

**Intellectual Property and Biodiversity:
The Good, the Bad, and the Ugly**

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**IDDDRI -- institut du développement durable et des relations internationales
CPDR-UCL -- Centre de Philosophie du Droit est une entité de recherche
extra-facultaire et pluridisciplinaire de l'Université catholique de Louvain
UNU/IAS -- United Nations University/Institute of Advanced Studies**

Introduction:

Fifteen years after the first suggestion that intellectual property can be used to conserve biodiversity, we are still just beginning to explore how this can best be accomplished. The Convention on Biological Diversity (CBD) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) established guidelines and objectives for protecting biodiversity and standardizing intellectual property protection. International, national, and private measures and scholarly analysis are mounting. But the ultimate goal -- conserving biological and cultural diversity by linking them with their benefits -- remains elusive. People have catalogued good, bad, and ugly aspects of intellectual property rights in relation to biological diversity. It is difficult to reconcile the different views. However, by focusing on fundamental objectives, and recognizing different viewpoints, we should be able to find practical ways to promote the good, reduce the bad, and avoid the ugliest scenarios.

The basic bargain:

The basic bargain woven into the Convention on Biological Diversity (CBD) is expressed in Article 1, which states that its objectives are "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources." Under this bargain, source countries must conserve and provide access to biological and cultural resources, in exchange for recognition of their sovereign rights, and a share of resulting benefits. Four of the principles

underlying this basic bargain are equity, environmentalism, pragmatism, and property.

Equity, or fairness, dictates that people should not be subjected to discrimination based on their geographical location or wealth (in resources or money) or knowledge. Thus, countries with biological resources should be able to control them, and people with technological potential to sustainably use and develop biological resources should be able to make such use, and the benefits should be shared. Also, every country, organization, or individual should be able to become informed about their resources and their options, and should have knowledgeable assistance where necessary to achieve fairness.¹

Environmentalism promotes conservation of biological resources for their intrinsic value and for their value to humanity, into the distant future. Pragmatism relates to environmentalism particularly in the concept of sustainable development. It is good for all of us if economic development and technological advances continue without destroying our resources. It is good for all of us if all of us gain the benefits of such advances.

Property is a fourth way to look at the CBD's basic bargain – developing countries trade their physical property rights (over land and biological materials) for intellectual property rights of developed countries (over technological advances). Article 8(j) forces us to accept a more complete picture, recognizing that biological diversity can be tied to traditional knowledge and that traditional knowledge should be protected and developed, much like technological knowledge. In this view of the basic bargain, traditional knowledge is traded for technological knowledge.

Property is a tricky concept, and differing interpretations can be blamed for much confusion about the role of intellectual property in effectuating the objectives of conservation, sustainable use, and equitable benefit sharing. Property is generally viewed as a bundle of rights including the rights to acquire property, to exclude others, to control use, to benefit from use, and to sell or transfer the property. Societies differ widely on their concepts of property ownership. See e.g. <http://en.wikipedia.org/wiki/Property> The views of Aristotle, Hobbes, and Locke permeate much of Western culture, while other views include socialist, communist, and communitarian approaches. These differences spill over into divergent concepts of sovereign rights over the physical aspects of biological diversity (land, sea, plants, microbes) and of intellectual property rights relating to biological diversity (traditional knowledge, inventions, and genetic and other information).

A comment from a recent CBD working group session illustrates how discussions about the role of intellectual property and biodiversity can become

¹ This is the mission of Public Interest Intellectual Property Advisors (PIIPA). See www.piipa.org.

wrapped up in political-economic controversy over property as a fundamental organizing principle of society:

Private monopoly could begin only where national or community sovereignty had been effectively suspended. Therefore, under TRIPS the very genetic resources to which nations and communities were supposed to control access would be under the control of IPR holders. Governments and communities would have no means of regulating access or demanding a share of benefits because they would be subject to private ownership, and that was contrary to the objectives of the Convention.²

The speaker seemed to assume that the CBD was based on community and sovereign property rights and that the TRIPS agreement was based on private property rights, and that the two approaches are inconsistent. This reflects the view that intellectual property is "bad." It is helpful to recognize tension between the CBD and TRIPS, and between community rights and private property, and between the views that IP is good, or bad, but my view is that this is not the most useful way to frame the issue.

Instead of starting with a premise that IP is good or bad, we can begin again with the basic bargain implicit in the objectives of the CBD, and focus on the key question:

How can the benefits of resource diversity (both biological and cultural) be captured by people in a position to use those benefits to protect the resource?

The question can be reframed as follows:

Can intellectual property help people who control biological and cultural resources capture the benefits of their resource diversity and use them to protect the resource?

This general question leads to three specific questions that provide the best context for evaluating whether IP is good, bad, or ugly.

Is intellectual property good in that it helps link the benefits of resource diversity to the resource?

Is intellectual property bad in that it contributes to destruction and loss of biological and cultural diversity?

Or is intellectual property irrelevant and because it is complex and expensive, just plain ugly?

² Comments of Nehemiah Rotich, UNEP, paragraph 13 of the Report of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing on the work of its THIRD meeting, Bangkok, 14-18 February 2005, UNEP/CBD/WGABS/3/7, 3 March 2005, available at <http://www.biodiv.org/doc/meetings/abs/abswg-03/official/abswg-03-07-en.doc>

We review each perspective in turn.

1. IP rights are good for biodiversity

The strongest support for this view is that if there are no benefits there is nothing to share with stewards of biodiversity, and intellectual property helps create benefits. Patent rights can attach to the following aspects of biodiversity:³

1. Purified compound of known structure (vs. cellular goo)
2. Purified culture or cell line (vs. ecosystem or in organism)
3. Chemical analog (vs. original structure)
4. New preparation having defined reproducible physical, chemical, and/or bio-activity
5. New combination (vs. individual components)
6. Unpredicted new use for known compound (vs. known uses)
7. New method of preparation
8. Recombinant protein vs. naturally derived
9. New microorganism, plant, or animal
10. New genetic sequence with known utility

These technological derivatives of biological material can bring benefits to society in the form of new drugs, new foods, new industrial products, or even just new science. They can bring financial benefits to the inventor, and those benefits can be shared with the source of the material. If those rights are not available, or are heavily burdened, the benefits from innovation, and hence the value of the underlying biodiversity, will be reduced.

Intellectual property rights can apply to information about the species and specimens of biodiversity, including traditional knowledge about growth habits, habitat location, and medicinal uses, and technical knowledge about genetic sequences, chemical contents, and so on. Thus, information may be held by providers, who are in control of the habitat, or it may be held by users of the resources.

In either case, the biodiversity-related information may be let into the public domain, or may be protected by trade secrets or copyright or some other kind of sui generis rights. For traditional knowledge, the provider must make a decision whether to hold on to the information, or to catalogue and share it. Likewise, for technology involving taxonomic or genomic sequence information, the scientist collecting the information may make the information publicly available, or may keep it secret or otherwise restrict access to a limited group.

In practice, if someone obtains and uses traditional knowledge belonging to someone else, without permission, a tort claim for misappropriation may be

³ Gollin, Patenting Recipes from Nature's Kitchen, Bio/Technology 12:406 (1994)

made in the US, UK, and other countries with similar laws. The aggrieved party would need to be able to establish standing to make the claim in a jurisdiction where harm occurred. Damages might include lost profits, if there were any. Interestingly, in this context the proponents of protecting biodiversity use intellectual property rights to protect them.

Trademarks and related rights can be used so that consumers associate natural products with the countries or locations or communities from which the biological material was obtained. Trademarks can protect kava, coffee, crafts, or cosmetics produced using traditional knowledge. The fair trade movement captures the extra cost that some consumers are willing to pay for such products.

As to trademark rights, if a merchant trades on the identity of the source of a natural product, the source country or a group may be able to assert their rights to block the merchant, or to extract a share of the profits. An example is the rice variety marketed as "TEXMATI" rice, trading on an association with Basmati rice.

Another alternative for people who control biological or cultural diversity is to protect the trademark in developed countries, and to market their own product at a premium price over the competition. Again, those in control of biodiversity use IP rights to help them.

The most general argument that IP is good is that a system of IP rights is always good, because it improves society by promoting technological advance, and progress is good in and of itself. Much of the effort of developed countries, including the US, follows this line. The following points tend to be made as the rationale for patent, copyright, and trade secret systems: they provide an incentive and reward to innovators, they compensate labor, they entrust innovators with their work, they promote public disclosure, and the resulting property rights promote technology transfer, investment, and technology development. In this context, the question is not if IP rights are good or bad, but are they optimized to achieve all these societal benefits?

2. IP is bad for biodiversity

The general arguments against intellectual property rights are as follows. Patents, copyrights, trademarks, and trade secrets restrict access to desirable technology, increase costs, promote monopolization, create inappropriate investment incentives, increase competition over collaboration, are expensive to obtain, require an extensive and sustained institutional effort at the national level, and conflict with some notions of ethics.

It is not true that developed countries always believe IP is good, or that developing countries always believe IP is bad. There is a movement in developed countries for "open science," favoring a scientific commons, where

patent rights do not block non-commercial research, and research results are published openly. Also, as discussed above, resource providers have asserted trademark claims premised on misappropriation, which is a dispute about ownership or control. Implicit in such a claim is the premise that the IP right itself is valuable to the person controlling the biological or cultural diversity, and is not inherently "bad." Here, developing countries rely on IP rights to achieve their ends.

In relation to biodiversity, the most common arguments relate to patents: patenting promotes biopiracy and in and of itself can be a form of biopiracy. Examples include challenges to patents on neem extracts, maca, *Banisteriopsis caapi* (an ingredient of Ayahuasca), yellow beans, turmeric for wound healing, and a patent on TEXMATI rice. There are three basic challenges to such patents. The first is that the patent is invalid because there was no invention, the idea already having been known traditionally. There is near universal acceptance that such challenges are appropriate. Developed countries including the US have stressed their desire to prevent or eliminate patents that are "bad" in the sense that there was no invention.⁴

There are several legal steps that can be taken to invalidate a patent based on the prior art. In order of increasing cost and effort, these include: sending a copy of prior art to the patentee and suggesting that they need to submit it to the patent office; opposition or reexamination proceedings in the patent office; and a lawsuit for declaratory judgment of invalidity in court, provided there is an actual controversy. For people who can not or do not want to challenge a "bad" patent, but are concerned that they might be sued for patent infringement, alternatives include watchful waiting of pending patent applications to see if they are allowed to issue as patent, or reasoned disregard if a patent issues but is believed to be invalid.

Where there is no issue involving prior art, another argument is that obtaining the patent was itself an act of misappropriation because the invention relied on an aspect of biodiversity or of traditional knowledge, and if informed consent was not obtained, the patent is tainted and should be invalidated. This type of challenge is not generally supported under existing legal regimes. There has been a strong movement to create an international regime and national laws that would require all patent applications for natural products to identify the source of the material and to verify that the material was obtained with informed consent. Such a law would enforce informed consent regimes through patent law. Disclosure requirements could help patent systems promote the objectives

⁴ Response of the United States, p. 123 of the Survey on Existing Forms of Intellectual Property Protection for Traditional Knowledge, WIPO/GRTKF/IC/2/5, available at <http://www.wipo.int/tk/en/consultations/questionnaires/ic-2-5/index.html>

of the CBD. However, the burdens involved may be excessive. A discussion of disclosure of origin measures is beyond the scope of this paper.⁵

A third critique of IP rights is that patents involving living organisms are morally wrong. This is a difficult argument to address in national patent offices, in the courts, or in international treaties. The TRIPS Agreement mandates patentability for the types of inventions based on biodiversity as discussed above in section 1, but permits some flexibility. All countries restrict immoral patents, but they differ on where to draw the line. For example in the US, human beings are not patentable, whereas other countries preclude patents on any living organism.

The moral critique does not focus on whether IP rights contribute to loss of biological or cultural diversity. Indeed, it is built on the premise that IP rights are inherently bad, even if they promote conservation of biodiversity, or protect traditional knowledge. Thus, the moral argument is not a pragmatic approach toward protecting biodiversity, although it is an important argument for its proponents.

3. IP is just plain ugly

For some people, a third answer is that it is too complicated to figure out if IP is good or bad for biodiversity. One source of complexity is legal: there are many complicated laws involved, with differences from country to country, and a limited number of experienced practitioners. Another type of complexity is technical: IP involving biodiversity may be at the cutting edge of science and difficult for most people to understand. A third type of complexity is political, as discussed above in relation to concepts of property. And finally, anything having to do with IP is expensive: research, filing fees, and professional representation.

Consequently, I believe that many people fall into the extremes of either avoiding decisions about IP and biodiversity, or jumping to conclusions. Unthinking opponents of IP rights fail to recognize that if we did away completely with IP rights, we would lose many of the benefits of biological and cultural diversity, and many of the remedies available to source countries. Unknowledgeable proponents of strong IP rights fail to recognize the significant concerns of source countries seeking to protect and develop their biological and cultural resources in a sustainable manner. Both sides may forget that IP rights have existed for over 500 years, and have constantly evolved during that time.

⁵ See Gollin, ICTSD/CIEL/IDDRI/IUCN/QUNO Dialogue on *Disclosure Requirements: Incorporating the CBD Principles in the TRIPS Agreement On the Road to Hong Kong* WTO Public Symposium, Geneva, April 21 2005, available at www.iucn.org/themes/pbia/documents/trade-docs/gollin.pdf.

There are no easy ways to address the ugliness of such misunderstandings. One partial remedy is to make expertise available to all concerned. PIIPA⁶ provides a mechanism for source country agencies and organizations to obtain professional representation in IP matters, without having to pay. Better solutions are likely if all involved have the benefit of matter-specific advice from those who understand how to find practical solutions despite the complexities of IP.

Conclusion:

Our best hope for progress in protecting biodiversity is to keep focused on the larger global strategy. Obstacles to progress include miscommunication, lack of shared objectives, and disparities in access to expertise. With effort, we can increase the good, reduce the bad, and avoid the ugly aspects of intellectual property and harness it to help conserve and develop biological and cultural resources for present and future generations.

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⁶ www.piipa.org