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THE NEW DISCOVERY DOCTRINE: SOME THOUGHTS ON PROPERTY RIGHTS AND TRADITIONAL KNOWLEDGE

Rebecca M. Bratspies *

The recent commercial success of products developed with resort to the knowledge of traditional cultures, such as hoodia, has convinced many that biological resources, particularly when accompanied by traditional knowledge about how to exploit these resources, will be a new gold mine in the twenty-first century. Like all gold rushes, the scramble to capture and exploit biological resources and the traditional knowledge about their use has

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1. Hoodia is a cactus that is native to the South African Kalahari Desert. For centuries, the hunter-gatherer San people relied on its appetite suppressant qualities to minimize hunger and thirst during long Kalahari hunting expeditions. Based on this traditional use, a South African quasi-governmental scientific organization began researching the unique properties of Hoodia. Their animal studies suggested that Hoodia induced rapid weight loss without any apparent negative side effects. After patenting the biologically active molecule, the South African researchers sold the rights to Hoodia to a biotech company. Ultimately Pfizer purchased the rights for $21 million. The San peoples were completely unaware of these events, and received no benefit from this exploitation of their traditional knowledge. The CEO of the biotech company claimed that the South African scientists had led him to believe that "the tribes which used the Hoodia cactus were extinct." Antony Barnett, In Africa the Hoodia Cactus Keeps Men Alive: Now Its Secret Is 'Stolen' to Make Us Thin, THE GUARDIAN, June 17, 2001, available at http://education.guardian.co.uk/print/0,3858,4205467-102275,00.html. After an international outcry, a modest benefit-sharing program was arranged on behalf of the San people. See San Rights Vis-à-Vis the Hoodia Succulent, WIMSA ANNUAL REPORT ON ACTIVITIES 2002/03 (2003), http://www.san.org.za/wimsa/ar2002_3/annualrep10.htm. However, the San have lost the opportunity to profit from exploiting this knowledge, or even to decide whether and how to share their traditional knowledge with the world.

attracted its share of prospectors, hucksters and thieves. And, like all gold rushes, this one has raised fundamental questions about ownership of these newly-discovered, or newly-valued resources. Attempts to answer such questions have generated a vast literature about biopiracy and traditional knowledge.

The discourse surrounding traditional knowledge takes place on a number of levels simultaneously. Trade advocates view ownership of traditional knowledge and biological diversity through the lens of the World Trade Organization (WTO) agreements. Environmentalists approach the question with ecosystem preservation in mind. Because most of the world’s remaining biodiversity exists within the territories of indigenous peoples, issues of sovereignty, identity, colonialism, and exploitation inevitably swirl beneath the surface of the discussions. And, of course, all these dialogues occur against a backdrop of a globalizing market economy that values resources almost exclusively in terms of their monetary value.

So far, the dynamic seems to be a tug of war between two alternative

3. Examples of these fundamental questions are: Are the biological resources in question already owned, or even ownable? If they are already owned, who owns them? If they are ownable, how does one acquire ownership? What are the consequences if the resources are not ownable at all? These same questions are central to the related, though different set of issues surrounding the patenting of genetic sequences. See Dorothy Nelkin, A Brief History of the Political Work of Genetics, 42 JURIMETRICS J. 121, 127 (2002) (situating attempts by NIH to patent genetic sequences isolated from indigenous groups in a history of eugenics research); Margaret Lock, Genetic Diversity and the Politics of Difference, 75 CHI.-KENT L. REV. 83 (1999); Gary Taubes, Scientists Attacked for 'Patenting' Pacific Tribe, 270 SCIENCE 1112 (1995). The United States has been at the forefront of extending patent protection to a wide array of genetic material isolated from humans and other living organisms. Eric B. Chen, Who Owns the Property Rights to Your Genetic Material?, 13 U. BALTIMORE L. J. 1, 2 (2004) (discussing recent state and federal judicial patterns concerning the granting of property rights in human tissue).


5. Article 2 of the Convention on Biological Diversity (CBD) defines biodiversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." Convention on Biological Diversity, art. 2, June 5, 1992, 31 I.L.M. 818 (1992) [hereinafter CBD].

property visions: state ownership of biological resources, as articulated in Article 8j of the Convention on Biological Diversity (CBD),\textsuperscript{7} and private ownership of these resources under the WTO’s Trade Related Aspects of Intellectual Property (TRIPS) agreement.\textsuperscript{8} There is, however, a third aspect to this struggle over traditional knowledge and biological resources. Most of the world’s remaining biodiversity exists within indigenous lands and territories. Rather than as an aspect of state sovereignty over territory, or the fruits of private invention, indigenous leaders conceive of these resources as an aspect of self-determination — as a recognition of their fundamental rights to property and culture.\textsuperscript{9} Indigenous groups are thus trying to expand the discourse over biological resources so that it includes their interests and their hopes for wresting back control over their territories, resources and heritage.\textsuperscript{10}

This effort is critical because while the tug of war may currently be between TRIPS and CBD over whether to assign ownership of these resources to individuals or states, both of these regimes potentially conflict with indigenous claims and aspirations to group ownership of these same

\textsuperscript{7} CBD, supra note 5, at 826.
\textsuperscript{9} See U.N. Econ. & Soc. Council [ECOSOC], Sub-Comm. on Prevention of Discrimination & Prot. of Minorities, Preliminary Report: Protection of the Heritage of Indigenous Peoples, Annex ¶ 2, U.N. Doc. E/CN.4/Sub.2/1994/31 (July 8, 1994) (prepared by Erica-Irene Daes); id. ¶¶ 11-12 (combining cultural and intellectual property of indigenous peoples under the term “heritage”); S. JAMES ANAYA, INDIGENOUS PEOPLES IN INTERNATIONAL LAW (2d ed. 2004); see also Barsh, supra note 6, at 20 (asserting that “land rights and knowledge are so closely intertwined” and that attempts to separate them are “a peculiarly Western reductionism, which views the right to use land as separable from knowledge of how to use land properly”).
biological materials. To date, their success has been muted. Indigenous peoples find themselves in direct conflict not only with states but also with multinational corporations — all vying for control over traditional knowledge, land and resources. As has happened throughout history, aboriginal peoples are too often finding themselves on the losing end of this struggle over ownership and access to resources.

Given the resources that have been devoted to developing comprehensive laws to ensure protection of intellectual property one might ask why the current legal system does so little to safeguard the cultural and intellectual property interests of indigenous groups. This failure is perhaps even more striking in light of the bedrock principle in international law that the right to own property is a fundamental human right. The Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, Protocol 1 of the European Convention on Human Rights and the American

Thammasat Resolution (Dec. 5, 1997), reprinted in SYNTHESIS/REGENERATION, Summer 1998, http://www.greens.org/s-r/16/16-13.html ("Our rights are inalienable; they existed long before IPR regimes were established. As legal, political, economic, social and cultural rights, they are part of peoples' sovereignty and therefore part of human rights."); see also DARRELL A. POSEY & GRAHAM DUTTIELD, BEYOND INTELLECTUAL PROPERTY: TOWARD TRADITIONAL RESOURCE RIGHTS FOR INDIGENOUS PEOPLES AND LOCAL COMMUNITIES 112 (1996). This is not to suggest that "indigenous peoples" are some kind of monolith. There are certainly individuals and groups within that community who are eager to commodify and exploit traditional knowledge. This discussion of the property issues surrounding the exploitation of traditional knowledge does not depend on the issue being of universal concern within the affected communities.

11. See generally ANAYA, supra note 9.


15. Protocol to the Convention for the Protection of Human Rights and Fundamental Freedoms, art. 1, Mar. 20, 1952, 213 U.N.T.S. 262 ("Every natural or legal person is entitled to the peaceful enjoyment of his possessions.").
Declaration of the Rights and Duties of Man all recognize the right to property as fundamental.

When the interests and assets of an entire group are, by definition, not embraced within the protective mantle we call property, it ought to prompt exploration of some hard questions. First and foremost, one must explore more fully the international community’s proclamation that the right to own property is a fundamental human right. More specifically, one must ask what we mean by “property.” To what exactly does one have this human right? Whose definition should or will be used to mark the contours of property?

The international community needs to rethink the very idea of property — which people should be entitled to claim what sorts of rights over things and under what conditions? Although this essay takes up those questions, it cannot begin to answer them all with any kind of rigor. Instead, by laying out the dimensions of a few of those questions, this essay is intended to spark a new dialogue on the meaning of property. In particular, I hope it will provoke a rethinking of how a bounded vision of the right to property has stymied the development of a full-fledged right to culture, and has trapped indigenous peoples in a seemingly unending cycle of dispossession and exploitation.

Part I of this essay provides a brief background on the conflict over traditional knowledge. Part II details aboriginal aspirations for ownership of these resources and situates those aspirations in the broader context of TRIPS and the Convention on Biodiversity. Part III explores the relationship between traditional knowledge and patent protection. Part IV draws some parallels between contemporary debates over whether traditional knowledge should be protected by intellectual property regimes and historical debates over aboriginal land rights.

I. Some Background

Most of the earth’s remaining biodiversity is located in the global south. The region’s countless varieties of plants and trees are viewed as a treasure trove of genetic material with innumerable potential applications. More

16. American Declaration of the Rights and Duties of Man, O.A.S. Res. XXX, art. XXIII (1948), OEA/Ser.L/V/1.4Rev. (affirming the right of every person to "own such private property as meets the essential needs of decent living and helps to maintain the dignity of the individual and of the home").

17. Scholars are beginning to explore this point. See, e.g., Malla Pollack, Towards a Feminist Theory of the Public Domain, or Rejecting the Gendered Scope of United States Copyrightable and Patentable Subject Matter, 12 WM. & MARY J. WOMEN & L. 603 (2006) (asserting that the public domain is inherently feminist).
importantly, these resources are perceived as unexplored and unowned — a vast commons of potential riches awaiting claimants. Never mind that these resources are already in use, or that their value hinges, at least in part, upon that use.

One easy way to identify a useful compound is to begin by tapping into the work of local communities that have long studied and experimented to uncover the medicinal, agricultural and scientific properties of these resources. The “discovered” compound can then be patented by the researchers, enabling them to exploit the biological resource for a profit and to exclude others from freely accessing and exploiting their proprietary resource. Once issued, the patent essentially acts as a toll on commerce, one that may make its holder wealthy. The community that developed the know-how, by contrast, owns nothing and receives nothing. Its technology and knowledge are the public domain.

This situation should sound familiar. Once again, outsiders are coming into traditional communities and their territories in search of gold (this time metaphorical rather than literal) with little or no regard for those who currently possess and use that gold. The imbalances inherent in that equation have not gone unnoticed. Indeed, many have observed that the rush to exploit biological resources strongly resembles the extravagant claims of ownership made by outsiders coming to the “new world” during the Age of Discovery.18

Most legal regimes award the mantle of “property,” with its attendant rights, only to the tangible goods produced by indigenous cultures, paying no attention to the contexts in which those goods were produced and used.19 As a result, these legal regimes too often try to force indigenous resources into property definitions external to the cultures themselves.20 In this process,

18. See infra Part V.

19. See Barsh, supra note 6. By contrast, the International Covenant on Civil and Political Rights suggests a broader vision that includes all aspects of a group’s history, works, traditions, practices and knowledge within the sphere of protection. ICCPR, supra note 14, art. 26 (providing that persons belonging to "ethnic, religious or linguistic minorities . . . shall not be denied the right, in community, with other members of their group, to enjoy their own culture . . . .")

indigenous cultures wind up compartmentalized, with artifacts entitled to legal protection as "cultural property," but with the real wealth of indigenous peoples — their traditional knowledge about biodiversity, their folklore, designs and traditions — left outside this mantle of protection. This compartmentalization has been the subject of stringent criticism as an inappropriate attempt to sandwich non-Western cultures into a western Cartesian worldview. The role that it plays in facilitating a transfer of wealth from indigenous cultures to multi-national corporations and non-indigenous researchers has been the subject of less attention.

II. Indigenous Aspirations

For indigenous groups, ownership of their traditional knowledge is inextricably linked with issues of sovereignty and cultural survival. This linkage is slowly filtering into the mainstream international discourse. For example, the World Intellectual Property Organization (WIPO) Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore has worked very hard to develop intellectual property policies capable of responding to indigenous aspirations. Similarly, the Draft Declaration on the Rights of Indigenous


22. For this reason, many believe that "heritage" is a better, more inclusive term. Heritage has alternatively been defined to include "all expressions of the relationship between the people, their land and the other living beings and spirits which share the land, and is the basis for maintaining social, economic and diplomatic relationships-through sharing-with other peoples" or "all objects, sites and knowledge the nature or use of which has been transmitted from generation to generation, and which is regarded as pertaining to a particular people or its territory." ECOSOC, Sub-Comm. on Prevention of Discrimination & Prot. of Minorities, Study on the Protection of the Cultural and Intellectual Property of Indigenous Peoples, ¶ 164, U.N. Doc. E/CN.4/Sub.2/1993/28, (July 28, 1993) (prepared by Erica-Irene Daes) [hereinafter ECOSOC, Study on the Protection of the Cultural and Intellectual Property of Indigenous Peoples]; ECOSOC, Sub-Comm. on the Prevention of Discrimination and Prot. of Minorities, Final Report on the Protection of the Heritage of Indigenous People ¶ 11, U.N.Doc. E/CN.4/Sub.2/1995/26 (June 21, 1995) (prepared by Erica-Irene Daes); see also Barsh, supra note 6. A full discussion of this definitional issue is beyond the scope of this essay, it is enough to note this wider discussion as a backdrop for the exploration of how international law treats traditional knowledge about biological resources.

23. See, e.g., ANAYA, supra note 9.
Peoples\textsuperscript{24} not only expressly recognizes that indigenous peoples have a right to "the past, present and future manifestations of their cultures, . . . technologies and . . . cultural, intellectual, religious and spiritual property,"\textsuperscript{25} but it also indicates that rights to indigenous knowledge, innovations, and practices (referred to as "cultural and intellectual property") cannot be discussed in isolation from indigenous peoples' rights to their territories and resources.\textsuperscript{26} The Draft Declaration specifically recognizes the "distinctive spiritual and material relationship" of indigenous peoples with their lands and territories.\textsuperscript{27} Similarly, the 1989 amendments to the International Labour Organisation’s (ILO) Convention (No. 169) Concerning Indigenous and Tribal Peoples in Independent Countries recognized the special relationship of indigenous cultures and peoples with the land and territories.\textsuperscript{28} Convention 169 also recognized the central importance of traditional lands to indigenous cultures and spiritual values.\textsuperscript{29}

Unfortunately, the Draft Declaration has yet to be adopted,\textsuperscript{30} and few countries have ratified ILO Convention 169.\textsuperscript{31} In short, these measures are only a beginning. They have yet to displace or even profoundly influence the two major international law paradigms, those stemming from TRIPS and from the CBD. Thus, it is worth looking at each regime in turn.

\begin{itemize}
\item \textsuperscript{25} \textit{Id.} art. 12.
\item \textsuperscript{26} \textit{Id.} arts. 25, 29.
\item \textsuperscript{27} \textit{Id.} art. 25.
\item \textsuperscript{29} \textit{Id.} art. 13(1).
\item \textsuperscript{31} Currently only seventeen countries have ratified ILO Convention 169. International Labour Organisation, ILOLEX: Conventions, http://www.ilo.org/ilolex/english/convdisp.htm (last visited Jan. 20, 2007).
\end{itemize}
A. Private Ownership of Resources Under TRIPS

The WTO’s TRIPS agreement, which has been described as a regime of “hyperownership,”32 radically reshaped intellectual property law, especially with regard to genetic resources and biodiversity. Prior to the 1994 adoption of TRIPS as part of the Uruguay Round of the GATT multilateral trade negotiations, intellectual property was not covered by the GATT agreement. Instead, each country had its own national intellectual property laws, with a few international conventions like the Berne Convention33 and the International Union for the Protection of New Varieties of Plants34 (UPOV) serving as a common backdrop. Traditionally, intellectual property was a domestic, rather than an international issue; states were free to set their own level of protection based on their particular circumstances. TRIPS changed all that by establishing universal and uniform standards for intellectual property law.

To generalize, the United States,35 the European Union36 and Japan37 had expansive intellectual property regimes that provided strong protections to individual inventors for a broad array of inventions. Developing countries, by contrast, granted fewer protections to a more narrow class of inventions, and many refused to recognize intellectual property claims to medicines, foods and other essential items. India, for example did not permit patenting of pharmaceuticals or living organisms.38 TRIPS, by contrast, imposed a

35. Even under the TRIPS Agreement, United States law continues to permit the imposition of sanctions against countries that in its unilateral view deny "provision of adequate and effective protection of intellectual property rights notwithstanding the fact that the foreign country may be in compliance with the specific obligations of the Agreement on Trade-Related Aspects of Intellectual Property Rights." 19 U.S.C. § 2411(d)(3)(B)(i)(II) (2000).
one-size-fits-all approach that created mandatory minimum standards regardless of the state’s domestic situation.

Indeed, TRIPS was intended to standardize these differences in intellectual property protection between the nations of the global north and the global south. Because the United States, the European Union, and, to a lesser extent, Japan wield tremendous influence in the WTO, their voices drew the most attention in the process of drafting the TRIPS agreement. These nations were, in turn, influenced by the commercial interests of their corporate citizens. In fact, the TRIPS agreement was drafted and introduced in the Uruguay Round of GATT by an American industry coalition, the Intellectual Property Committee (IPC), which conducted what it called “missionary work” to sell the idea to the international community. James Enyart, Monsanto’s Director of International Affairs at that time, is credited as having described this strategy as

absolutely unprecedented in GATT. Industry has identified a major problem for international trade. It crafted a solution, reduced it to a concrete proposal and sold it to our own and other governments . . . The industries and traders of world commerce have played simultaneously the role of patients, the diagnosticians and the prescribing physicians. 39

The WTO negotiations succeeded in reshaping international trade because the process bundled previously unrelated areas into a single take-it-or-leave-it package. To participate in the global economy, states had to agree to abide by all the agreements that make up the WTO. Among the mass of terms were new intellectual property standards. By linking specified levels of intellectual property protection to previously unrelated trade issues, such as labor and

environment, the TRIPS negotiation forced developing countries to sign on to higher standards of intellectual property than their state of development would otherwise have dictated.40 These intellectual property standards are having profound effects.

Many scholars have commented on these marked asymmetries in the development of intellectual property norms and principles captured by the TRIPS agreement.41 Nowhere is that asymmetry as sharply delineated as it is in the treatment of the claims of indigenous peoples to a property interest in their traditional knowledge and biological resources. This asymmetry stems in large part from one of the most significant changes in intellectual property rights through TRIPS — the expansion of the kinds of things that will be patentable.

In particular, TRIPS Article 27, entitled “Patentable Subject Matter,” requires marked changes to the domestic patent law of many states. Under Article 27.1, states must ensure that patents “shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application.”42 The most controversial portion of the TRIPS agreement, at least from the indigenous rights perspective, has been Article 27.3’s requirement that states include plants and animals within the inventions eligible for patenting (or develop a sui generis plan for protecting these inventions).

Arguably there is room within the TRIPS agreement to reshape implementation in a manner that protects traditional knowledge.43 Article 7 identifies the objectives of the entire TRIPS agreement as to “contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of


42. TRIPS, supra note 8, art. 27.1.

43. See Margaret Chon, Intellectual Property and the Development Divide, 27 CARDOZO L. REV. 2821 (2006) (arguing that TRIPS can be read to incorporate substantive equality norms).
technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.\textsuperscript{44} This language, together with Article 8, which provides that member states may adopt measures necessary to protect public health and to promote the public interest in "sectors of vital importance to their socio-economic and technological development,"\textsuperscript{45} was included in the final TRIPS agreement at the behest of developing countries. These provisions have become something of a rallying cry for groups attempting to blunt the force of Article 27.3.\textsuperscript{46}

Recently, there has been some modest success in this campaign. In Paragraph 19 of the Doha Round Ministerial Declaration, for example, negotiators reaffirmed that Article 27.3(b) needs to be reconsidered in light of the Article 7 and 8 objectives, with regard to traditional knowledge.\textsuperscript{47} The Declaration emphasized that this is to be accomplished in the context of protecting the rights of developing states and the environment, with reference to CBD.\textsuperscript{48} Nonetheless, the focus to date has been predominantly on protecting producers by expanding protections rather than on balancing interests.

According to the WTO, "[i]ntellectual property rights are the rights given to people over the creations of their minds."\textsuperscript{49} Yet the way TRIPS is structured, it is difficult, if not impossible, for indigenous groups to claim any intellectual property rights over the unmediated products of their traditional knowledge. As a result, indigenous and traditional knowledge is consigned to the global commons. This produces a striking imbalance — the "creations

\textsuperscript{44} TRIPS, supra note 8, art. 7.

\textsuperscript{45} Id. art. 8.

\textsuperscript{46} For example, the argument for compulsory licensing of AIDS drugs relied heavily on Article 8. See, e.g., WTO, Council for TRIPS, Submission by the African Group, Barbados, Bolivia, Brazil, Cuba, Dominican Republic, Ecuador, Honduras, India, Indonesia, Jamaica, Pakistan, Paraguay, Philippines, Peru, Sri Lanka, Thailand and Venezuela, ¶ 22, IP/C/W/296 (June 29, 2001), available at: http://commerce.nic.in/wto_sub/TRIPS/sub_Trips-ipcw296.htm.; Uché Ewelukwa, Patent Wars In The Valley Of The Shadow Of Death: The Pharmaceutical Industry, Ethics, And Global Trade, 59 U. MIAMI L. REV. 203, 277-78 (2005).

\textsuperscript{47} World Trade Organization [WTO] Ministerial Conference, Ministerial Declaration of 14 November 2001, ¶ 19, WT/MIN(01)/DEC/1, 41 I.L.M. 746 (2002); see also Haochen Sun, A Wider Access to Patented Drugs Under the TRIPS Agreement, 21 B.U. INT‘L L.J. 101, 104 (2003) (hailing the Doha Declaration as a turning point "for legal and political relations at the WTO"). The ramifications of this Declaration’s language remains to be seen.

\textsuperscript{48} Sun, supra note 47, at 104-05. For a discussion of why the CBD alone does not protect indigenous peoples, see infra Part II(B).

of the mind" of modern science are considered property and eligible for the full panoply of TRIPS protections, while the "creations of the mind" of indigenous peoples are not.

When goods and services are made possible by combining traditional knowledge with western science, the contributor of the western scientific thinking is entitled to patent protection — a recognition of his or her property interest in creations of the mind — under TRIPS, the contributor of traditional knowledge is entitled to nothing. At its worst, TRIPS legitimizes the transfer of exclusive ownership and control of biological resources and traditional knowledge from indigenous innovators to western ones, with no recognition, reward or protection for the contributions of the indigenous innovators.50

Thus, in the definitional moment itself, TRIPS excludes indigenous innovation about biological diversity from what will be property in this new globalized legal world. This treatment stands as a sharp contrast to the patent rights that biotechnology routinely generates, and that TRIPS requires be recognized. By defining property to exclude the resources of indigenous peoples while including what is developed from those resources, this vision of property reconstructs the cycle of dependency that was at the heart of colonialism.

TRIPS has to date proven itself resistant to accommodating and protecting indigenous works within the hyper-owned world it has created. While the Doha Declaration recognized this problem of inequitable recognition of property rights, the Minister’s state-based perspective suggests that the fundamental problem of inequity with regard to indigenous rights is unlikely to be resolved in the near future.

B. State Ownership of Resources Under the Convention on Biological Diversity

In contrast to TRIPS, the Convention on Biological Diversity (CBD) vests ownership of biological resources in nation-states. Article 8(j) of the CBD is the operative provision for purposes of considering indigenous knowledge.51 This provision frames traditional knowledge and biological resources through the lens of state sovereignty, and vests ownership of these resources in the state52 (thus treating traditional knowledge much like a tangible resource akin

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Food and Agriculture in South and Southern Africa: How Many Wrongs Before a Right?, 7 MINN. J. L. SCI. & TECH. 529 (2006). But see MICHAEL F. BROWN, WHO OWNS NATIVE CULTURE? 136-38 (2003); Jim Chen, There’s No Such Thing as Biopiracy . . . and It’s a Good Thing Too, 37 MCGEORGE L. REV. 1 (2006). In pointing out the great disparity in treatment of intellectual contributions in these instances, this essay is not meant to suggest that these cases are easy or that recognition of traditional knowledge would not be challenging. Indeed, it would require a rethinking of what will be considered property — exactly what this essay proposes.

51. The CBD provides in relevant part:

Each Contracting Party shall, as far as possible and as appropriate: . . . (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

CBD, supra note 5, art. 8(j).

52. Id. art. 3; see also International Treaty on Plant Genetic Resources for Food and
to oil or uranium). Along with Principle 22 of the Rio Declaration, the CBD looks at the protection of traditional knowledge as an essential component of the broader concern for global ecological sustainability.

This perspective was hailed by many as a victory for developing states and for the environment. Activists have sought to use it as leverage in their opposition to the TRIPS 27.3(b) requirement that states recognize patent rights in plants and genetic resources. Vandana Shiva, for example, argues that the CBD permits protection of traditional knowledge as the "common property of the people of India, and as a national heritage" despite any provisions of TRIPS to the contrary.

Even if activists are successful in staking out room for states to maneuver around the TRIPS patenting requirement, that victory alone will not satisfy the aspirations of indigenous peoples to have control over their resources and knowledge. Neither Article 8(j) nor anything else in the CBD recognizes or vests any rights in indigenous peoples. The Conference of Parties has taken steps to remedy this deficiency by creating an ad hoc working group to develop guidelines on access and benefit-sharing. In 2001, the working group proposed "Draft Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization." This draft mentions the rights of indigenous communities to their traditional knowledge and calls for prior informed consent as well as benefit-sharing. However, the Guidelines are only recommendations for voluntary state action,

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Agriculture, art. 10, opened for signature Nov. 3, 2001 (entered into force June 2004), available at ftp://ftp.fao.org/ag/cgrfa/it/ITPGRe.pdf (characterizing these resources as "sovereign national property" though the treaty also commits states to the principle of equitable benefit sharing).


Indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

Id.

54. Vandana Shiva, Biopiracy: Need to Change Western IPR Systems (Dec. 22, 1999), http://www.sedos.org/english/shiva.htm. This is an argument she has made frequently


56. Id. at 20, ¶ 29.
not mandatory requirements.\textsuperscript{57} Thus, the Guidelines are vastly different than the requirements imposed by TRIPS. Even if these Guidelines were mandatory, it is not clear how much effect they would have. Where TRIPS is backed by the power of the WTO Dispute Resolution process, the CBD enforcement measures are quite weak. That makes it unlikely that a CBD ruling would be enforced at the expense of interests protected by TRIPS.\textsuperscript{58}

Moreover, vesting ownership and control of traditional knowledge in states can be extremely problematic. Westphalia aside, states often cannot be trusted to protect the interests of their citizens, particularly the interests of minority groups.\textsuperscript{59} This phenomenon is of even more concern when the interests of historically oppressed minority groups, like most indigenous peoples, conflict with the perceived interests of the majority culture. This is a situation in which indigenous groups often find themselves. While state ownership can give states the needed leverage to protect traditional knowledge,\textsuperscript{60} state ownership can also hasten the dispossession of indigenous groups as states clamor for foreign investment.\textsuperscript{61}

Another more subtle risk is state pressure in the form of investments (often in conjunction with foreign partners) designed to transform indigenous cultures into a marketable commodity. With the growth of eco-tourism and cultural tours, commodification of indigenous culture has become a big

\textsuperscript{57} Id. at 14, ¶ 4.

\textsuperscript{58} Another major roadblock to the success of the Biodiversity Convention more generally is the failure of the United States to ratify it. Since its inception, the United States has been critical of the Biodiversity Convention, largely on this very ground--that it would impair American intellectual property rights.


\textsuperscript{60} For example, members of the Andean Community have adopted a Common Regime on Access to Genetic Resources, and a Common Intellectual Property regime. These regimes lay out conditions for access to genetic resources, their by-products, and associated knowledge. Read together, these regimes enabled Andean Community to create a property regime that requires the consent of indigenous communities and a plan for equitable profit sharing before any patent can be claimed for a product derived from genetic resources or traditional knowledge. Andean Community/Decision 391: Common Regime on Access to Genetic Resources (July 2, 1996), http://www.comunidadandina.org/ingles/normativa/d391e.htm; Andean Community: Decision 486 (Sept. 14, 2000), http://www.comunidadandina.org/ingles/normativa/d486e.htm. Similarly, Costa Rica’s Biodiversity Law mentions indigenous peoples in the context of access to genetic resources. However, in both cases, implementation has been the big challenge.

business. Only rarely do the indigenous groups in question have control of this process, raising concerns and allegations about "cultural theft." 62

III. Traditional Knowledge and Patent Protection

In the context of traditional knowledge, the state-ownership regime envisioned by the CBD collides head on with the private ownership model embedded in TRIPS. Given the sovereignty aspirations of indigenous peoples, 63 this collision might be an opportunity to rethink the meaning of property systems.

The basic problem is that the intellectual property principles embedded in TRIPS were largely developed to meet the needs of a capitalist market economy. As a result, the very terminology of western intellectual property law is largely antithetical to indigenous forms of ownership that tend to center on collective, inter-generational production from community-based economies. 64 So too, the basic concepts that undergird the intellectual property system: exclusive ownership, alienability, and monopoly rights do not translate across this divide. Traditional knowledge does not fit into these categories because it is rooted in communal development of knowledge rather than in individual innovation. While many have argued that from a human rights perspective, the right to property is not only an individual right of possession (a civil right), but is also a collective social, economic, and

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62. See Rosemary T. Coombe, The Properties of Culture and the Politics of Possessing Identity: Native Claims in the Cultural Appropriation Controversy, 6 CAN. J.L. & JURIS. 249 (1993) (detailing accusations that the unauthorized use of native histories by non-indigenous authors amounts to "the theft of voice"). In the United States, for example, the names of native American tribes and historical leaders have been used to sell every type of consumer product—from automobiles to alcoholic beverages.

63. A full description of these aspirations is beyond the scope of this essay. Interested readers should see ANAYA, supra note 9.

64. See, e.g., World Intellectual Prop. Org. [WIPO], Intergovernmental Comm. on Intellectual Prop. & Genetic Resources, Traditional Knowledge and Folklore, The Protection of Traditional Knowledge: Revised Objectives and Principles, Annex 11, WIPO/GRTKF/IC/9/5 (Jan. 9, 2006) (asserting that "[p]rotection of traditional knowledge should respond to the collective or communal context and inter-generational character of its development, preservation and transmission, its relationship to a community's cultural and social identity and integrity, beliefs, spirituality and values, and constantly evolving character within the community") [hereinafter WIPO, Revised Objectives].
cultural right, such arguments have not had much impact in the intellectual property context.

Although the particular challenges of protecting traditional knowledge within a globalizing intellectual property system may be *sui generis*, this is not the first iteration of this conflict. Indeed, many view implementation of TRIPS as nothing more than the newest sub-chapter in the on-going saga of dispossessing indigenous peoples from their lands and their resources. While such a view may be understandable, it actually understates the problem. TRIPS works yet another wrong because it is not only a continuation of historical disregard for indigenous land rights, it is an entirely new form of dispossession — this time of knowledge itself.

Protecting traditional knowledge will therefore involve more than bringing a new form of knowledge within the scope of intellectual property law. If that was all that was at stake, this problem would be fairly easy to resolve; new areas become subject to patent protection all the time. For example, intellectual property law has recently expanded to include living organisms, and various financial instruments within the scope of patentable subject matters. Indeed, the definition of intellectual property in the WIPO Convention itself casts a broad net and specifically includes language designed to extend protection beyond the listed categories of intellectual property, to all the fruits of “intellectual activity in the industrial, scientific, literary or artistic fields.” This definition would certainly be broad enough to permit the formal recognition of traditional knowledge under the rubric of "intellectual property."

However, in order for property laws to truly protect traditional knowledge and the interests of indigenous peoples, the international community (and each national community) must engage in a fundamental rethinking of what

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65. For example, in the Awas-Tigni case, the Inter-American Court of Human Rights accepted that the international human right to property embraces the communal property regimes of indigenous peoples as defined by their own customs and traditions. Mayagna (Sumo) Awas Tingni Community v. Nicaragua, 2003 Inter-Am. Ct. H.R. (ser. C) No. 79 (judgement on merits and reparations); see also James Anaya, *Indigenous Peoples' Participatory Rights in Relation to Decisions About Natural Resource Extraction: The More Fundamental Issue of What Rights Indigenous Peoples Have in Land and Resources*, 22 ARIZ. J. INT’L & COMP. L. 7, 13 (2004).


constitutes property. This rethinking must include the recognition of collective rights and rights that can be extended to communities rather than individuals or states. This is no small task. Even the attempt to conceptualize such rights is difficult, colliding as it does with the individual/state dichotomy that is the dominant paradigm of the Westphalian system.

Because this paradigm does not fit with most indigenous groups' own conception of their rights regarding their cultural knowledge, it is hard to imagine how it might be adapted to meet their needs. Indigenous groups thus face an unpalatable choice: either remake their traditional knowledge in the image of the rights claimed and recognized within the dominant society and break down the essence of their traditional culture into distinct sticks of property, or deny themselves access to existing intellectual property protections. The Thammasat Resolution recognized this reality, and drawing on the wording of TRIPS Article 27.3 sought to carve out a new space for indigenous peoples — recognition of the sui generis nature of traditional knowledge.

IV. Some Striking Historical Parallels

The international dialogue about TRIPS, CBD and traditional knowledge is in many ways a replay of earlier discussions about indigenous property rights in the context of colonialism. The root problem is definitional: what exactly is considered property for purposes of these legal regimes? TRIPS seems to have revived a modern version of the Las Casa -- Sepulvida 1550 debate that had tremendous repercussions for whether or not the peoples of the New World would be treated as owning their land. These debates arose because the land claims that stemmed from the so-called "Age of Exploration" had a fatal flaw: the "newly-discovered" lands were already inhabited. Thus, a central question arose, who owned these lands, the

69. See, e.g., Barsh, supra note 6 (discussing this dilemma and decrying it as "cognitive imperialism").

70. Thammasat Resolution, supra note 10.

71. For an in-depth discussion on the Valladolid Debate of 1550 between Las Casas and Sepulveda, including a discussion of Vitoria's and Las Casas' position, see LEWIS HANKE, THE SPANISH STRUGGLE FOR JUSTICE IN THE CONQUEST OF AMERICA (2002). Although the central questions of the debate were whether the occupants of the newly discovered lands were endowed with souls and the legitimacy of waging war against the Indians, a clear corollary to these issues was the question of whether the Indians had property rights that Spanish colonists had to respect. Where Sepulveda argued that the natives of the New World were not human, and therefore possessed no rights, de Las Casas made the case that they were endowed with the same natural rights that all humans possess. Id.
European “discoverers” or the native inhabitants? In the rush to issue biotechnology patents over the past few decades, and in the expansive interpretations the United States and other Western courts have given these patents, and most particularly in the TRIPS agreement effort to enshrine these standards globally, there is a very real danger of recreating the Discovery Doctrine with a “new world” of genetic resources and other forms of traditional knowledge.

During the “Age of Discovery” the property question was whether the kinds of uses to which the “native peoples” put their land amounted to ownership or to a property right. Conveniently enough for “the discoverers” the answer was almost always no. Perhaps most famously, in Johnson v. M’Intosh, the United States Supreme Court proclaimed that the Painkashaw Indians were deemed to be mere inhabitants rather than owners of their land. Indeed, according to property theories recognized at the time, Justice Marshall concluded that the various Indian nations had no ownership rights to land either individually, collectively, or as a nation, but instead held a right of mere occupancy. This rather startling conclusion rested on the belief that the tribes did not occupy their lands in a fashion that prevented its appropriation by farmers for agriculture. He asserted that “[a]ll the proprietary rights of civilized nations on this continent are founded on this principle.” Any other result, Justice Marshall wrote, would be “to leave the country a wilderness.” After Johnson v. M’Intosh, it was settled law in the United States that Indian nations and individuals did not have claim to the kind of property interests in their lands that European settlers routinely expected to have in theirs. According to Justice Marshall, the difference was attributable to the differing uses to which the two groups put their land. However, since farming Indian communities fared no better than hunter-gatherers, it seems likely that the portion of Marshall’s decision discussing racial and religious absolutes was more the true reason. In Australia, this point was carried to its extreme with the doctrine of terra nullius, which recognized no aboriginal rights to land.

72. 21 U.S. (8 Wheat.) 543, 590 (1823).
73. Id. at 591.
74. Id. at 588.
75. Id. at 590-92.
76. Id. at 570.
77. Id. at 590.
78. Id.
This same vision of what kinds of activities count as productive use and are thus entitled to legal protection, as opposed to those that are characterized as merely an aspect of "the natural," is repeated today in the TRIPS discussions of what qualifies as "an inventive step" for purposes of intellectual property protection. There is an unpleasant dichotomy between defining the products of laboratory research as intellectual property subject to the full panoply of protections afforded by TRIPS and formal domestic law, while characterizing the uses and experimentation of indigenous peoples as "traditional knowledge" excluded from these protections. Once again, the uses to which indigenous peoples put their resources are defined as outside the scope of legally protected property interests. The property choices embedded in TRIPS thus mean that international law once again confers and distributes property rights in a fashion that systematically dispossesses indigenous people.

Even granting that, unlike the original Discovery Doctrine, TRIPS has no invidious intent to specifically dispossess indigenous peoples, the TRIPS Agreement's insistence that patent rights be recognized, with the prerequisites of novelty and individual authorship, excludes indigenous peoples from the intellectual property rights system much like the way those same groups were systematically denied property rights to their land during the periods of discovery and colonialism. As such, the TRIPS definitions of what is and is not property for purposes of intellectual property protection raises the question of whether the Agreement is merely repackaging the discredited Discovery Doctrine in new garb.

Many argue that the central problems that indigenous groups face are rooted in a lack of economic and political power, rather than in a lack of intellectual property rights in their heritage. According to this view,

79. Russel Barsh has made the argument that the term traditional knowledge is part of the problem, implying as it does something static and antique that has been handed down through time without critical evaluation. He argues that "[w]hat the international community needs to protect is 'indigenous science.'" WORLD INTELLECTUAL PROP. ORG., INTELLECTUAL PROPERTY NEEDS AND EXPECTATIONS OF TRADITIONAL KNOWLEDGE HOLDERS: WIPO REPORT ON FACT-FINDING MISSIONS ON INTELLECTUAL PROPERTY AND TRADITIONAL KNOWLEDGE 116, 130 n.3 (2001); see also Vandana Shiva, The Politics of Knowledge at the CBD, http://www.twnside.org.sg/title/cbd-cn.htm (last visited Jan. 19, 2007).

80. See, e.g., ECOSOC, Study on the Protection of the Cultural and Intellectual Property of Indigenous Peoples, supra note 22, ¶ 32 (recognizing that patents on cultural and intellectual property "are not only inadequate for the protection of indigenous peoples' heritage but inherently unsuitable").

81. Id.

82. See Michael H. Davis, Some Realism About Indigenism, 11 CARDOZO J. INT'L & COMP.
intellectual property is about exploiting knowledge for profit and facilitating innovation. Thus, resorting to intellectual property rules to protect and preserve indigenous knowledge is a mistake. While economic and political disadvantages certainly compound the plight of indigenous peoples, to make this argument is to ignore the insidious and pervasive effect of property regimes drawn to exclude the resources and wealth of indigenous peoples and to miss the centrality of the definitional moment to the entire intellectual property endeavor (what is or is not property).

It is this latter decision, that biodiversity and traditional knowledge form part of the public domain, that requires exploration. Much as the Discovery Doctrine depended on the conclusion that indigenous peoples did not "own" their lands in a fashion that conveyed a property right under western law, so too the exploitation of biodiversity requires the determination that the biodiversity itself, as well as traditional knowledge about that biodiversity, are a commons open to all. Only when this knowledge is part of the vast public domain from which "inventors" can draw, will it be possible to create "owned" products by exploiting that knowledge. That the resources of the indigenous peoples are public domain is a necessary prerequisite to the success of the regime for western inventors. In short, in order to benefit from intellectual property schemes, "inventors" have a real interest in ensuring that traditional knowledge remains part of that public domain. Once again, powerful forces seeking property rights have construed existing indigenous uses not to convey any ownership interest in property that is of interest to outsiders.

After all, knowledge is generally not considered property and its non-proprietary characteristics serve as an important social function facilitating the advancement of knowledge, technology and the standard of living in society. Intellectual property rights are an exception to this general rule. The state creates and enforces intangible rights that would not otherwise exist. By requiring that states grant patents (or sui generis protections) to the products of agricultural biotechnology, for example, while leaving the traditional land races from which biotech products are developed in the public domain, TRIPS makes very specific choices between what is ownable as property and what is not. These choices are premised on an assumption that patents track a bright line between what has always existed and what is made; between

83. Id.
84. Land races are varieties of crop plants that have been developed over time by farmers, and are often well-adapted to local environmental conditions.
evolution and invention; between the natural and the created. Under such a vision, the natural world is a backdrop — a commons from which all are free to draw.

It is a convenient dichotomy but a totally false one. For example, agricultural plants produced through biotechnology or through sponsored selective breeding in a laboratory can be patented. Wild relatives cannot. But, neither can the land races developed by traditional farmers, even though those land races are just as much a product of human invention as are the laboratory generated plants. While the latter are property entitled to a full panoply of protections, the former are considered part of the global commons from which the latter may be derived.

Far from natural, those land races and traditional medicines are the work of countless nameless farmers and indigenous healers whose labor and ingenuity developed these products to maximize certain traits and minimize others. In fact, they are products of the very same selective breeding that in the laboratory setting gives rise to a patentable property right. Yet, under intellectual property law, as it has been globalized through TRIPS, the very fact that these works were produced by countless, nameless farmers, gatherers and healers means that they have not, and indeed cannot, give rise to any property rights. Instead, their work product is treated as a global commons, the common heritage of humanity.

V. Some Final Thoughts

One dramatic effect of colonization was the conversion of the biological and natural resources of the colony into wealth for the colonizer. Colonizers created a legal system designed to ensure their access, on favorable terms, to prized resources, such as fish, fur, spices, rubber, and silk. Like the intellectual property rights protected under TRIPS, this earlier, historical colonization was also built on the fiction of res nullius — the unowned thing. Now that newly developed technologies enable more pervasive and profitable exploitation of biological and genetic diversity, we again see a careful crafting of res nullius that advantages newcomers to the resource at the expense of traditional users.

Only when the contours of property have been drawn to exclude traditionally farmed crops, and traditional medicines as unownable, can these

85. See Barsh, supra note 6, at 18 (discussing the tendency of Roman and Western societies to define other nations as outside the domain of culture and explaining that “[a]s part of nature, the lands of other societies could be appropriated without moral or legal scruple”).
resources serve as the fodder for patentable innovations. The inputs needed for biotechnology innovation — the germplasm of existing plants, and the traditional knowledge of indigenous peoples — must be an unowned commons in order for the experimentation that underlies the advances of biotechnology to be permissible and capable of generating lucrative patents.

The identities of the dispossessed and the beneficiaries under this regime only underscore the power dynamic that underlies seemingly "neutral" designations of what must be considered property under the global trading system. The same machinery of rationalization that once created palatable explanations for why aboriginal inhabitants did not "own" their land, now lumbers into action to explain why traditional knowledge and land races are not ownable, while hybrids, or lab distillations of their salient traits are.

Despite much formalism that obscures the contingent nature of property, the standards for what will be deemed property, and thus entitled to muster the full powers of the state to its defense, do not exist a priori. Instead, these standards are created. They exist only in dialogue with a social and political dynamic, and an underlying value structure. As such, they can be reconsidered when necessary. This essay suggests it is necessary.

It should never be forgotten that during colonial periods these same property lines were drawn within a racial caste vision that systematically devalued claims of the non-white, the non-European and the non-Christian. Those lines were considered as "obvious" and "natural" as the intellectual property rights enshrined in TRIPS are claimed to be today. To draw lines that, once again, a priori exclude those same populations, albeit on more seemingly neutral grounds than "uncivilized" or "non-Christian," ought to raise some flags.

Is the TRIPS requirement, that all member states recognize a patent on a gene that embodies a trait that has been safeguarded for centuries by traditional farmers or indigenous peoples as the one valid claim of ownership, really different from Pope Alexander's papal bull allocating possession of lands not inhabited by Christians between Portugal and Spain in 1493? Is

86. This was a pivotal question in the de Las Casas-Sepulveda Valladolid debate. See HANKE, supra note 71.

87. Two months after Columbus returned from his voyage of discovery, on May 4, 1493, Pope Alexander VI issued his Papal Bull Inter Caetera. See The Bull Inter Caetera, http://www.nativeweb.org/pages/legal/indig-inter-caetera.html (last visited Jan. 21, 2007). This singular document purported to grant the royal families of Spain all and singular countries in the Western and Eastern Hemispheres and islands hitherto discovered and to be discovered "together with all their dominions, cities, camps, places, villages, and all rights, jurisdictions, and appurtenances" of the same. Id. Read in light of earlier Papal issuances, this Bull divided
the presumption that compounds used as traditional medicine are natural and therefore not susceptible to property claims any different from the 19th Century characterization of Australian aborigines as living in a "state of nature" and thus incapable of appropriating land as property?88 What is the difference between deeming Australia, a land that had been inhabited for millennia, to be "terra nullius" and deeming genetic resources that have been cultivated and used for millennia to be "res nullius"? Vattel's eighteenth century pronouncement that unsettled habitation (meaning no farming) cannot be accounted as true and legal possession, and therefore Europeans might lawfully settle lands of the New World, 89 applies as readily to traditional medicines and biodiversity as it did centuries ago to the lands of North America and Australia.

These justifications for colonialism have rightly been rejected as sophistry designed to conceal policies based on expediency and self-interest. The linkages between these intellectual property rights and past colonial expropriation of unused land 90 are too clear to be ignored. Explicitly acknowledging the relationship might reframe the question. It might lead us to the conclusion that these underlying resources were already owned, and thus not "res nullius" — the unowned thing. As such, these resources would no longer be acquirable through labor and no longer susceptible to being reduced to private property for instrumental social reasons.

Under such circumstances, these biological resources, and the traditional knowledge of their use would no longer serve as a reservoir in which to dip freely in search of ownable, patentable products. Conversely, what if the products created by such drawings from the common reservoir retained their common characteristic, rather than proprietary property? What if such advances were considered yet another iteration of information open to collective access — an addition to the global commons of knowledge? Depending on how property is defined, these outcomes are entirely possible.

Already there are stirrings in that direction. Seizing on the language of Article 27.3, and reading it through the lens of Articles 7 and 8, the Thammasat Declaration avowed in part: "'[s]ui generis' perfectly describes

the world between Spain and Portugal.

88. It took until the latter part of the last century for the idea of terra nullius to be officially renounced. See Mabo v. Queensland II (1992) 175 C.L.R. 1 (Austl.). Similarly, in Western Sahara, Advisory Opinion, 1975 I.C.J. 12, ¶¶ 76-86 (Oct. 16), the International Court of Justice unanimously rejected the doctrine of terra nullius when it concluded that the Western Sahara, at the time of Spanish 1884 colonization was not terra nullius.

89. EMMERICH DE VATTEL, THE LAW OF NATIONS (1758).

the rights and systems we are struggling to defend — our 'own kind' of rights and systems. We recognize our *sui generis* rights to exist independently of the IPR-based *sui generis* systems promoted by the TRIPS Agreement."\(^9\)

Similarly, the World Intellectual Property Organization has been exploring the potential for a *sui generis* means of protecting traditional knowledge.\(^92\)

Two possibilities come to mind: a negative and a positive interpretation. Under the negative interpretation, traditional knowledge would remain part of the global commons, but so would works derived from that knowledge. Or, interpreted positively, the international community could redefine property so that indigenous knowledge is not categorically excluded.

Volumes have been written advocating some variation of these two alternatives. Regardless of which path the international community decides to pursue, now is the time to do it. The mad scramble for riches mined from biodiversity is just beginning. Claims are being staked daily to ideas, products and processes. Before this claiming process cements itself into an established ownership regime there is a window of opportunity, perhaps already rapidly closing, to define what can be owned in this context and what activities will amount to ownership. If we do not seize the moment, we may be like those who, having failed to learn from the past, are condemned to repeat it.\(^93\)

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92. WIPO, *Revised Objectives, supra* note 64, at 40.