware of its confidentiality without losing its status as a trade secret.[132] Once the information has "escaped into the mainstream of public knowledge," however, protection ends.[133] Generally, the publication of the trade secret, for example, in an academic journal or in a

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127. POOLEY, *supra* note 125, § 1.01 (emphasis added).

128. *Id.* § 7.02[2].

129. *See* UTSA, *supra* note 126. The commercial value requirement is discussed further in Section IV.D. *See infra* notes 192-196 and accompanying text.

130. POOLEY, *supra* note 125, § 1.01.

131. *See, e.g.*, Robert G. Bone, *A New Look at Trade Secret Law: Doctrine in Search of Justification*, 86 CALIF. L. REV. 241, 256-57 (1998) (discussing this characteristic of trade secret law—why it does not "recognize property rights against the world"); Michael Risch, *Why Do We Have Trade Secrets?*, 11 MARQ. INTELL. PROP. L. REV. 1, 16-17 (2007).

132. *See infra* notes 175-179 and accompanying text.

133. POOLEY, *supra* note 125, § 4.04[2][a].

patent, destroys it. Thus, if information qualifies for patent protection, an inventor must elect either patent or trade secret protection.[134] In other instances, the decision to publicly disclose is out of the originator's hands. For example, one who independently develops or reverse engineers the secret can do what she wants with it, including publicly disclosing it, which defeats even the original trade secret holder's right.

Although trade secret law overlaps to some degree with contract principles,[135] it departs in significant ways. Notably, liability can extend to strangers not in privity with the plaintiff, such as improper acquirers, those who acquire a trade secret by accident or mistake,[136] and those who knowingly or negligently obtain information from one in privity with the plaintiff.[137] In addition, trade secret law offers a stronger array of remedies than contract law, depending on the circumstances. These include damages based on the defendant's gain, injunctive relief prohibiting further use and disclosure of the information, and, in some cases, criminal penalties.[138]

B. *Traditional Knowledge and Three Paradigmatic Trade Secret Situations*

While trade secret protection is not as "barrier"-like as patent protection,[139] it can protect relatively secret traditional knowledge. Not only does trade secret law lack many of patent law's subject matter, temporal, monetary, and other constraints;[140] it may also accommodate the concerns of those traditional knowledge holders who want to control particular uses of their knowledge, as well as those who are interested in obtaining a share of the profits from commercialization.[141]

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134. Patent publication "affects only the information expressed in the patent itself; it is common for the [patent] applicant to maintain related but collateral information . . . as a trade secret." POOLEY, *supra* note 124, § 3.01[1][b].

135. Some commentators have suggested that trade secret law is (or should be) co-extensive with contract law. Bone, *supra* note 131, at 297 (proposing that "with perhaps a few limited exceptions, trade secrets should be protected only on contract principles").

136. UTSA, *supra* note 126, § 1(2)(ii)(C).

137. *Id.* § 1(2)(ii)(B).

138. POOLEY, *supra* note 125, § 4.04[1]; Lemley, *supra* note 12, at 324. In 1996, Congress passed the Economic Espionage Act, which for the first time imposed federal criminal penalties for intentional and knowing theft or unlawful disclosure of trade secrets. *See* 18 U.S.C. §§ 1831-1839 (2006).

139. The limitations on trade secret law's application have led the U.S. Supreme Court to observe, "Where patent law acts as a barrier, trade secret law functions relatively as a sieve." Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 490 (1974) (holding that patent law does not preempt trade secret law).

140. *See supra* notes 51-59 and accompanying text.

141. *See* WIPO, INTELLECTUAL PROPERTY NEEDS AND EXPECTATIONS OF TRADITIONAL KNOWLEDGE HOLDERS: WIPO REPORT ON FACT-FINDING MISSIONS ON INTELLECTUAL PROPERTY AND TRADITIONAL KNOWLEDGE (1998-1999), at 167 (2001) [hereinafter WIPO FACT-FINDING MISSIONS REPORT], *available at* http://www.wipo.int/export/sites/www/tk/en/tk/ffm/report/final/pdf/part2.pdf. The WIPO conducted nine fact-finding missions in 1998 and 1999 on the intellectual property needs and expectations of holders of traditional knowledge. Some traditional knowledge holders already make effective use of trade secret law under national law. For example, the Unaaq Fisheries, owned by the Inuit people of Northern Quebec and Baffin Island, regularly transfers proprietary technologies using its own experience in the commercial fishing industry; the techniques it develops are protected as trade

One point of clarification: as previously noted, the term traditional knowledge has been used to refer to a vast and varied body of information.[142] It has been used, for example, to refer not only to knowledge possessed by specific indigenous and local communities. The term has also been used to describe knowledge that is indigenous to a particular region or country and is generally known by many segments of society—for example, certain aspects of Aryuvedic medicine. Trade secret law would not apply to such information. Toward the other end of the spectrum, however, traditional knowledge may be known within one particular indigenous or local group, or only by specific members of a particular group (e.g., healers), or, more commonly and complicatedly, by a discrete number of neighboring groups within a geographical area. It is this subset of traditional knowledge for which trade secret law has something to offer.

In the modern commercial context, trade secret rights generally arise in three kinds of interactions: (1) where there is a contractual agreement; (2) where, even in the absence of a contract, the parties' relationship or conduct leads to the inference that the information was disclosed in confidence and any use or disclosure beyond the boundaries of confidence is wrongful; and (3) where a party uses improper means to acquire the information (sometimes described as "competitive intelligence" cases).[143] Each of these situations is potentially relevant to traditional knowledge holders.

1. *The Contractual Agreement Context*

In the contractual agreement context, imagine traditional knowledge holder *T* has nonpublic information to which company *C* (or perhaps a bioprospector or researcher acting on *C*'s behalf) wants access. *T* agrees to give *C* access, but only in exchange for *T*'s explicit agreement to respect various restrictions on use and disclosure, as well as a royalty or percentage of future benefits from *C*'s use of the information. *T*'s sharing of the secret information in this context—even with multiple firms—does not make the information "public," so long as *T* has exercised "reasonable" precautions to prevent unauthorized disclosure of the secret.[144]

In addition, trade secret law incorporates certain default rules prohibiting *C*'s retransfer of that information unless separate permission is negotiated.[145] As Pamela Samuelson has observed in considering the application of trade secret rules to firms' use of personal data shared over the Internet:

> The general rule of trade secrecy licensing is that if the licensor has provided

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secrets under Canadian law. WIPO, *Survey on Existing Form of Intellectual Property Protection for Traditional Knowledge—Preliminary Analysis and Conclusions*, at 5, WIPO Doc. WIPO/GRTKF/IC/2/9 (Dec. 3, 2001).

142. *See supra* notes 3-4 and accompanying text.

143. Samuelson, *supra* note 73, at 1152 (delineating these three categories); *see also* Lemley, *supra* note 12, at 318-19 (describing three common circumstances in which trade secret cases arise).

144. Samuelson, *supra* note 73, at 1152. Discerning "reasonable" precautions under the circumstances is a fairly fact-specific inquiry that leads courts to differing results, but absolute secrecy is certainly not required. *See infra* notes 175-179 and accompanying text.

145. Samuelson, *supra* note 73, at 1156-57.

> data to another for a particular purpose, the data cannot be used for other purposes without obtaining permission for the new uses. . . .
>
> . . . The general default rule of trade secret licensing law is that license rights are nontransferable unless the licensor grants a right to sublicense. Sublicenses, if permitted, generally oblige the sublicensee to abide by the same terms as the license imposes on the now sublicensor.[146]

Similarly, traditional knowledge holders can bind any downstream recipients of the information to the same restrictions that the initial purchaser agreed to as a condition of sale. But while some local and indigenous groups have successfully negotiated contracts—often with the help of NGOs or national governments—others "lack basic contract negotiation, drafting and implementation skills."[147] For this latter group, the contractual agreement context may be less relevant than the other two contexts in which trade secret rights arise.

2. *The Relationship-Based Context*

In the relationship-based context, trade secret rights arise where traditional knowledge holder *T* reveals relatively secret information to company *C* under circumstances in which *C* would have reason to understand that disclosure was limited—even absent any express agreement. In addition, this trade secret can be enforced against a third party that does not itself violate a relational duty, so long as that party has obtained the protected information from one who it knows or has reason to know obtained the information through breach of confidence.[148]

In the modern commercial context, for example, a firm may disclose certain nonpublic information to a consultant for a limited purpose. Even if the parties did not have an explicit agreement limiting disclosure or use, the consultant would know she could not sell that information or disclose it to other entities.[149] Another common example of relationship-based trade secrecy occurs where two parties engage in precontractual negotiations. In an oft-cited U.S. case, *Smith v. Dravo Corp.*, the plaintiff revealed secret business information to the defendant in the course of negotiations to determine whether defendant would buy plaintiff's company.[150] The court determined that while

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146. *Id.* at 1155-57; *see also* M.D. Mark, Inc. v. Kerr-McGee Corp., 565 F.3d 753, 763 (10th Cir. 2009) (holding that a licensee misappropriated trade secrets by transferring information to a subsidiary through a merger without the licensor's consent). While some of these restrictions are illustrative of general contract principles, they "find strong expression in the context of trade secrets." Samuelson, *supra* note 73, at 1155 n.158. Moreover, the default rule of transferability in the context of trade secret is unlike contract law more generally. Contracts that do not involve federally granted IP rights generally are assignable under state law unless the contract relies on the honesty, reputation, skill, character, or ability of one of the parties. 9 ARTHUR CORBIN, CORBIN ON CONTRACTS § 49.1 (John E. Murray, Jr. ed., rev. ed. 2007).

147. WIPO FACT-FINDING MISSIONS REPORT, *supra* note 141, at 95.

148. *See* UTSA, *supra* note 126, § 1(2) (1985); POOLEY, *supra* note 125, § 2.03[3][a]; Samuelson, *supra* note 73, at 1157.

149. Samuelson, *supra* note 73, at 1152-53; *see also* Harbor Software, Inc. v. Applied Systems, Inc., 887 F. Supp. 86, 90 (S.D.N.Y. 1995) (holding that a verbal promise of confidentiality defeated the defendant's motion for summary judgment).

150. 203 F.2d 369 (7th Cir. 1953).

"no express promise or trust was exacted from defendant," it was "implied from the relationship of the parties."[151] As a result, the defendant was enjoined from making further use of the information.[152]

Similarly, relatively secret information revealed by traditional knowledge holders to outsiders can be protected from further use or disclosure when implied by the parties' relationship. For example, suppose that company *C* (or a government research institute) approaches representatives of *T* to learn of the medicinal uses of various plants. *T* has historically used the nut of a local tree for hunger-suppressing purposes; *T* is interested in selling this nonpublic information to *C*. But *C* is unwilling to buy the information unless *T* first reveals it, and *C* can run its own tests to confirm that the nut does what *T* says. Where *T* discloses the information for this limited purpose, *C* would not be able to use the information for other purposes or disclose it to others, even in the absence of an express agreement to that effect. In such a case, trade secret law would limit *C*'s ability to take advantage of *T* because "[t]rust was reposed" in *C* by *T* that "the information thus transmitted would be accepted subject to that limitation," and *C* "knew and understood this limited purpose."[153]

Relevant case law in the traditional knowledge context is undeveloped. But at least one Australian court has enjoined an outsider's use of indigenous knowledge based on an implied relational duty—albeit in different factual circumstances. In *Foster v Mountford*, the Supreme Court of the Northern Territory in Australia enjoined the sale (within a certain geographical area) of a noted anthropologist's book that contained sensitive information about the Pitjantjara people, including locations of sacred tribal sites and rituals.[154] The author had gained this otherwise secret information in the course of anthropological fieldwork. A Pitjanjara tribal body brought suit against the author and publisher of the book on behalf of the Pitjantjara community. In concluding that the author had an implied duty of confidence not to reveal certain information he had obtained, the court explained: "[W]hilst there is no evidence by document or conversation or indeed by recognized legal scholarship of the manner in which the confidence was reposed, I am satisfied that the book reveals some secrets . . . which it was understood would not be revealed when the trust was imposed.[155]

Finally, the most common example of a relationship-based duty in trade secret cases is that of an employer-employee relationship. Though employment contracts are now widespread in the modern commercial context, employees

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151. *Id.* at 376.

152. *Id.* at 378.

153. *Id.* at 377.

154. *Foster v Mountford* (1976) 29 FLR 233 (Austl.). The court's analysis was not based on trade secret law, but rather on a more general duty of good faith. *Id.* at 237-38.

155. *Id.* at 235. For an interesting discussion of this case, see BROWN, *supra* note 20, at 33-34. The fact that this information was to be used for academic rather than more commercial purposes has led to criticism of this opinion—specifically, claims about its potential stifling effects on academic inquiry. More recently, Barton Beebe has pointed to the *Foster* opinion as an example of indigenous groups' efforts to limit access to TCEs by members of their own societies "in order to facilitate, among other things, the enforcement of social hierarchy and the production of social homeostasis." Barton Beebe, *Intellectual Property Law and the Sumptuary Code*, 123 HARV. L. REV. 809, 877 (2010).

are held to a duty to protect their employers' interest in secret practices and information even absent an explicit contract.[156] An interesting parallel can be made between employees' duties to protect their employers' secrets and the duty of an indigenous group's individual members to protect the group's secrets. In both contexts, the individual's liberty interest must be balanced against the obligation of loyalty to the firm or group. In the traditional knowledge context, local customary law and its restrictions on how individuals in the group can use information or share it with outsiders may substitute for a duty of confidence secured expressly through contract or impliedly through the employee relationship.[157]

While this potential intersection of local customary law and trade secret is also undeveloped in the case law, at least one prominent decision in a copyright infringement suit (again from Australia) suggests the potential role of customary law in delineating the individual's obligation to the indigenous group. In *Bulun Bulun v R. & T. Textiles Pty. Ltd*,[158] Johnny Bulun Bulun, a member of the Ganalpingu aboriginal community, created a painting reflecting the religious and mythical knowledge of his clan. The creation of these paintings was a sacred duty entrusted to him by his clan community, as Bulun Bulun acknowledged. The defendant, a textile company, used images of Bulun Bulun's work without his permission in ways that were deeply disturbing to the community. Looking to the "laws and customs of the Ganalpingu people," the court determined that Bulun Bulun had "fiduciary obligations" to the community.[159] Although Bulun Bulun was entitled to sell his artwork in accordance with community principles, the court explained that he could not "exploit the artistic work in a way that is contrary to the laws and custom of the Ganalbingu people."[160] The court concluded that Bulun Bulun had a duty to take action in the event of copyright infringement by a third party—which in this case, he had.[161]

Though indigenous group advocates may celebrate a decision like *Bulun*

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156. *See* Lemley, *supra* note 12, at 318.

157. *See* Taubman & Leistner, *supra* note 15, at 132-33.

158. (1998) 41 IPR 513 (Austl.). The principal defendant in this copyright case was a Brisbane-based textile company that had imported fabric imprinted with images taken from one of Bulun Bulun's best-known paintings, *Magpie Geese and Water Lilies at the Waterhole*. The defendant company used Bulun Bulun's work without his permission or paying him royalties. From the clan's perspective, the infringement of Bulun Bulun's work also harmed the community—thus the inclusion of a second plaintiff, a senior clan official named George Milpurruru. For extended discussions of this case, see, for example, BROWN, *supra* note 20, at 43-54; Colin Golvan, *Aboriginal Art and Copyright, The Case for Johnny Bulun Bulun*, 11 EUR. INTELL. PROP. REV. 346 (1989).

159. *Bulun Bulun*, 41 IPR at 530. In explaining its consideration of customary indigenous law, the court explained:

> [T]he law and custom of the Ganalbingu people [is] part of the factual matrix which characterises the relationship as one of mutual trust and confidence. It is that relationship which the Australian legal system recognises as giving rise to the fiduciary relationship, and to the obligations which arise out of it.

Id.

160. *Id.* at 513.

161. Because Bulun Bulun had vigorously defended his copyright, the court determined that he had satisfied his fiduciary obligations. The court also noted that if Bulun Bulun had not taken action to enforce his copyright, the clan would be entitled to take remedial action to enforce it. *Id.*

Bulun, it does raise troubling issues of individual autonomy vis-à-vis the group. As some scholars have observed, the recognition of group rights may privilege "cultural orthodoxy over progressive cultural dissent," reinforce traditional gender and other hierarchies, and result in undue "repression of individual autonomy within a culture."[162] The question of an individual's obligation to the indigenous group becomes even murkier when individuals leave, intermarry, or otherwise mix with the larger population.[163] Why should those who have chosen to leave the community be bound by information restrictions mandated by the group? Yet even in the ordinary commercial context, courts must grapple with thorny issues of demarcation—for example the "very difficult" and highly fact-specific task of delineating an employee's freely transferable "general skill, knowledge and training" from an employer's protectable trade secret.[164] While the traditional knowledge context introduces a new level of complexity to this calculus, suffice it to say, courts can consider local customary law when assessing a relationship-based duty—just as they look to industry or firm custom in the modern commercial context.[165]

3. *The "Improper Means" Context*

Trade secret issues also arise when an unrelated party (often, a competitor) uses "improper means" to acquire relatively secret information. Improper means have been found in various situations, including theft, bribery, misrepresentation, inducement or knowing participation in a breach of confidence, and eavesdropping or other espionage. There is, however, no "complete catalogue" of improper means.[166] The term is fairly broad and does not require an act to be independently actionable; for example, courts have deemed "dumpster diving" by competitors to be improper means in some cases.[167] In addition, a trade secret can be enforced against a third party that

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162. Madhavi Sunder, *Intellectual Property and Identity Politics: Playing with Fire*, 4 J. GENDER RACE & JUST. 69, 75 (2000). In the real property context, Hanoch Dagan and Michael Heller have argued that a legal regime should ideally facilitate a "liberal commons," in which "a limited group of owners [can] capture the economic and social benefits from cooperative use" of a given resource, "while also ensuring autonomy to individual members who retain a secure right to exit." Hanoch Dagan & Michael Heller, *Liberal Commons*, 110 YALE L.J. 549, 553 (2001).

163. *See, e.g.*, Munzer & Raustiala, *supra* note 42, at 61 (noting this concern); *see also* BROWN, *supra* note 20, at 66 (discussing similar concerns for "urban Aboriginals").

164. POOLEY, *supra* note 125, § 4.01[3]; *see also* RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 42 cmt. d (1995) ("The distinction between trade secrets and general skill, knowledge, training, and experience is intended to achieve a reasonable balance between the protection of confidential information and the mobility of employees.").

165. The extent to which customary law is recognized and enforced varies among and between States' legal systems. *See generally* 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 (2007). The question of how to ensure consistent recognition of local customary laws among and between states is indeed a challenging one that is beyond the scope of this Article. For a discussion of this issue, see Taubman, *supra* note 23, at 556-57.

166. E.I. DuPont de Nemours & Co. v. Christopher, 431 F.2d 1012, 1016 (5th Cir. 1970) (quoting RESTATEMENT OF TORTS § 757 cmt. f (1939)).

167. Douglass Lichtman, *How the Law Responds to Self-Help*, 1 J. L. ECON. & POL'Y 215, 226 (2005) (describing dumpster diving as an act that is "in many jurisdictions sufficient to support an allegation under trade secret law, but not is not typically in and of itself a tort or trespass"); *see also* POOLEY, *supra* note 124, § 6.02[2](e) (describing cases in which dumpster diving by competitors is

does not itself engage in improper means, so long as that party has obtained the protected information from one whom the party knows or has reason to know obtained the information by improper means.[168]

The paradigmatic improper means case in the United States is *E.I. DuPont de Nemours & Co. v. Christopher*.[169] In that case, the court held that the defendants misappropriated secrets when they engaged in the fully legal act of taking aerial photographs of the plaintiff's engineering plant while it was under construction. The court explained that "'improper' will always be a word of many nuances, determined by time, place, and circumstances."[170]

For traditional knowledge holders, a trade secret claim based on improper means may arise, for example, where *C* obtains relatively secret information from a member of *T* through bribery or misrepresentation or providing misleading information about the true purposes for which the information is sought.[171] The WIPO IGC has outlined a list of "acts of misappropriation," some of which may serve as examples of improper means in the traditional knowledge context.[172] As in the modern commercial context, "the line between proper and improper behavior can be difficult to draw"[173]—and perhaps even more so in the traditional knowledge context, where parties may have radically different levels of sophistication.

C. *Demonstrating Reasonable Secrecy Precautions*

What constitutes reasonable secrecy precautions under the circumstances in the traditional knowledge context? Daniel Gervais has suggested that indigenous and local communities cannot point to contracts or other "hard" evidence to demonstrate efforts to keep knowledge secret.[174] In the modern commercial context, however, courts look not just to the existence of

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deemed improper means).

168. *See* UTSA, *supra* note 126, § 1(2); POOLEY, *supra* note 125, § 2.03[3][a]; Samuelson, *supra* note 73, at 1157.

169. *E.I. DuPont*, 431 F.2d. 1012.

170. *Id.* at 1017.

171. Such hypotheticals are not farfetched. *See, e.g.*, Winston S. Nagan, *Misappropriation of Shuar Traditional Knowledge (TK) and Trade Secrets: A Case Study on Biopiracy in the Amazon*, 15 J. TECH. L. & POL'Y 9, 26-27 (2010) (describing the bribing of Shuar officials with scholarships and visa priority in return for traditional knowledge information).

172. WIPO Intergovernmental Comm. on Intellectual Prop. & Genetic Res., Traditional Knowledge & Folklore, *Protection of Traditional Knowledge: Overview of Policy Objectives and Core Principles*, at 5, 7th Sess., WIPO Doc. WIPO/GRTKF/IC/7/5 (Aug. 20, 2004) [hereinafter WIPO, *Overview*]; *see also* Taubman & Leistner, *supra* note 15, at 156-67 (discussing this list). The WIPO IGC's list is, however, quite broad, including not only direct acts of deliberate misappropriation (e.g., theft, coercion, fraud, the provision of misleading information when trying to obtain prior informed consent), but also misappropriation in the form of unjust enrichment, deriving commercial benefit without compensating TK holders when compensation "would be consistent with fairness and equity in relation to the holders of the knowledge in view of the circumstances in which the user acquired the knowledge." WIPO, *Overview*, *supra* at 21.

173. POOLEY, *supra* note 125, § 6.02.

174. Gervais, *supra* note 10, at 968 (noting that instead "secrecy usually follows from the fact that only few people have access to the information based on customary laws and practices"); *see also* Munzer & Raustiala, *supra* note 42, at 61 (suggesting that while the "concept of trade secrecy can apply to indigenous peoples more easily," on the other hand, "contractual control over disclosure in commercial settings has no clear analog in tribal contexts").

nondisclosure agreements (though such agreements are commonplace). Courts view the reasonable secrecy requirement as a flexible one that is dependent on factual circumstances. Consequently, courts have looked to a variety of evidence, including a firm's customs with respect to secrecy, its use of password protections or confidential databases, and the extent to which it otherwise provides employees with notice that certain information should not be shared with those outside the company.[175]

Similarly, in the traditional knowledge context, courts can look to a group's local customary law as evidence of efforts to constrain the diffusion of traditional knowledge with respect to outsiders.[176] But as previously noted, case law in this area is still undeveloped.[177] Moreover, the number of people *within* the indigenous group who know the secret would not necessarily have to be small to satisfy the reasonable secrecy requirement.[178] Within the modern firm, for example, customer lists, marketing data, and similar information may be known or available to many employees without destroying its status as a trade secret.[179]

A bigger impediment to maintaining secrecy arises when multiple groups hold the same traditional knowledge. One of the virtues of trade secret law for traditional knowledge holders (at least conceptually) is that multiple groups can "own" the same secret if they developed it independently. But this makes the containment project trickier. A group might be able to restrict its own members from sharing—indeed, a court might even defer to that group's custom—but it cannot do anything about another group's decision to share that same information. Thus, the more widely the same knowledge is distributed among different indigenous and local communities, the less likely that trade secret law will prove an effective vehicle for protection.[180] The usefulness of trade secret law in such circumstances may depend on the ability of groups to create "'limited commons' resources that are shared within a group but that are off-

175. POOLEY, *supra* note 125, § 4.04[2][b] ("[F]or example, a small, family-owned company with no history of information loss will be held to a relatively lesser standard."); *id.* (listing cases in which owners' secrecy efforts are deemed sufficient, even in the absence of nondisclosure agreements). Courts often focus on whether employees knew or had notice of the confidential nature of the information. *Id.*

176. Taubman & Leistner, *supra* note 15, at 132.

177. *See supra* notes 154-159 (discussing *Foster* and *Bulun Bulun* and courts' use of customary law).

178. *See* Dutfield, *supra* note 10, at 259. On this point, a 1993 report of the Congressional Research Service states, "[I]f a shaman or other individual has exclusive access to information because of his status in the group, that individual *or the indigenous group together* probably has a trade secret." *Id.* (quoting JOSEPHINE R. AXT ET AL., CONG. RESEARCH SERV., 93-478 A, BIOTECHNOLOGY, INDIGENOUS PEOPLES, AND INTELLECTUAL PROPERTY RIGHTS 63 (1993)).

179. *See, e.g.*, POOLEY, *supra* note 125, § 4.04[3]. In the traditional knowledge context, there may be an added reason not to apply the reasonable secrecy requirement in a way that encourages hoarding of knowledge by only a few members of the group. Namely, "When esoteric knowledge is held by only a handful of anointed experts, entire bodies of tradition may be lost through a few unexpected deaths." BROWN, *supra* note 20, at 31.

180. *See, e.g.*, Heald, *supra* note 1, at 522 n.12 (suggesting that the distribution of knowledge between different groups makes using trade secret impracticable). Of course, the same is true for firms. *See* Milgrim, TRADE SECRETS § 1.07[2] ("[A]s a plurality of independent use begins . . . the secret erodes.").

limits to free exploitation to outsiders."[181]

An experimental project by twelve Dhekuana Indian tribes (with help from the NGO Otro Futuro in Venezuela) is an example of just such an effort. These tribes are developing a closed access database of traditional information, including ethnobotanical knowledge. Part of the experiment involves establishing a community foundation—in effect, a board of directors for the tribes—in which rights could be vested. The community foundation intends to treat the ethnobotanical knowledge as trade secrets, not to be disclosed to outsiders unless they agree to pay royalties to the foundation.[182] Though outsiders may attempt to gain the information through other channels—for example, from a disgruntled or opportunistic group member—the group's act of maintaining a closed access database should be evidence of reasonable secrecy efforts, as it is in the modern commercial context, particularly if group members had notice of it.[183]

Similarly, in Ecuador, various indigenous and local groups have participated in an experimental project to treat traditional knowledge as trade secret, in conjunction with the NGO Ecociencia.[184] Ecociencia catalogues and registers botanical knowledge from various groups interested in participating in closed-access databases. Each community or group has its own file. Ecociencia does separate checks to verify whether different groups or communities have the same knowledge, and if there is overlap, future benefits are shared among the relevant groups. Ecociencia also compares the registered knowledge with Napralert, a comprehensive database relating to plants and ethnobotanical knowledge, to assess if the traditional knowledge is already publicly available. If it is not there, Ecociencia treats the community or communities with the knowledge as having a trade secret and discloses it to companies under terms of confidentiality and benefit sharing guaranteed by contract. Thus far, the database contains approximately eight thousand entries, forty percent of which had already been published in Napralert. The remaining sixty percent are

181. Keith Aoki, *"Free Seeds, Not Free Beer": Participatory Plant Breeding, Open Source Seeds, and Acknowledging User Innovation in Agriculture*, 77 FORDHAM L. REV. 2275, 2275-76 (2009) (discussing the ways in which the International Treaty of Plant Genetic Resources creates a type of "limited commons" for certain crops). For analyses of limited commons and common pool arrangements, see, for example, Charlotte Hess & Elinor Ostrom, *Ideas, Artifacts, and Facilities: Information as a Common Pool Resource*, 66 LAW & CONTEMP. PROBS. 111 (2003) (discussing how certain types of information may be optimally managed as "common pool resources" rather than as private property); and Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 144, 160-61 (1998) (describing limited commons as private "property on the outside, commons on the inside" and the application of this concept to traditional creations). More recently, Michael Madison, Brett Frischmann, and Katherine Strandburg have analyzed commons and pooling arrangements in the knowledge environment (e.g., patent pools, open source software, and research universities), building on Ostrom's work examining the natural environment. Michael Madison, Brett Frischmann & Katherine Strandburg, *Constructing Commons in the Cultural Environment*, 95 CORNELL L. REV. 657 (2010).

182. Frank J. Penna & Coenraad J. Visser, *Cultural Industries and Intellectual Property Rights*, *in* DEVELOPMENT, TRADE, THE WTO: A HANDBOOK 390, 397 (Bernard Hoekman, Aaditya Mattoo & Philip English eds., 2002).

183. *Cf.* POOLEY, *supra* note 125, § 4.04[2][b] (noting the role of employer's notice to employees about the confidential nature of information in gauging reasonable secrecy efforts).

184. DUTFIELD, *supra* note 16, at 106.

treated as trade secrets. At least three companies interested in accessing the database have approached Ecociencia.[185]

Increasingly, a number of traditional knowledge holders have turned to strategies involving self-documentation and maintenance of information in closed-access databases. The Cree community in Canada, for example, is documenting its own traditional ecological knowledge; some knowledge will be shared with people beyond the community, and some will not.[186] Another group of North American indigenous communities, the Tulalip tribes, have developed Storybase, a digital collection of their traditional knowledge. While community leaders permit some of the traditional knowledge to be disclosed outside the community, they identify other information for use solely within the Tulalip community; they make these determinations according to local customary law.[187]

Interestingly, that trade secret law imposes a separate requirement of reasonable secrecy precautions is itself the subject of debate among intellectual property scholars.[188] Such self-help measures are a somewhat unusual condition for obtaining a legal remedy; as Douglass Lichtman observes, "[p]roperty owners are not required to erect a fence in order to later sue an unwelcome visitor for trespass."[189] Some courts and scholars justify the requirement of reasonable secrecy efforts as evidence of the information's economic value (i.e., groups would not bother guarding worthless information). Others regard it as evidence of the defendant's wrongful acquisition (i.e., it probably took some kind of funny business to get around the fences set up by the trade secret holder).[190] And still others point to the practical aspects of the rule: reasonable secrecy efforts "usually work," and "[t]o the extent that they do, there is no loss and no lawsuit."[191]

D. *The Uncertain Effect of TRIPS's "Commercial Use" Language*

Titled "Protection of Undisclosed Information," Article 39 of TRIPS

185. *Id.*; *see also* KARIN TIMMERMANS, TRIPS, CBD AND TRADITIONAL MEDICINES: CONCEPTS AND QUESTIONS § 8.2 (2001), *available at* http://apps.who.int/medicinedocs/es/d/Jh2996e/12.2.html (noting, however, that one potential concern with this experimental project is that the parties to the contract are the interested company and the government of Ecuador).

186. WIPO FACT-FINDING MISSIONS REPORT, *supra* note 141, at 120. In turning to self-documentation, the Cree "were univocal that the decision making-process about TK documentation would have to follow traditional structures of governance and authority: 'The elders have to decide what needs to be protected and documented. For instance on our traditional medicine, our Elders have said that they don't want to have it published.'" *Id.* (quoting Statement of Cree Representatives at the Roundtable on IP and TK at the Grand Council of the Crees, Montreal (Nov. 30, 1998)).

187. WIPO, *supra* note 45, at 20.

188. Mark Lemley, for example, suggests that reasonable secrecy measures should not be an independent element of a trade secret claim. Lemley, *supra* note 12, at 349-50.

189. Lichtman, *supra* note 167, at 226.

190. *See* MERGES ET AL., *supra* note 126, at 56-57; Lichtman, *supra* note 167, at 229-30.

191. POOLEY, *supra* note 125, § 4.04[1]. Douglass Lichtman suggests, however, that this point might lead to the opposite conclusion: if reasonable secrecy measures usually work, then firms would do it anyway and the law need not encourage it with a separate requirement. Lichtman, *supra* note 167, at 228-29.

describes member countries' obligation to protect trade secrets.[192] It recognizes the same basic elements of a trade secrecy claim as the Uniform Trade Secrets Act (UTSA)[193]: information of value that is not generally known, reasonable secrecy efforts, and inappropriate acquisition. But the wording of Article 39 does differ from the UTSA in one significant way. Article 39 covers undisclosed information that "has commercial value" without the UTSA's qualifying terms of "actual or *potential*" economic value.[194] Consequently, the application of Article 39 to as yet un-commercialized traditional knowledge is uncertain.[195] A trade secret approach to traditional knowledge at the international level would require clarifying—and broadening—Article 39's commercial value requirement.

Even such a broader interpretation of the commercial use requirement could pose certain evidentiary challenges for traditional knowledge holders, particularly those who are opposed to commercializing their knowledge or are unwilling to describe their knowledge in terms of economic value. Under any version of the commercial use requirement, claimants would need to show that the information has more than just spiritual or other non-economic value—if not to themselves, then to the parties that misappropriated it. Nonprofit religious organizations making trade secret claims in the United States have faced similar obstacles with respect to the commercial use requirement—and have had varying degrees of success.[196]

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192. TRIPS, *supra* note 8, pt. 2, § 7 tit. Article 39 requires countries to protect information within the control of "natural and legal persons" from being "disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices," so long as such information

> (a) is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question; (b) has commercial value because it is secret; and (c) has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.

TRIPS, *supra* note 8, art. 39(2). A footnote to the text explains that "a manner contrary to honest commercial practices" shall mean "at least practices such as breach of contract, breach of confidence and inducement to breach, and includes the acquisition of undisclosed information by third parties who knew, or were grossly negligent in failing to know, that such practices were involved in the acquisition." *Id.* art. 39(2) n.10.

193. UTSA, *supra* note 126.

194. POOLEY, *supra* note 125, § 15.02[3][a].

195. Munzer & Raustiala, *supra* note 42, at 61.

196. In decisions involving use of scriptural material allegedly stolen from the Church of Scientology, the Ninth Circuit has held that religious information alleged to have only spiritual value cannot be a trade secret, but may qualify if it has economic value. *See* Religious Tech. Ctr. v. Scott, 869 F.2d 1306, 1308 (9th Cir. 1989) ("This time, the Church argued that the scriptures qualified as trade secrets because they had economic value."); Religious Tech. Ctr. v. Wollersheim, 796 F.2d 1076, 1090 (9th Cir. 1986), *cert. denied*, 479 U.S. 1103 (1987) ("To be protictable [sic] as a trade secret . . . the confidential material must convey an actual or potential *commercial* advantage, presumably measurable in dollar terms. We do not accept that a trade secret can be based on the *spiritual* advantage the Church believes it adherents acquire over non-adherents by using the materials in the prescribed manner."); *see also* Religious Tech. Ctr. v. Netcom On-Line Commc'n Servs., Inc., 923 F. Supp. 1231, 1252 (N.D. Cal. 1995) ("[T]here is no authority for excluding religious materials from trade secret protection because of their nature. Indeed, there is no authority for excluding any type of information because of its nature."); Bridge Publ'ns, Inc. v. Vien, 827 F. Supp. 629, 633-34 (S.D. Cal. 1993) (noting that the religious materials had economic value to the defendant).

E. *Independent Development, Reverse Engineering, Public Availability, and Enforcement Challenges*

From the perspective of traditional knowledge holders, trade secret law is limited in that it does not protect against an outsider's use of independently developed, reverse engineered, or publicly available information. As previously noted, trade secret law sweeps more broadly than patent law, but it offers more fragile protection.[197] For example, if company *C* lawfully obtains a plant and discovers its beneficial uses (e.g., for suppressing hunger or inducing sleep) through its own research, or reverse engineers an existing product that incorporates traditional knowledge to discover this information, then it is fair game. Even if an indigenous community objects to this use because the same plant has been used from time immemorial for sacred purposes, the community has no trade secret claim.

These limitations will no doubt trouble a number of traditional knowledge holders, particularly because some traditional knowledge is already public—described in academic publications, on the labels of commercially marketed products, or in publicly available traditional knowledge databases.[198] Some indigenous and local communities have, in fact, expressed opposition to any documentation efforts "until appropriate protective measures are in place," fearing that they will "merely facilitate the unauthorized exploitation of TK."[199] But self-documentation strategies or participation in closely held databases are compatible with trade secret law. And as described above, a number of traditional knowledge holders have turned to such strategies. For other groups, NGOs like Otro Futuro and Ecociencia can act as "infomediary" entities,[200] helping them to develop closed-access archives and facilitating disclosure and negotiation with "outsiders."[201]

Other difficulties from the perspective of traditional knowledge holders include monitoring and enforcement—for example, learning that violations have taken place, litigating those violations, and obtaining timely remedies. NGOs and government agencies can help (and in some cases have helped) ease some of these challenges for traditional knowledge holders. To this end, national and international bodies should continue to promote educational and

197. *See supra* Section IV.A.

198. *See supra* Subsection II.C.2. Nonetheless, the issue of when publication destroys trade secrecy is itself complicated. Information that is publicly available but obscure might still be a secret, "such as posting on a single server on the internet where no index points to the information." Michael Risch, *Trade Secret Law and Information Development Incentives*, *in* THE LAW AND THEORY OF TRADE SECRECY: A HANDBOOK OF CONTEMPORARY RESEARCH (Rochelle C. Dreyfuss & Katherine J. Strandburg eds., forthcoming 2011); *see also* NEV. REV. STAT. § 600A.055 (2001) (preserving an illicit posting's secrecy if trade secret owner acts quickly to enjoin the publication); DVD Copy Control Ass'n v. Bunner, 10 Cal. Rptr. 3d 185, 192-93 (Cal. Ct. App. 2004) ("Publication on the Internet does not necessarily destroy the secret if the publication is sufficiently obscure or transient or otherwise limited so that it does not become generally known to the relevant people, i.e., potential competitors or other persons to whom the information would have some economic value.").

199. WIPO FACT-FINDING MISSIONS REPORT, *supra* note 141, at 90.

200. Samuelson, *supra* note 73, at 1158.

201. Penna & Visser, *supra* note 182, at 397.

capacity building efforts within these communities.[202] Some commentators have proposed the use of alternate dispute resolution mechanisms, such as mediation and arbitration, in resolving traditional knowledge disputes.[203]

The issue of enforcement is, of course, complicated by the fact that national laws—rather than any uniform international law—determine the specific nature and application of enforcement measures. While TRIPS does require member countries to make available fair, equitable, timely, and effective procedures for the enforcement of intellectual property rights (including trade secrets),[204] in practice, this is not always the case. Even for modern firms, the overburdened and inefficient court systems of developing countries pose significant challenges for obtaining timely and effective legal remedies. Thus, enforcement remains an ongoing challenge for any traditional knowledge policy.

F. *Comparing a Trade Secret Approach with a Broader Misappropriation Regime*

The WIPO IGC's draft "Objectives and Principles"—which will form the basis of an upcoming international instrument to protect traditional knowledge—revolve around a general norm against misappropriation.[205] These draft provisions will be subject to ongoing revision and debate as the WIPO IGC engages in text-based negotiations over the next several months.[206] The draft provisions attempt to synthesize and distill approaches to TK protection that are reflected in a variety of national, regional, and international legal instruments (including those described in Part III).[207] At the same time, the draft provisions are concerned with maintaining maximum flexibility "to national and regional authorities over the choice of precise policy options and legal mechanisms may be selected at the national or regional levels to achieve or implement them."[208] In attempting to reconcile a number of disparate national and regional approaches to traditional knowledge, the WIPO IGC focuses on a broad misappropriation norm as the glue that more or less holds them together.[209]

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202. *See, e.g.*, WIPO, *supra* note 45, at 5, 14-15 (discussing steps taken by WIPO to build capacity and "addressing both policy and practical linkages between the IP system and the concerns of practitioners and custodians of traditional knowledge").

203. *See, e.g.*, J. Janewa OseiTutu, *A Sui Generis Regime for Traditional Knowledge: The Cultural Divide in Intellectual Property Law*, 15 MARQ. INTELL. PROP. L. REV. 147, 211 (2011); Jacques de Werra, *Fighting Against Biopiracy: Does the Obligation To Disclose in Patent Applications Truly Help?*, 42 VAND. J. TRANSNAT'L L. 143, 175-77 (2009).

204. TRIPS, *supra* note 8, arts. 41-61. Article 41, for example, provides that "[p]rocedures concerning the enforcement of intellectual property rights shall be fair and equitable" and "[t]hey shall not be unnecessarily complicated or costly, or entail unreasonable time-limits or unwarranted delays." *Id.* art. 41(2). See *supra* note 39 and accompanying text for a discussion of WTO dispute settlement procedures that may be initiated by member governments for noncompliance with TRIPS requirements.

205. WIPO, *Traditional Knowledge Objectives*, *supra* note 3, Annex at 3-4.

206. *See supra* note 72.

207. Taubman & Leistner, *supra* note 15, at 156-57.

208. WIPO, *Overview*, *supra* note 172, at 4-5.

209. *Id.* at 6.

While the concept of misappropriation is certainly linked to trade secrecy,[210] it is worth considering how an international regime for traditional knowledge protection based on trade secret law may differ from, and ultimately be preferable to, the broader misappropriation regime outlined in the WIPO IGC draft provisions.[211] The difference is not so much that the draft provisions define "acts of misappropriation" expansively (as even within trade secret law the concept of misappropriation or "improper means" is often ill defined).[212] Instead, the key difference is that under the WIPO IGC's broad misappropriation norm, there is no requirement that the information be relatively secret to warrant protection.

While the term of protection in both a trade secret and misappropriation regime is indefinite, under the former, the public availability of information ends the term of protection. But under the proposed misappropriation provisions, protection exists so long as the traditional knowledge "is maintained by traditional holders, remains distinctively associated with them, and remains integral to their collective identity," without an assessment of whether the information is, in fact, publicly available.[213] Indeed, the potential expansiveness of this approach, and its potential inclusion of publicly available information, is a subject of ongoing debate in the current text-based negotiations.[214]

A broad misappropriation norm might, as the WIPO IGC suggests, accommodate maximum national flexibility in tinkering with traditional knowledge protection. But its expansive nature might also render it unworkable. As Antony Taubman observes, "It may be difficult retrospectively to translate a culturally rooted sense of misappropriation into a firm legal rule against misuse that one can sustain in foreign jurisdictions."[215] By contrast, the requirement of relative secrecy (i.e., that the information was not readily accessible to the public) in trade secret law offers a starting point and limiting principle to what is otherwise a virtually unbounded cause of action for any behavior by outsiders that traditional knowledge holders deem objectionable.[216]

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210. *See supra* notes 166-170 and accompanying text (explaining that a claim for trade secret violation requires the defendant to misappropriate the secret, by violating a relational duty or "improper means").

211. In the states that have adopted the UTSA, a misappropriation claim based on the same set of facts as a trade secret claim is considered "displaced" by the statute. The misappropriation doctrine "may ultimately survive only as a special remedy for a special situation: the protection of extremely time-sensitive information," or "hot news," of the sort at issue in *International News Service v. Associated Press*, 248 U.S. 215 (1918). POOLEY, *supra* note 125, § 3.04.

212. *See supra* note 172 and accompanying text.

213. WIPO, *Traditional Knowledge Objectives*, *supra* note 3, at 47. While the draft provisions state that national authorities "may exclude from the principle of prior informed consent the fair use of traditional knowledge which is already available to the general public," users of that traditional knowledge must nonetheless "provide equitable compensation for industrial and commercial uses of that traditional knowledge." *Id.* at 44.

214. *See* WIPO Intergovernmental Comm. on Intellectual Prop. & Genetic Res., Traditional Knowledge & Folklore, *Revised Provisions for the Protection of Traditional Knowledge: Policy Objectives and Core Principles*, at 20, *Annex to The Protection of Traditional Knowledge & Folklore*, 18th Sess., WIPO Doc. WIPO/GRTKF/IC/18/5 (Jan. 10, 2011).

215. Taubman, *supra* note 15, at 528.

216. *See* Lemley, *supra* note 12, at 314.

The secrecy limitation exists in trade secret law to achieve a balance between providing legal rights over information and access to that information—i.e., it provides some basis for defining the legal right lest it "sweep too broadly."[217] As Lemley describes:

> If I can get ownership rights in any information, no matter how public, the result will be to deter, not promote, the dissemination of that information. . . . If any idea, no matter how public, is subject to a claim of legal rights, individuals and companies will reasonably worry about using any information they do not themselves develop.[218]

Requiring the existence of relative secrecy prevents trade secret law from turning into a "standardless, free-roaming right to sue competitors for business conduct that courts or juries might be persuaded to deem objectionable."[219] Indeed, this is a broader criticism of unfair competition or unjust enrichment claims. Resolution of such claims "still requires some external source to determine what behavior is and is not moral."[220] By treating as the starting point for such cases the existence of a trade *secret*, as opposed to what plaintiffs perceive as improper use of their information, the law "may help ensure that the plaintiff clearly defines what it claims to own, rather than . . . falling back on vague hand waving."[221]

In the long run, a broad misappropriation tort may create the kind of unpredictability and inconsistency that prevents firms from collaborating with traditional knowledge holders—and ultimately impedes innovation and the dissemination of new ideas. Trade secret law is thus a narrower—and likely more workable—alternative to a pure misappropriation approach.

Moreover, many traditional knowledge communities already rely on secrecy to protect and manage traditional knowledge. Thus, to some extent, a trade secret approach to traditional knowledge represents a convergence of customary knowledge management systems and formal law. In that sense, it moves one step closer to resolving the vexing "paradox" of traditional knowledge protection at the international level: to "find common standards for giving global recognition to the irreducibly diverse and local."[222]

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217. *Id.* at 338.

218. *Id.*

219. *Id.* at 343.

220. *Id.* at 327. Jerome Reichman offers a slightly different criticism of broad unfair competition laws in the IP context:

> Empirically, unfair competition norms enable courts to adopt temporary measures to alleviate the tensions that arise from gaps in the domestic systems of innovation. Over time, however, when legislatures fail to intervene (or when they choose to intervene inopportunely), courts applying these amorphous principles of unfair competition law to deep-rooted problems of small-scale innovation tend to become part of the problem rather than agents of any real solution.

Reichman, *supra* note 99, at 1788.

221. Lemley, *supra* note 12, at 344.

222. Taubman, *supra* note 23, at 555.

V. TRADE SECRET LAW: A NORMATIVE GUIDE FOR TRADITIONAL KNOWLEDGE PROTECTION

In this Part, I move beyond the practical possibilities of trade secret law for traditional knowledge holders and suggest its theoretical possibilities. As previously discussed, the rationales for protecting traditional knowledge may be diverse, encompassing concerns of human and indigenous rights, cultural diversity, and biodiversity conservation. And yet, despite these myriad rationales, can traditional knowledge protection nonetheless further the purposes of IP law?

In this Part, I explain how trade secret law can serve as a normative guide for theorizing traditional knowledge protection. Trade secret law itself emerged from a complicated stew of rationales—from "commercial morality" concerns to absolutist conceptions of property.[223] But despite these complex origins, modern trade secret law may actually serve the broader "disclosure" purposes of intellectual property law by reducing holders' overinvestment in secrecy, fostering trust, and encouraging disclosure of secret information to parties who can improve or make more productive use of it. Building on this "disclosure" justification for trade secret law, I argue that traditional knowledge protection may similarly lessen the distrust of local and indigenous communities toward outsiders and encourage collaboration and disclosure of traditional knowledge to more productive users.

A. *Understanding Trade Secrets as a Form of IP*

The justifications for protecting trade secrets have puzzled courts and scholars for over a century.[224] Trade secrets, though commonly labeled a form of intellectual property—often, the most valuable form of intellectual property owned by firms today[225]—are radically different from other types of intellectual property. Because of trade secret law's unique characteristics—including the requirement of relative secrecy, concern with the way a defendant obtains the secret, and the panoply of available remedies (damages, injunctive relief, even criminal sanctions)—it has proven difficult to elicit any scholarly agreement on the theoretical justifications for trade secret law and its place within existing legal doctrine.

Depending on whom you ask, you might hear that the justifications for trade secret law are best laid at the doorstep of tort, property, contract, or even criminal law.[226] Trade secret decisions over the last century offer little in the way of clarity.[227] The theoretical incoherence surrounding the doctrine has led

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223. *See infra* notes 226-230.

224. Lemley, *supra* note 12, at 314.

225. *See* Bone, *supra* 131, at 243. Trade secrets are particularly important to small companies because of the large costs associated with securing patents and patent litigation.

226. Lemley, *supra* note 12, at 319-28.

227. Trade secret decisions over the last century rely in roughly equal measure on tort concepts—emphasizing breach of confidence and the need to enforce to "minimum standards of commercial morality"—and property concepts. *See* Samuelson, *supra* note 73, at 1173. These two views are reflected in a pair of Supreme Court decisions, separated by nearly seventy years. The Supreme

Robert Bone to conclude that "there is no such thing as a normatively autonomous body of trade secret law," and a separate law of trade secret is, therefore, unnecessary.[228] In a recent article, Mark Lemley argues that trade secret law is justified—and best understood—not as a form of traditional property, contract, tort, or other extension of existing common law principles, but rather as intellectual property.[229] Trade secrets are best understood as intellectual property rights because they not only promote inventive activity (i.e., by encouraging invention in areas where patent law does not reach), but they also encourage broader disclosure and use of information.[230]

The "incentives to disclose" rationale is not limited to trade secret law; commentators refer to it as an underlying purpose of other IP laws, notably patent. Patent law, for example, requires that an applicant describe her invention in sufficient detail so that one ordinarily skilled in the field can make it, and that the information be published.[231] Thus, anyone can read the patent, including other inventors who can use the information to improve or design around the invention. What is interesting, however, about the disclosure rationale in the context of trade secret law is that it is not premised on publication of a secret, and it appears to have greater significance in relation to incentives to create. That is, the incentives-to-create rationale has an exalted place in the patent context[232] that it does not seem to have in the trade secret context—or at least, it is more controversial in the trade secret context. Some scholars, like Michael Risch, have gone so far as to say that, unlike in the patent or copyright contexts, incentives to create has a "very minor" place in providing a justification for trade secret law.[233]

Court embraced the tort theory of trade secret in a famous, early twentieth century case, *E.I. du Pont de Nemours Powder Co. v. Masland*, 244 U.S. 100 (1917). In that case, the Court viewed as the "starting point" of the offense not the plaintiff's ownership of a property right (i.e., the Court did not focus on whether the information qualified as a trade secret), but rather the defendant's acquisition of information through his "confidential relations with the plaintiffs." *Id.* at 102. More recently, however, the Supreme Court embraced a property view of trade secrets in *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1002-03 (1984). The Court held that a federal law requiring Monsanto to publicly disclose its trade secrets was a Fifth Amendment taking of private property that merited compensation. For a criticism of the property view advanced in this decision, see Pamela Samuelson, *Information as Property: Do* Ruckelshaus *and* Carpenter *Signal a Changing Direction in Intellectual Property Law?*, 38 CATH. U. L. REV. 365, 366 (1989).

228. Bone, *supra* note 131, at 245 ("[T]rade secret law is merely a collection of other legal norms—contract, fraud, and the like—united only by the fact that they are used to protect secret information."). Bone concludes that trade secret law is "parasitic"—i.e., it depends on some other "host theory" (e.g., contract law, theft, or the like) for normative support. Because it is parasitic, "trade secret law should not be expanded beyond the limits of its host theories." *Id.* at 245-46.

229. *See* Lemley, *supra* note 12, at 330-33.

230. *See id.*

231. 35 U.S.C. §§ 112, 122(b) (2006). In addition, patent law discourages secrecy in other ways, for example, by requiring prompt filing once an inventor starts using the invention. *See* 35 U.S.C. § 102(b) (2006). See Lemley, *supra* note 12, at 332 for a description of the ways in which patent law encourages disclosure and discourages secrecy.

232. *See, e.g.*, Alan Devlin, *The Misunderstood Function of Disclosure in Patent Law*, 23 HARV. J.L. & TECH. 401, 426 (2010) (arguing that the focus in patent law is rightly on inducing innovation rather than disclosure).

233. Risch, *supra* note 131, at 26; *see also* Bone, *supra* note 131, at 272 (noting that while trade secret law might enhance incentives to create certain kinds of technological information—e.g., intermediate results of an ongoing research project—it is less clear whether trade secret law is needed to encourage the creation of a wide range of nontechnological information that is currently protectable as

What, then, is the role of incentives to disclose in justifying trade secret protection? After all, the protection of trade secrets seems, at first glance, to cut in precisely the opposite direction (since the right is conditioned on relative secrecy). Lemley argues that "paradoxically . . . trade secret law actually encourages broader disclosure and use of information, not secrecy." It achieves this purpose in two ways.[234]

First, the legal protection provided by trade secret law reduces overinvestment in secrecy, which is "a real problem" absent trade secret protection.[235] Overinvestment may take the form of increased physical investments, like walls and fences,[236] or business decisions that restrict the flow of information between potential partners or new employees. Though the empirical evidence is far from perfect (as is often the case when gauging the real world effects of laws), it suggests that absent effective trade secret protection, companies "may be less willing to contract . . . production out to third parties if it means giving out information about secret processes, even where the third party could use the process more efficiently."[237]

Alternatively, companies may impose limits on employee mobility or "hire employees whom they expect to be loyal—such as family members—rather than strangers who would do a better job."[238] Such restrictions on the flow of information may impede the improvement and commercialization of inventions based on secret information and "therefore interfere with both the invention and disclosure functions of IP law."[239] The fact that trade secret law reduces rather than increases a firm's investment in secrecy "answers many of the objections people have offered to trade secret law."[240]

Lemley identifies a second way that trade secret laws encourage

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trade secret—e.g, market studies, long-term business plans, and customer lists—since "a firm must have a marketing plan and must compile financial data in any event, if it is to compete effectively"); Risch, *supra* note 198, at 4-17 (arguing that it is difficult to determine whether it is trade secret law that encourages an incentive to create or the underlying availability of secrecy through self-help mechanisms). Of course, some scholars and commentators do point to "incentives to create" as the key animating rationale of trade secret law. *See* RICHARD POSNER, ECONOMICS OF JUSTICE 244 (1981); *see also* Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 482, 484 (1974) (acknowledging trade secret law's role in encouraging invention—along with other non-incentive based values, such as privacy and commercial morality).

234. Lemley, *supra* note 12, at 333.

235. *Id.* at 334 ("Examples can be found as far back as the guild system . . . . [I]n the absence of legal means to protect [technical] knowledge [guilds] went to great lengths to prevent others from learning of it, imposing draconian limits on the mobility of employees."). Similarly, Michael Risch observes, "[T]he primary benefit of trade secret law is the decrease in both the amount spent on protecting secrets and the amount spent by those who seek to learn them." Risch, *supra* note 131, at 26; *see also* Lichtman, *supra* note 167, at 230 (suggesting that trade secret law serves to "displace particularly wasteful forms of self-help").

236. Recalling the *Christopher* (aerial photograph) case, in a world without trade secret, DuPont might have built a temporary roof over its plant during construction to avoid competitors' aerial spying. *See supra* note 166 and accompanying text.

237. Lemley, *supra* note 12, at 335.

238. *Id.* at 333.

239. *Id.* at 335.

240. *Id.* at 337. Bone, however, seems to question this particular benefit of trade secret law and suggests that this argument "ignores enforcement costs and underestimates the transaction costs of licensing, both of which are likely to be especially high when secret information is involved." Bone, *supra* note 131, at 273.

disclosure: by serving as a partial solution to Arrow's Information Paradox.[241] That is, in the absence of adequate legal protection, the developer of a potentially valuable but secret idea will have a hard time selling it to someone who could make better use of it. This is because in order to sell the idea, he has to disclose it, but disclosing it destroys the value inherent in its secrecy.[242] A trade secret right, which prevents the other party from disclosing or using the idea in breach of a confidential relationship, allows the idea-holder to negotiate freely:

> The law, by giving certain rights to the holder of the secret, allows him to disclose information he would otherwise have been unwilling to share, and therefore permits business negotiations that can lead to commercialization of the invention or sale of the idea, serving both the disclosure and incentive functions of IP law.[243]

This result would be difficult to attain with contract law alone, as a putative buyer would be reluctant to sign a contract limiting her rights to use information without knowing the content of the information.[244] In effect, "Trade secret law reaches beyond contract law by allowing courts to infer the existence of a confidential relationship from circumstances in which transactions might be difficult or impossible without that assumption."[245] Thus, while a world in which companies freely disclosed their information would be ideal, on balance, trade secret law fosters some measure of trust between negotiating parties and employers and employees, reduces the building of walls and fences around information, and encourages sharing of the secret to more people who can help make productive use of it.[246]

B. *Applying the Insights of Trade Secret Law To Construct an IP Theory of Traditional Knowledge*

The relationship between intellectual property law, secrecy, and disclosure has important consequences for the traditional knowledge debate. In the traditional knowledge context too, society as a whole benefits from the disclosure of commercially valuable information. If bark from a tree and a shaman's knowledge of its special properties can cure ulcers, then society has an interest in encouraging the disclosure of this knowledge to other entities that can improve upon it and bring it to the larger public.

At least some anecdotal evidence suggests that traditional knowledge holders are willing to share otherwise secret information with outsiders for research and commercial purposes, so long as they are afforded a degree of control over subsequent uses of the knowledge and, in some cases, a portion of

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241. Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention, in* NAT'L BUREAU OF ECON. RESEARCH, THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS 609, 615 (1962) (arguing that in the absence of legal protection, sellers will not disclose information to buyers, and buyers will be unable to value it).

242. Lemley, *supra* note 12, at 332.

243. *Id.* at 336-37.

244. *Id.* at 337.

245. *Id.*

246. *Id.* at 353.

the benefit. For example, traditional healers from indigenous communities in Uganda reported to WIPO IGC field researchers that they would be "willing to collaborate with modern health practitioners and the pharmaceutical industry to share information," but that "[p]rotective measures should be in place before [they] would be willing to collaborate with outsiders."[247]

Evidence also suggests that in the absence of protection, traditional knowledge holders are warier of sharing and, in some cases, will go to great lengths to erect walls around potentially valuable information. A number of traditional knowledge holders interviewed during the course of the WIPO IGC's nine fact-finding missions expressed an unwillingness to share their traditional knowledge out of fear that they would not have any control over the way the information was used or derive any economic benefits. Members of the Kuna community in Panama, for example, expressed their aversion toward collaborating with ethnobotanists or other scientists:

> Expeditions by [these researchers] have started to be regarded with suspicion because community members are not involved in, nor informed of, the subsequent use of the information and biological material supplied by them. It is believed that if new products were to be developed or new scientific publications issued on the basis of that information, the communities of origin would probably never be informed and would in all likelihood not participate in any economic benefits deriving therefrom.[248]

Some local and indigenous groups have taken more drastic steps to prevent the flow of information to outsiders. In 2000, a Wapishana indigenous community in the Guyanese Amazon banned all "researchers" from entering their villages.[249] This community had previously shared valuable medicinal information with a British chemist about the healing powers of certain plants—Tipir, the nut of the Greenheart tree, and Cunani, a bush plant—used since ancient times. The chemist subsequently obtained U.S. and European patents based on the active ingredients in these plants, which he claimed were useful in treating malaria and preventing heart blockages. The community viewed the incident as a betrayal of their sharing.[250] In response, they have banned the research efforts of all outsiders—to the potential detriment of society. Thus, even if an initial transmission of information—like the chemist's initial acquisition of knowledge—can occur in the absence of traditional knowledge protection, the erosion of trust from such a one-sided transaction can pollute future transmissions.[251]

To be sure, formal law's role in lessening distrust may operate differently in the commercial context than in the traditional knowledge context, depending on the level of social or cultural significance that such knowledge may have for

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247. WIPO FACT-FINDING MISSIONS REPORT, *supra* note 141, at 87.

248. *Id.* at 137.

249. MARY RILEY, INDIGENOUS INTELLECTUAL PROPERTY RIGHTS: LEGAL OBSTACLES AND INNOVATIVE SOLUTIONS 114 (2004).

250. *Id.*; *see also* Someshwar Singh, *Indigenous Community Bans TNC Researchers*, THIRD WORLD NETWORK (Feb. 24, 2000), http://www.twnside.org.sg/title/bans.htm.

251. *See* Heald, *supra* note 1, at 536 (noting that "if initial deals are perceived to be exploitative, trust will erode").

a particular community or the community's level of wariness toward outsiders. Information sharing in the traditional knowledge context may require greater indicia of respect or trustworthiness than the arms-length commercial licensing transactions that govern information sharing for modern firms. As Rosemary Coombe writes, "Acquiring traditional knowledge . . . may require rather different forms of social relationship that involve trust [and] collaboration," as well as a showing of "respect that our intellectual property laws . . . do little to encourage."[252]

Here, too, a fair amount of variation is likely to exist among and between groups. But what is striking about the data collected by the WIPO IGC is that a number of traditional knowledge holders have voiced a greater willingness to share knowledge and collaborate upon receiving internationally recognized IP rights. And experimental projects such as Ecociencia's closed-access registry of botanical knowledge suggest trade secret law's potential for eliciting hitherto unknown and undisclosed traditional knowledge and encouraging its categorization, classification, and storage in forms that can be more easily shared with outsiders.[253]

Even outside of the traditional knowledge context, the effects of formal law on trust and behavior are difficult to measure in any absolute terms; its role is often "modest but [nonetheless] important."[254] As Dagan and Heller observe:

> The myriad details of the law do not matter individually, but jointly they produce practices and experiences that in turn generate social expectations. For law to affect behavior, we do not assume widespread knowledge of any doctrinal detail, only that people generally believe that if things turn ugly, the law will serve as one form of social organization that protects them against extreme abuse and exploitation.[255]

Thus, while the evidence may be limited, there are both logical and evidentiary reasons to suggest that without legal protection, traditional knowledge holders would disclose less and take more assertive steps to prevent the flow of information to outsiders. This is problematic for a number of reasons, including that it will "slow the process of commercialization and improvement of" relatively secret knowledge and ultimately interfere with "both the invention and disclosure functions of IP law."[256] For example, researchers might be prevented from entering these communities at all, or even if they did enter, traditional knowledge holders might be unwilling to share information that could lead to the next antimalarial or heart medicine.

The role of intellectual property law in facilitating trust and cooperation

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252. Rosemary J. Coombe, *Protecting Cultural Industries To Promote Cultural Diversity: Dilemmas for International Policymaking Posed by the Recognition of Traditional Knowledge*, *in* INTERNATIONAL PUBLIC GOODS, *supra* note 2, at 599, 602.

253. *See supra* note 185 and accompanying text (discussing the Ecociencia trade secret project).

254. Dagan & Heller, *supra* note 162, at 579.

255. *Id.* For an interesting discussion of the relationship between contract law and the promotion of socially beneficial trust, see Daniel A. Farber & John H. Matheson, *Beyond Promissory Estoppel: Contract Law and the "Invisible Handshake,"* 52 U. CHI. L. REV. 903, 905 (1985) (describing the underlying legal policy of promissory estoppel as "protect[ing] the ability of individuals to trust promises in circumstances in which that trust is socially beneficial").

256. Lemley, *supra* note 12, at 335.

in the traditional knowledge context merits additional research and investigation. Trade secret law—and more specifically, a clarification of TRIPS Article 39's commercial value requirement and a richer understanding of the intersection of reasonable secrecy efforts and customary law in the traditional knowledge context[257]—may, in the end, comprise only part of a broader package of useful policy reforms.[258] My purpose here is not to suggest that trade secret law is the only desirable path. Rather, I seek to illuminate the ways in which trade secret law can protect a subset of traditional knowledge and help frame the international discussion in a more fruitful way—a way that emphasizes important connections between traditional knowledge protection and the broader purposes of intellectual property, instead of merely its divisions.

VI. CONCLUSION

For over a decade, the issue of traditional knowledge protection has posed an intractable problem for advocates, scholars, and developing country governments. Traditional knowledge advocates seek greater recognition and rights within international intellectual property law—particularly, the muscular TRIPS framework. But thus far, they have failed to effectively link their arguments to the IP framework or the broader purposes of existing IP regimes. Instead, traditional knowledge advocates have operated primarily within "human rights" and "preservation" approaches. These approaches appear more hospitable to traditional knowledge advocates than the conventional IP approach, especially given the latter's focus on ex ante "incentives to create." But the conventional IP approach need not be so narrow.

I have argued that trade secret law is useful to the traditional knowledge debate in two underexamined ways. First, a trade secret approach to traditional knowledge protection is a practical initial step forward in the international impasse. Trade secret law can be a useful legal vehicle for traditional knowledge holders when dealing with outsiders' improper acquisition, disclosure, and use of relatively secret information. Admittedly, many traditional knowledge holders may view trade secret law as too limited—too fragile—because it does not apply to publicly available, reverse-engineered, or independently developed information. While I am sympathetic to such concerns, this Article takes a decidedly pragmatic approach; more idealized approaches that significantly undercut the purposes of existing intellectual property regimes are less likely to be accepted within the framework of

257. *See supra* Sections IV.C, IV.D.

258. While fleshing out the contours of a "trade secrecy plus" regime is beyond the scope of this paper, certain policy mechanisms might effectively be used in conjunction with trade secret law. For example, Jerome Reichman and Tracy Lewis have suggested a "compensatory liability regime" (CLR). *See* Jerome H. Reichman & Tracy Lewis, *Using Liability Rules To Stimulate Local Innovation in Developing Countries: Application to Traditional Knowledge*, *in* INTERNATIONAL PUBLIC GOODS, *supra* note 2, at 337. Under this proposal, an indigenous group's authorized representative would voluntarily register traditional know-how in a CLR database; in return, the group would receive short-term legal protection during which all uses by second comers would be compensated. *Id.* Nonetheless, traditional holders would not be able to control particular uses of the knowledge by second comers. *Id.*

international IP law and enforced by the international community. Absent a model for protection that incorporates some objective limits and preserves access to generally available information, "an international approach is likely to be a more abstract gesture" than a reality.[259]

In addition to outlining trade secret law's practical possibilities in the traditional knowledge arena, I have argued that trade secret law can serve as a normative guide to help ground an IP theory of traditional knowledge protection. One prominent justification for trade secret law's inclusion in the IP law family is that it serves the "disclosure" purposes of IP law by reducing holders' over-investment in secrecy, lessening distrust, and encouraging the disclosure of valuable information to those who can improve or make more productive use of it. Similarly, traditional knowledge protection may lessen the distrust of indigenous and local communities toward outsiders and encourage their disclosure of valuable information in socially beneficial ways.

259. Taubman, *supra* note 23, at 558.