

POOR PEOPLE'S KNOWLEDGE

*Promoting Intellectual Property
in Developing Countries*

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MAKING INTELLECTUAL PROPERTY LAWS WORK FOR TRADITIONAL KNOWLEDGE

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Without entering into the debate about the precise definition of the term “traditional knowledge,”¹ or about whether such a definition is a prerequisite to any legal protection of traditional knowledge, I should merely note that for the purposes of this Chapter, I use the term in its widest possible sense, to include traditional and tradition-based² literary, artistic, and scientific works; performances, inventions, scientific discoveries, and designs; marks, names, and symbols; undisclosed information; and all other innovations and creations resulting from intellectual activity in the industrial, scientific, literary, or artistic fields.³ So categories of traditional knowledge include agricultural knowledge; scientific knowledge; technical knowledge; ecological knowledge; medicinal knowledge, including knowledge relating to medicines and remedies; knowledge relating to biodiversity; and traditional cultural expressions⁴ in the form of music, dance, song, handicrafts, designs, stories, artworks, and elements of languages (such as names, geographical indications, and symbols; WIPO 2001).

International Framework: The TRIPS Agreement

Internationally, the Agreement on Trade-Related Aspects of Intellectual Property Rights (in short, the TRIPS Agreement)⁵ mandates the level of protection of intellectual property rights (IPRs)⁶ in national law. As a basic premise, the TRIPS

Agreement requires that all countries, whether they are developed or developing,⁷ adopt the same level of protection for IPRs.

Complying formally with the TRIPS Agreement imposes enormous costs on developing countries. Not only do they have to set up industrial property registries that many of them did not have before, but they also have to comply with the extensive enforcement obligations of the agreement (articles 41–61), which include border measures (articles 51–60) and criminal sanctions to combat piracy and counterfeiting (article 61). The high economic cost of compliance is, of course, compounded by the fact that these countries are net importers of intellectual property. In hard currency terms, then, compliance with the TRIPS Agreement brings about an outflow of foreign currency from developing countries.

Why did developing countries, then, agree to the TRIPS Agreement in Uruguay?

In the first instance, it has been argued that during the TRIPS negotiations, developing countries were often not party to bilateral negotiations between the United States and Europe, and so did not have access to the same level of information as those two negotiating parties (Drahos and Braithwaite 2002). Also, all negotiating parties were ignorant about the likely effects of the TRIPS Agreement in information markets—the real world costs of extending intellectual property rights and their effects on barriers to entry in markets were not clear at all. In a sense, “TRIPS was less a negotiation and more a ‘convergence of processes’” (Drahos and Braithwaite 2002).

Second, developing countries and less developed countries (LDCs)⁸ have longer time frames within which to comply with the TRIPS Agreement (articles 65.1 and 66.1, respectively), and there are minor exceptions in their favor, most notably in respect of patent protection (article 65.4).⁹ (These exceptions are not relevant to this chapter.)

Third, the TRIPS Agreement imposes an obligation on developed countries to provide incentives to enterprises and institutions in their territories to promote and encourage technology transfer to LDCs “in order to enable them to create a sound and viable technological base” (article 66.2).¹⁰ Also, developing countries were persuaded that strong intellectual property protection would lead to increased foreign investment. Unfortunately, figures for foreign direct investment (FDI), for example, show that this vaunted benefit has not materialized.¹¹

Fourth, developed countries are enjoined to assist developing countries and LDCs by means of technical and financial cooperation in favor of these countries. But the focus of such cooperation is narrow—it includes by name only “assistance in the preparation of laws and regulations on the protection and enforcement of IPRs as well as on the prevention of their abuse, and shall include support regarding

the establishment or reinforcement of domestic offices and agencies relevant to these matters, including the training of personnel” (article 67). So the focus of international assistance rendered by organizations such as the World Trade Organization (WTO) itself and the World Intellectual Property Organization (WIPO)¹² is only on the implementation of the TRIPS Agreement.

Fifth, as the TRIPS Agreement was negotiated as part of an international trade agreement, developing countries were also persuaded that the costs of implementing the TRIPS Agreement would be offset by gains in international trade generally. The Doha Ministerial Declaration likewise repeats the truism that “[i]nternational trade can play a major role in the promotion of economic development and the alleviation of poverty” (§ 2). The World Bank has estimated that increasing access by developing countries to world export markets could generate an additional US\$1.5 trillion in income over 10 years and raise their annual gross domestic product growth rates by 0.5 percent (World Bank 2002). A major hurdle to be cleared by developing countries, though, is that the barriers to international trade are at their most impenetrable precisely in those economic sectors where developing countries can compete most effectively in international trade, especially in agriculture. In the Doha Ministerial Declaration, members of the WTO weakly committed themselves to comprehensive negotiations, “without prejudging the outcome of the negotiations,” to improve market access, and to reduce subsidies and other trade-distorting domestic support practices for agricultural products (§ 13). For the foreseeable future, then, it seems unlikely that developing countries will be able to compete effectively in the agricultural export sector of the world market and that they will be able to offset the costs of implementing the TRIPS Agreement against gains in international trade in commodities that have traditionally been their strength in this context.

Sixth, developing countries were told that strengthening their domestic intellectual property protection would benefit their own creators and inventors.

Developing Countries: A Clash of IPR Paradigms

When we concern ourselves with intellectual property protection in developing countries, we have to be conscious that we are effectively dealing with two systems of legal protection. The first is the system of IPRs enshrined in the TRIPS Agreement. These rights are characterized by the fact that they are individualized—they attach to their holders in the romantic liberal tradition of rights that attach to individual citizens. Roht-Arriaza, for example, writes of patents (one of the categories of intellectual property protected by the TRIPS Agreement):

"... the individual nature of patent law is reinforced in the trade-related intellectual property rights (TRIPS) agreement ... which recognizes intellectual property rights only as private rights. Rights belonging to the public, or a sector of it, do not fit easily" (Roht-Arriaza 1997).

Coexistent with this system of individual IPRs are indigenous knowledge systems—traditional knowledge, including, as I have indicated at the outset, traditional cultural expressions and traditional ecological knowledge (sometimes called ethnobotanical knowledge).

Gudeman (1996) explains further:

Built upon the Cartesian duality of mind and body, intellectual property rights are aligned with practices of rationality and planning. The expression "intellectual property rights" makes it appear as if the property and rights are products of individual minds. This is part of a Western epistemology that separates mind from body, subject from object, observer from observed, and that accords priority, control, and power to the first half of the duality. The term "intellectual" connotes as well the knowledge side and suggests that context of use is unimportant. ... In contrast to this modernist construction, in a community economy innovations are cultural properties in the sense that they are the product and property of a group.

In the same vein, it has been argued (Berkes, Folke, and Gadgil 1995) that

indigenous [*viz* traditional] knowledge differs from scientific knowledge in being moral, ethically-based, spiritual, intuitive and holistic; it has a large social context. Social relations are not separated from relations between humans and non-human entities. The individual self-identity is not distinct from the surrounding world. There often is no separation of mind and matter. Traditional knowledge is an integrated system of knowledge, practice and beliefs.

The communal nature of traditional knowledge is recognized expressly in legislation in the Philippines and República Bolivariana de Venezuela, for example.

The Philippine Constitution of 1987 expressly mandates the recognition, respect, and protection of the rights of indigenous cultural communities and indigenous peoples (section 17, article XIV). In discharge of this mandate, the Indigenous Peoples Rights Act (Republic Act No. 8371) was enacted in October 1997. It protects the following "community intellectual property rights" of indigenous peoples: past, present, and future manifestations of their cultures, such as archeological and historical sites, designs, ceremonies, technologies, visual and performing arts, literature, and religious and spiritual properties; science and technology, such as "human and other genetic resources, seeds, medicines, health practices, vital medicinal plants, animals, minerals, indigenous knowledge systems and practices, resource management systems, agricultural technologies, knowledge of the properties of fauna and flora, and scientific discoveries"; and

"language, music, dance, script, histories, oral traditions, conflict resolution mechanisms, peace building processes, life philosophy and perspectives and teaching and learning systems" (Rules and Regulations Implementing Republic Act No. 8371, section 10, rule VI). The extent of these rights appears from section 34:

Indigenous cultural communities/indigenous peoples are entitled to the recognition of the full ownership and control and protection of their cultural and intellectual rights. They shall have the right to special measures to control, develop and protect their sciences, technologies and cultural manifestations, including human and other genetic resources, including derivatives of these resources, seeds, traditional medicines and health practices, vital medicinal plants, animals and minerals, indigenous knowledge systems and practices, knowledge of the properties of flora and fauna, oral traditions, literature, designs and visual and performing arts.

Article 124 of the Constitution of the República Bolivariana de Venezuela of 1999 states succinctly:

The collective intellectual property of indigenous knowledge, technology and innovations is guaranteed and protected. Any work on genetic resources and the knowledge associated therewith shall be for the collective good. The registration of patents in those resources and ancestral knowledge is prohibited.

This distinction between individual IPRs and communal traditional knowledge rights is a slight oversimplification, of course. While many indigenous and local communities generate and transmit knowledge from generation to generation collectively, there are situations in which individual members of these communities can distinguish themselves and be recognized as informal creators or inventors distinct from their community (Gupta 1999). Also, collective marks¹³ are known to trademark law, and the TRIPS Agreement itself recognizes geographical indications (article 22)—both types of IPR protect the interests of a collective.¹⁴

When these rights paradigms clash, who will emerge the winner? Shiva (1997) asks:

When indigenous systems of knowledge and production interact with dominant systems of knowledge and production, it is important to anticipate whether the future options of the indigenous system or the dominant system will grow. Whose knowledge and values will shape the future options of diverse communities?

Given the reality of economic power, it is not hard to predict that the system of individual IPRs as sanctioned by the TRIPS Agreement will hold sway. But it is precisely its superimposition on traditional knowledge systems that challenges developing countries in two very different ways—to protect their traditional knowledge holders¹⁵ against the operation of the IPR systems as embodied in the TRIPS Agreement and, at the same time, to use those IPRs to protect their traditional knowledge holders, no matter whether they hold individual or communal rights.

Protecting Traditional Knowledge in Developing Countries: Two Goal Posts

So we should look at intellectual property from the point of view of, first, the protection of traditional knowledge against IPRs and, then, the protection of traditional knowledge by IPRs. At first blush, this distinction seems to mirror the distinction between the "positive" and "defensive" protection of traditional knowledge (Wendland 2002). Some indigenous peoples and traditional communities want *positive* protection of their traditional cultural expressions—they want to benefit from the commercialization of these expressions. But some members of these groups and communities are concerned with the cultural, social, and psychological harm caused by the unauthorized use of their traditional cultural expressions. To these people, such use deprives these expressions of their original significance, which, in turn, may disrupt and dissolve their culture. So this group argues for the *defensive* protection of these cultural expressions.

These are not watertight categories, of course. The protection of traditional knowledge for the purposes of exploitation by its holders also entails the protection of such knowledge against misappropriation by "outsiders," against exploitation of traditional knowledge, in other words.

Note also that at the World Summit on Sustainable Development (WSSD; 2002), the participants recognized, "[s]ubject to national legislation, ... the rights of local and indigenous communities who are holders of traditional knowledge, innovations and practices, and, with the approval and involvement of the holders of such knowledge, innovations and practices, develop and implement benefit-sharing mechanisms on mutually agreed terms for the use of such knowledge, innovations and practices" (WSSD ¶ 42(j)).

Goal Post 1: Protection against Exploitation of Traditional Knowledge

Patents

The following are two illustrations of the appropriation of traditional knowledge without the consent of the holders of such knowledge, and the subsequent use of such knowledge to obtain patents. Turmeric is an Indian plant that has been used for thousands of years for controlling pests and healing wounds and rashes. The United States Patent and Trademark Office (USPTO) granted a patent for turmeric to be used to heal wounds. The patent was assigned to the University of Mississippi Medical Center. It claimed that the administration of an effective amount of turmeric through local and oral routes enhances the wound-healing process. This patent was revoked for anticipation (lack of novelty) after the Indian

Council for Scientific and Industrial Research presented an ancient Sanskrit text that witnessed the traditional use of the plant.¹⁶

Likewise, the neem tree grows in India and other parts of Southeast Asia. Neem extracts can be used as a pesticide for pests (such as the white fly) and fungus diseases. Besides, the oil extracted from its seeds can be used to relieve various human diseases, such as malaria, skin diseases, and even meningitis. The European Patent Office granted a patent to an American corporation for an insecticide and a fungicide derived from a neem seed extract comprising neem oil. The patent was later revoked, again mainly for lack of novelty—the invention claimed was not new because of prior public use by farmers in India.¹⁷

Many of the instances of the appropriation and exploitation of traditional knowledge in this manner involve the use of both genetic resources and traditional ecological knowledge about the properties of such resources. The protection of the genetic resources as such falls outside the scope of this chapter. But while, at first blush, the genetic resources that are used in a patented invention may seem economically to be the most important factor, the economic significance of the traditional ecological knowledge should not be overlooked. It has been claimed that of the 120 active compounds derived from plants that are widely used in contemporary medicines, 75 percent were already known within traditional knowledge systems (McLeod 2001). Using those knowledge systems increases 400-fold the ability to locate plants that have specific medicinal uses (Shiva 1997). According to another estimate, "bioprospectors can increase the success ratio in trials for useful substances from one in ten thousand samples to one in two" (Roht-Arriaza 1997).

The problem facing developing countries in this context is multidimensional. First, no financial benefits from the exploitation of traditional knowledge in this way reach the holders of such knowledge. The United Nations has estimated that developing countries lose at least US\$5 billion annually in unpaid royalties to multinational corporations that appropriate traditional knowledge (McLeod 2001). Second, the existence of an earlier patent bars the registration of a patent by the holders of traditional knowledge—they are excluded from obtaining patents for their inventions that utilize their traditional knowledge. Third, a patent confers on its holder a monopoly to exploit the patented invention in the territory for which it is registered. So the holders of traditional ecological knowledge may well find themselves unable to use their own knowledge, since that may infringe the rights conferred by a related patent registered for their territories. Fourth, although most patents using indigenous knowledge may be open to revocation on the basis that the inventions should not have been patented since they had not been new at the time of application (as in the turmeric and neem cases), the legal processes of opposition and revocation are costly and so often beyond the financial

means of the communities concerned. Fifth, in some legal systems the claim for revocation must be backed up by written evidence of prior art.

As far as protection against exploitation under patent law is concerned, then, three complementary approaches can be taken.

Prior Informed Consent Patent applicants can be required or encouraged to furnish information relating to genetic resources and/or traditional ecological knowledge used in the development of inventions claimed in patent applications. This approach may involve disclosing the source of the material and providing information about the legal basis of access to it, such as an indication or evidence of prior informed consent. Various proposals along these lines have been made in international fora such as the WTO, the Convention on Biological Diversity (CBD), United Nations Conference on Trade and Development (UNCTAD), and WIPO. Examples of such a consent requirement can be found in Decision 391 (1996) of the Andean Community, which introduces the Common System to regulate access to Genetic Resources, and the Biological Diversity Law No. 7788 (1998) of Costa Rica.

The Conference of Parties of the CBD invited governments "to encourage the disclosure of the country of origin of genetic resources in applications for intellectual property rights, where the subject matter of the application concerns or makes use of genetic resources in its development, as a possible contribution to tracking compliance with prior informed consent and the mutually agreed terms on which access to those resources was granted" and "to encourage the disclosure of the origin of relevant traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biological diversity in applications for intellectual property rights, where the subject matter of the application concerns or makes use of such knowledge in its development" (CBD 2002).

The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore¹⁸ (WIPO-IGC) is responding to a request from the Secretariat of the CBD to prepare a technical study on various requirements for disclosure related to genetic resources and traditional knowledge in patent examinations (CBD 2002). An initial report was presented to the WIPO-IGC in December 2002 (WIPO 2002c).

It is controversial whether prior informed consent, as envisaged by the CBD, can be introduced as an additional substantive requirement for patentability within the framework of the TRIPS Agreement (WTO 2002). The debate turns on whether the statement 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" (TRIPS Agreement, article 27.1) effectively closes the list of substantive requirements of patentability.¹⁹

The debate also touches on the scope of the provisions of the agreement relating to disclosure²⁰ and compliance with "reasonable formalities and procedures ... consistent with the provisions of this Agreement" (TRIPS Agreement, article 69.1).

If a lack of prior informed consent is introduced as a ground for the revocation of a patent, as opposed to prior informed consent as a substantive requirement of patentability, most of these objections fall away. But serious practical problems remain to be addressed. They relate mainly to the fact that the same genetic resource can be found in the territories of any number of countries, or that the same traditional ecological knowledge can be held independently by any number of indigenous or local communities. So it may well be prohibitively difficult to prove misappropriation of any such resource from a certain territory, or such knowledge from a given community. This problem can be solved by a reverse burden of proof:²¹ where an applicant for the revocation of a patent for lack of prior informed consent can prove that the invention uses or derives from a genetic resource found within its territory, or from traditional ecological knowledge held by a local or indigenous community in it, it is presumed that the patentee has taken such resource or knowledge without the prior informed consent of the relevant indigenous or local community. This rebuttable presumption then requires the patentee to carry the burden of proving the contrary.

Also, where a lack of prior informed consent is proved, the question arises as to whether revocation of the patent in question is necessarily the most desirable remedy. I believe not. Rather, patent legislation should allow the relevant administrative or judicial authority to order the transfer of the patent to the successful applicant, effective from the filing date of the patent application. There is good precedent for such a remedy elsewhere in intellectual property law: a competent authority is allowed to order the transfer of a domain name in appropriate circumstances.²² This remedy in patent law would be fair and equitable and would deter future action without prior informed consent.

Searchable Prior Art The second approach is to prevent the unauthorized (improper) acquisition of industrial property rights (especially patents) over traditional knowledge by documenting and publishing traditional knowledge as searchable prior art, should the holders of the traditional knowledge concerned want this. Once such knowledge becomes part of the prior art, that mere fact destroys the novelty of any invention based on such knowledge. Even if a patent is obtained, it may be revoked on this ground. This procedure may involve an application launched by the holders concerned (which would involve substantial legal costs), or by a rival pharmaceutical company that wants to exploit the knowledge for its own gain (and at its own cost).

The WIPO-IGC has been examining the integration of public domain traditional knowledge documentation into searchable prior art. This has involved drawing up inventories of publicly available periodicals and databases relating to traditional knowledge and setting up a WIPO Portal of Traditional Knowledge Databases.²³

Morality The third approach is built on the optional morality requirement in article 27.2 of the TRIPS Agreement:

Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality ... provided that such exclusion is not made merely because the exploitation is prohibited by their law.

The current approach to the application of the morality requirement in a similarly worded provision in the European Patent Convention²⁴ is very limiting—morality relates only to the exploitation of the invention, and not to the morality of the appropriation of the invention, or the genetic resources or traditional ecological knowledge on which it is based. In my view, immorality of appropriation taints whatever exploitation occurs after such appropriation.

But the morality requirement can be read differently, too, to protect traditional knowledge. In New Zealand, for example, the Intellectual Property Office has developed guidelines for patent examiners concerning patent applications that are significant to Maori (WIPO 2002c). The guidelines concern inventions relating to, using, or derived from indigenous flora and fauna, Maori individuals or groups, indigenous microorganisms (such as viruses, bacteria, fungi, and algae, where any line of research resulted from any traditional knowledge), and indigenous material derived from an inorganic source, where the research resulted from any traditional knowledge. If an application meets one of these criteria, an examiner is required to assess whether it is appropriate to raise an objection to registration under section 17 of the Patents Act of 1953, which provision allows the commissioner of patents to refuse an application where the use of the invention in question would be contrary to morality. In making this assessment, examiners are directed to consider the extent to which the application may have special cultural or spiritual significance for Maori, and whether or not the application is likely to be considered culturally offensive. Where an application may reasonably be considered to fall under section 17, applicants should be advised accordingly, and be given the opportunity to obtain the consent of the competent Maori authority.

Trademarks

Trademark law may prohibit the registration of distinctive signs and so on as trademarks where such registration may offend sections of the community

(including indigenous and local communities), or where it falsely suggests a connection between such sign and an indigenous or a local community.

In New Zealand, for example, a new Trade Marks Bill proposes that the commissioner of trademarks be allowed to refuse to register a trademark where its use or registration will be likely to offend a significant section of the community, including the Maori.

In the United States, a proposed trademark may be refused registration and a registered trademark canceled if the mark consists of or comprises matter that may disparage, or falsely suggest a connection with, persons (living or dead), institutions, beliefs, or national symbols, or bring them into contempt or disrepute (Trade Marks Act of 1946, section 2(a)). The USPTO may refuse to register a proposed trademark that falsely suggests a connection with an indigenous tribe or beliefs held by that tribe. According to the USPTO, this provision protects not only Native American tribes but also those of "other indigenous peoples worldwide" (WIPO 2001). Also, the Trademark Law Treaty Implementation Act of 1998 required the office to complete a study on the official protection of insignia of federally and state recognized Native American tribes. As a direct result of this study, the office established, on August 31, 2001, a searchable Database of Official Insignia of Native American Tribes that may prevent the registration of a mark confusingly similar to official insignia. (The term "insignia" connotes "the flag or coat of arms or other emblem or device of any federally or State recognized Native American tribe as adopted by tribal resolution," but it does not include matter consisting only of words.) The database is included within the USPTO's database of material that is not registered but is searched to make a determination regarding the registrability of a proposed trademark.

Goal Post 2: Protection for Exploitation of Traditional Knowledge

Protection for Traditional Cultural Expressions

These are some examples of traditional cultural expressions for which legal protection has been sought: (a) Traditional cultural artistic expressions (such as paintings) have been reproduced without authority on carpets, printed fabric, T-shirts, dresses and other garments, and greetings cards, and have subsequently been distributed and offered for sale. Body paintings and rock paintings (petroglyphs) have also been photographed without authority, and the photos distributed and offered for sale (WIPO 2002b). (b) Traditional cultural musical expressions have been recorded, adapted, and arranged, performed in public, and communicated to the public, among other means, by the Internet. Traditional

music can be downloaded from some free music archives, stored as sound files, and then manipulated in whatever manner one creatively sees fit (Sandler 2001). A major concern is that music that was originally recorded for ethnographic purposes can now be sampled and used in new compositions protected by copyright. Much of this music was recorded at live performances, often without the knowledge of the performers. A well-known example is the *Deep Forest* compact disc produced in 1992—it fused digital samples of music from Ghana, the Solomon Islands, and African “pygmy” communities with “techno-house” dance rhythms (Mills 1996). A related issue is the composition of original music that may be mistaken for traditional music, in that it treats traditional subject matter or is accompanied by a rhythmic pattern associated with traditional music (Sandler 2001).

(c) Traditional cultural oral literary expressions (such as stories and poems) have been written down, translated, and published without authority. (d) Designs embodied in handwoven or handmade textiles, weavings, and garments have been copied and exploited commercially without authority. Examples include the *amauti* in Canada, the *saris* of South Asia, the “tie and dye” cloth in Nigeria and Mali, *kente* cloth in Ghana and some other West African countries, traditional caps in Tunisia, the Mayan *huipil* in Guatemala, the Kuna *mola* in Panama, and the *wari* woven tapestries and textile bands from Peru (WIPO 2002b). (e) Traditional cultural expressions (such as stories, plays, and dances) have been recorded, adapted, and performed in public without authority. Examples include the *sierra* dance of Peru and the *haka* dance of the Maori in New Zealand (WIPO 2002b). (f) Sacred or secret traditional cultural expressions have been used, disclosed, and reproduced without authority. Examples include the sacred Coroma textiles of Bolivia (Lobo 1991) and sacred songs that can be performed only at a special place and for a specified purpose (Sandler 2001). (g) Words from the vernacular of indigenous and local communities have been registered as trademarks by people who were not members of these communities. Examples include Pontiac, Cherokee, billabong, tomahawk, boomerang, tohunga, mata nui, piccaninny, and tairona (WIPO 2002b).

Copyright Original traditional cultural expressions may be protected by copyright as literary and artistic works, without any need for registration or compliance with any formality. Such informal acquisition of copyright is mandated by the Berne Convention for the Protection of Literary and Artistic Works (article 5(2)), most of the substantive provisions of which have been incorporated by reference into the TRIPS Agreement (article 9.1). The Berne Convention extends to authors of original works economic (exploitation) and moral rights. The economic rights comprise the exclusive right to authorize any reproduction of the work, the right to broadcast the work or to perform it in public, and the right to

make an adaptation of the work (which includes translating it). Two moral rights are protected—the right to claim authorship of the work (known as the “paternity” right) and the right to object to any distortion, mutilation, or other modification of, or other derogatory action in relation to, the work that would prejudice the author’s honor or reputation (known as the “integrity” right) (article 6^{bis}).

The strongest advantage of copyright law is, of course, that, on the basis of the principle of national treatment, it transcends national borders and so protects authors in all member states of the Berne Union and WTO.

Many developing countries regulate the use of traditional cultural expressions within the framework of their copyright laws.²⁵ These countries do so by taking advantage, expressly or implicitly, of a special provision in the Berne Convention that states that, with unpublished works, where the identity of an author is unknown, but there is “every ground” to presume that he or she is a national of the country concerned, legislation in that country may designate the competent authority to represent the author and to protect and enforce his or her rights (article 15(4)(a)).²⁶ (Sometimes, of course, works that appear to be traditional cultural expressions can actually be traced back to their original authors. Then the author, or the author’s successors in title, can recover royalties.) So traditional cultural expressions are assimilated into original literary and artistic works, so that the economic rights in respect of such expressions can be exercised by the designated authority.

But traditional cultural expressions fit uncomfortably into the copyright paradigm. For one, they are often the result of a continuing and slow process of creative activity exercised by a certain community by consecutive imitation, whereas works protected by copyright traditionally should show some individual originality. In short, copyright is author centric; with traditional cultural expressions, by contrast, any notion of an author in the copyright sense is generally²⁷ absent (Ficcor 1997). Also, since the term of copyright protection is usually determined with reference to an identifiable author,²⁸ the lack of such author in the context of traditional cultural expressions makes them square pegs in the copyright round hole. Traditional cultural expressions continue to evolve, and have done so over centuries, and so any notion of a fixed term of protection in respect of folklore denies this essential feature.

The originality and identifiable author requirements of copyright law need not prevent the copyright protection of tradition-based cultural expressions made by the current generation of traditional knowledge holders (WIPO 2002b).

Some national laws require fixation in some or other material form as a prerequisite for copyright protection—this prevents the copyright protection of intangible traditional cultural expressions, such as songs, poetry, and stories that have not been reduced to material form. The Tunis Model Law²⁹ allows countries

to exclude traditional cultural expressions (there termed "folklore") from the fixation requirement (section 5^{bis}).³⁰ The authors of the Model Law state that if fixation were required, copyright in such expressions may well vest in the person who takes the initiative of fixing them (paragraph 20 of the commentary).

As far as preexisting traditional cultural expressions are concerned, they remain for copyright purposes in the public domain (WIPO 2002b). So for them a different regime of protection is needed.

UNESCO-WIPO Model Provisions The directors general of UNESCO and WIPO convened a meeting of a Committee of Governmental Experts on the Intellectual Property Aspects of the Protection of Expressions of Folklore in Geneva, from June 28–July 2, 1982. The committee adopted the Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions (Model Provisions).

The key term "expressions of folklore" connotes productions consisting of characteristic elements of the traditional artistic heritage developed and maintained by a community in the country, or by individuals reflecting the traditional artistic expressions of such a community (section 2). The reference to "artistic" heritage excludes, for example, traditional beliefs, traditional ecological knowledge, and merely practical traditions as such, separate from possible traditional artistic forms of their expression. To the definition of "expressions of folklore" is added an illustrative enumeration of the most typical kinds of expressions of folklore according to the form of the "expression": expression by words ("verbal"), expressions by musical sounds ("musical"), expressions "by action" (of the human body), and expressions incorporated in a material object ("tangible expressions"). The first three kinds of expression need not be "reduced to material form"—the words need not be written down, the music need not exist in the form of musical notation, and the bodily action (such as dance) need not exist in a written choreographic notation. But tangible expressions must be incorporated in a permanent material, such as stone, wood, textile, or gold.

The following considerations were taken into account when the committee had to decide what kinds of utilization of expressions of folklore should be subject to authorization: whether there is gainful intent; whether the utilization is made by members or nonmembers of the community from which the expression utilized comes; and whether the utilization occurs outside the traditional or customary context. The committee agreed that utilizations made both with gainful intent and outside their traditional or customary context should be subject to authorization. This means, among other things, that a utilization—even with gainful intent—within the traditional or customary context is not subject to authorization. But a utilization, even by members of the relevant community of the expression,

requires authorization if it is made outside that context and with gainful intent. The term "traditional content" is understood to connote the way of using an expression of folklore in its proper artistic framework based on continuous use by the community. By contrast, the term "customary context" connotes rather the utilization of expressions of folklore according to the practices of the everyday life of the community, such as the usual ways of selling copies of tangible expressions of folklore by local craftsmen.

Section 3 then specifies the acts of utilization that require authorization where these circumstances exist. In doing so, it distinguishes between instances where copies of the expressions are involved, on the one hand, and instances where copies of such expressions are not necessarily involved, on the other. With the former, the acts requiring authorization are publication, reproduction, and distribution; with the latter, public recitation, public performance, transmission by wireless means or by wire, and "any other form of communication to the public."

The utilizations listed in section 3 are subject to authorization by a "competent authority" or the "community concerned." States may designate a competent authority, if they prefer to do so (section 9). (They may also designate a "supervisory authority" with certain special functions.) The functions of the competent authority are to grant authorizations for certain kinds of utilization of expressions of folklore (section 3), receive applications for authorization of utilizations, decide on them, and, where authorization is granted, to fix and collect a fee, where required (section 10). Any decision of the competent authority should be subject to an appeal (sections 10.3 and 11.1).

Authorization need not be obtained where the utilization is for the purposes of education or by way of illustration, where expressions of folklore are "borrowed" to create an original work, or in the case of "incidental utilization" (section 4), such as for reporting on current events, or where the expression of folklore is an object permanently located in a public place. These exceptions are important as counterweights to the strong protection of traditional cultural expressions. By overprotecting such expressions, the public domain shrinks, which means that there are fewer works to build new ones with. So artists from indigenous and local communities who want to develop their artistic traditions by reinterpreting traditional themes and motifs in nontraditional ways may be inhibited by overprotection (Wendland 2002). The danger is that overprotection may "freeze" traditional culture at a historic moment and so deny traditional cultural expressions a contemporary voice (Farley 1997).

The Model Provisions were drafted well before the digital era, and so should be reconsidered carefully to see if they meet the demands of this era. In the case of the Berne Convention, for example, the WIPO Copyright Treaty was adopted to update copyright law to meet the special challenges to copyright law posed by the Internet (see below).

Also, these are model provisions for national laws—they have not been drafted as a model international treaty for the protection of traditional cultural expressions.

The Digital Environment: The WIPO Copyright Treaty The emergence of global information networks—such as the Internet—and electronic commerce raises a number of key issues in the field of copyright. Those relevant to this chapter include the following: (a) The use of computers requires that works be transformed from their traditional material form into digital form. Digitization has two main advantages: transmission of a digitized work occurs without any degradation (every copy is perfect), and copies of such a work can be made quickly and cheaply. Unfortunately, though, these advantages also mean that copyright may be infringed with ease and on a scale previously unknown. (b) Material stored or made available for access on hosts, or transmitted through the Internet, may be the subject of copyright owned by a third party who has not consented to these activities. (c) To protect their works against these first two risks, authors have often resorted to technical protection measures. These measures usually operate at one of two levels—access control³¹ and copy control.³² These measures can remain effective, of course, only if their unauthorized circumvention is prohibited. (d) With works in digital form, it is easy to remove any rights management information. If this is done, it may become difficult to prove copyright ownership.

These issues have been addressed at the international level in the WIPO Copyright Treaty (WCT), adopted on December 20, 1996, at the Diplomatic Conference on Certain Copyright and Neighboring Rights Questions, organized in Geneva under the auspices of WIPO. In the first instance, the WCT confirms an author's exclusive right, in the digital environment, to reproduce his or her work in any manner or form (Agreed Statement Concerning Article 1(4)).³³ It is also understood that the storage of a protected work in digital form in an electronic medium constitutes a reproduction of that work. Second, the WCT grants an exclusive right to authors to authorize that their works be made available through interactive, on-demand services (article 8). The relevant act of exploitation is making the work available to the public: the act "commences, and is completed by providing public access to the work" (Hugenholz 2001). Third, for the first time in an international instrument, the WCT recognizes that in a digital environment any new rights in respect of digital uses of works would, for the rights to be effective, require the framework support of provisions dealing with technical measures of protection and electronic rights management information. To this end, the WCT obliges contracting parties to provide adequate legal protection and effective remedies against the circumvention of measures to protect the rights of authors (article 11),³⁴ and to provide, under certain conditions, adequate remedies against the removal or alteration of electronic rights management information (article 12).³⁵

Paying Public Domain Professor Adolf Dietz has proposed the payment of remuneration for the use of works and performances in the public domain—the creation of a community right of authors and performers (Dietz 2000). The underlying notion is that the community of living authors and performers should benefit from the use of works and performers of their predecessors that are no longer protected, as the term of protection had expired. Such a remuneration right can be established by legislation, in favor of an authors' and performers' fund administered by a foundation or nonprofit corporation. Such foundation or corporation, in turn, should largely be managed and administered by the authors' and performers' organizations themselves. Existing collecting societies, where they exist, can collect the remuneration in the same way as they do for the use of protected works and performances. The money will then not be distributed according to the individual distribution schemes, though, but will rather be forwarded to the foundation or corporation concerned.

For developing countries, this is an attractive proposal.³⁶ Of course, nothing prevents the extension of this proposal to include traditional cultural expressions, which would then attract a similar right of remuneration. The notion of a paying public domain ("domaine public payant") for traditional cultural expressions is not new, of course—it is proposed in the Tunis Model Law (section 17). The money collected should be used "to protect and disseminate national folklore." Such remuneration right can be made subject to an obligation to acknowledge the source of the traditional cultural expressions used, and an obligation not to use such expressions outside their traditional or customary context in a manner that offends the local or indigenous community concerned.

Related Rights: Performers Since 1961, performers of literary and artistic works have been protected within the framework of the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (the Rome Convention). For historical reasons, this protection was weak—performers do not acquire exclusive rights, but should merely be able to prevent certain acts from being performed in respect of their recorded performances, or their live performances from being recorded or broadcast.

The TRIPS Agreement similarly states that performers should "have the possibility of preventing" a limited number of acts (article 14.1).

Like the WCT, the WIPO Performances and Phonograms Treaty (WPPT) addresses issues relating to the protection of performers' rights in the digital context. It greatly enhances their position.

For the first time, it grants performers certain exclusive rights of authorization in respect of their live and recorded performances. In respect of their live performances, performers have the exclusive right to authorize the broadcasting and

communication to the public of such performances and the recording (fixation) of such performances (article 6). In respect of their recorded performances, performers have the exclusive right to authorize their reproduction (article 7), their distribution (article 8), their rental (article 9),³⁷ and their availability so that "members of the public may access them from a place and at a time individually chosen by them" (article 10).

Performers are also entitled to remuneration for broadcasting and communication to the public of commercial recordings of their performances (article 15).

Another first: performers are given moral rights on similar terms to those extended to authors (article 5). So they also enjoy paternity and integrity rights.

Developing countries seeking international protection of traditional cultural expressions should note an important step forward in the WPPT. Unlike the Rome Convention, which limits the definition of "performers" to those who perform "literary or artistic works" (article 3), the WPPT extends this definition to apply also to those who perform "expressions of folklore" (article 2). Certain traditional cultural expressions—such as folk tales, folk poetry, folk songs, instrumental folk music, folk dances, and folk plays—live through performance. To the extent that these performances are protected against unauthorized recording and broadcasting and communication to the public, the traditional cultural expressions being performed are indirectly protected. This is a fairly efficient means for an indirect protection of these traditional cultural expressions (Ficsor 2002).

The WPPT grants coextensive rights to the producers of sound recordings (articles 11 through 15). Obviously, they do not enjoy any moral rights in respect of their recordings.

If the balance between authors (including composers), performers, and producers of sound recordings in the WCT and the WPPT is maintained, and it is not disturbed by the existence of the "iron triangles" of the sort outlined above, multinational record companies can become "partners and not predators." Then FDI, as well as domestic direct investment by local musicians, can contribute toward alleviating poverty.

Designations of Authenticity: Certification Marks In Australia, for example, the preferred legal technique to protect against nonindigenous people who manufacture and sell indigenous artifacts at the expense of the indigenous artistic community is through the use of certification marks,³⁸ which serve as labels of authenticity (Wiseman 2001). The National Indigenous Arts Advocacy Association (NIAAA) registered the first of two proposed national indigenous labels of authenticity as certification marks in Australia. These labels are applied to goods³⁹ and services⁴⁰ of aboriginal or Torres Strait Islander origin, which makes it more difficult for nonaboriginal people to pass off their works as if they were authentically aboriginal.

The first mark—the label of authenticity—is applied to "products or services that are derived from a work of art created by, and reproduced or manufactured by Aboriginal or Torres Strait Islander people who satisfy the definition of 'authenticity'" (NIAAA 2001). An artist who has successfully applied to use this label is referred to as a certified indigenous creator. The second mark—the collaboration mark—is applied to "products or services derived from a work of art which has been created by an Aboriginal or Torres Strait person or people who satisfy the definition of 'authenticity'" (NIAAA 2001). This mark recognizes that products and services are often produced, reproduced, or manufactured under licensing agreements with indigenous people. The collaboration mark is applied to such products and services, provided that the licensing arrangements are "fair and legitimate."

It has to be recognized that although these labels of authenticity will raise the profile of indigenous artists and help to make sure that they are properly remunerated, they will provide only limited protection to these artists. It is unlikely that, by themselves, the marks will prevent the production, import, or export of forgeries (Wiseman 2001). Also, since the marks are registered in a national registry, their effect is limited to that national territory, unless, of course, in the rare situation where they qualify for protection as well-known marks.⁴¹

In New Zealand, Te Waka Toi (the Maori Arts Board of Creative New Zealand) is utilizing trademark protection through the development of the "Maori Made Mark." This mark is intended to be a mark of authenticity and quality, which will indicate to consumers that the creator of the mark is of Maori descent and produces work of a particular quality.

In India, too, the Policy Sciences Center is implementing, with the Indian commissioner for handicrafts, a certification system for products labeled "Handmade in India" (Penna and Visser 2002).

As certification marks require registration, they suffer from territoriality—they are enforceable only in the territories for which they have been registered.

Trade Dress At a workshop at the World Bank on the crafts industry in India, Professor Jerome Reichman suggested using trade dress protection in this context (Reichman 2001). This type of protection relates to product packaging;⁴² if such packaging is inherently distinctive, it qualifies for trademark protection, (potentially) forever. Professor Reichman's advice:

The package. Make a fancy package. Make not just the India mark, but the way that it comes in, per company and per product and per region. Those are strongly protectable in national law and in international law under the TRIPS Agreement, which requires all sorts of international trademark protections and is very strong now.

Again, the problem is that the protection is territorial only, based on national legislation, with the only possible exception being in respect of well-known marks.

Unfair Competition: Misleading the Public Using misleading indications of origin may constitute unfair competition.

The Paris Convention, for example, requires countries to grant protection against "indications or allegations the use of which in the course of trade is liable to mislead the public as to the nature, the manufacturing process, the characteristics, the suitability for their purpose, or the quantity, of the goods" (article 10^{bis}(3)).

The WIPO Model Provisions on Protection Against Unfair Competition are more explicit. They state that any act or practice, "in the course of industrial or commercial activities, that misleads, or is likely to mislead, the public with respect to an enterprise or its activities, in particular, the products or services offered by such enterprise," constitutes unfair competition (article 4(1)). They add that "[m]isleading may arise out of advertising or promotion and may, in particular, occur with respect to "the geographical origin of products or services" (article 4.2).

The main problem with protection against unfair competition is that it is confined to the national level and so differs from country to country. While this kind of protection may protect indigenous and local artists against misappropriation within their national states, it offers no protection at the international level.

Geographical Indications One of the intellectual property issues for developing countries is the unauthorized use of a geographical indication on noncompeting goods, such as Taj Mahal for a hotel in Nevada. It is a complex issue. It has been noted that the issue "here is not necessarily a question of misleading consumers" but "also a question of the reputation of the geographical indication" (Baeumer 1989). At the same time, the protection should not overreach—it has been argued that while the protection of geographical indications against unauthorized use on all types of goods is excessive, protection should be given against "a blatant misuse of reputation" (Bienaymé 1989).

In terms of the Paris Convention, goods in respect of which a false indication of source is used should be seized upon importation (article 9(1)), or seized in the country into which they are imported, if the false indication⁴³ had been applied in that country (article 9(2)), or barred from importation (article 9(5)), or subject to such other actions and remedies as are available in such cases to nationals of the country in question (article 9(6)). Any producer or manufacturer engaged in the production or manufacture of the goods to which the geographical indication refers can take action against the use of a false indication (article 10(2)).

The Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods extends this protection to "deceptive" indications of source. Although a deceptive indication may literally be true, it is still misleading. For example, where two geographical areas in different countries have the same name, but only one of them has been used to indicate the source of certain products, and such indication is then used for goods originating from the other area in a way that leads members of the public to believe that they originate from the first area, such use is deceptive—the public believes that the products originate from the geographical area in respect of which the indication traditionally has been used (Baeumer 1997).

The Lisbon Agreement for the Protection of Appellations of Origin and Their International Registration provides strong protection for certain geographical indications, called "appellations of origin."⁴⁴ This protection is based on an international registration of an appellation of origin, effected by WIPO. The main factor limiting the scope of application of this agreement is the requirement that an appellation of origin be protected as such in its country of origin before it can be registered as such with WIPO (article 1(2)).

The TRIPS Agreement defines "geographical indications" as "indications which identify a good as originating in the territory of a Member [of the WTO], or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin" (article 22.1).⁴⁵ The scope of protection also expressly extends deceptive indications within the meaning of that term in the Madrid Agreement (article 22.4). Protection should be available against misleading use of a geographical indication and against acts of unfair competition (article 22.2), and against the registration of a trademark that contains, or consists of, a geographical indication relating to goods not originating in the territory indicated, if use of such a trademark is of such a nature as to mislead the public about the true place of origin (article 22.3). Geographical indications in respect of wines and spirits enjoy additional protection (article 23).

Members of the WTO have agreed to enter into negotiations to raise the level of protection of individual geographical indications (article 24). Some developing countries have argued in the TRIPS context that the work mandated in respect of the establishment of a notification and registration system of geographical indications for wines be extended to other products recognizable by their geographical origins, such as handicrafts and agrofood products (WTO 1999).

Protection for Traditional Ecological Knowledge

Patents Holders of traditional knowledge can be given access to the industrial property system, to enable them to obtain patents (or utility models or "petty patents"

where provision is made for these) where appropriate. One basic problem with doing so is that a patent protects active ingredients that have been isolated and tested. Such isolation and testing cost hundreds of millions of dollars and so are possible only for multinational pharmaceutical companies, not for the developing countries, or certainly not for their indigenous peoples. A further problem is that it may not be possible to obtain a patent because the novelty of the invention may have been destroyed by prior use of the invention by the local community itself.⁴⁶ It is possible, of course, to exclude such use from the prior art for the purposes of determining the novelty of an invention, much like certain disclosures are excused for these purposes. An example is article 54(1)(a) of the European Patent Convention (the provision is headed "Non-prejudicial disclosures"): it states that a disclosure will not be taken into account if it occurred in consequence of "an evident abuse in relation to the applicant or his legal predecessor."

Patents depend on registration and so are subject to the principle of territoriality—they are enforceable only in the territory for which they have been registered.

Transfer of Technology A variety of transfer of technology approaches can be considered. These approaches assume for their effective operation an organized body of knowledge and an identifiable entity to administer such transfer.

One such approach is illustrated by the contract signed in 1991 between Merck and Costa Rica's Instituto Nacional de Biodiversidad (INBio), a nonprofit organization. In terms of this agreement, over a two-year period, Merck received some 10,000 plant samples. Merck was supplied with information about their traditional use. Merck paid a reported US\$1.35 million to INBio for these samples and has agreed to pay a royalty of between 2 percent and 3 percent. If one of the samples becomes a billion-dollar drug, Merck has agreed to pay INBio between US\$20 million and US\$30 million in royalties. Conceivably, the royalties from these samples could earn INBio more than US\$100 million every year. (Admittedly, this agreement seems to relate more to genetic resources than traditional ecological knowledge, but I have demonstrated earlier the link between such resources and knowledge.)

Of course, an obvious problem with this approach is that if the royalties are paid to an official body, and not to a nongovernmental organization (NGO) or private corporation, they may disappear into the general state revenue account and may not "trickle down" to the relevant communities or individuals.

An alternative approach relies on the law relating to the protection of trade secrets: the trade secret is disclosed (licensed) to someone in exchange, among other things, for an undertaking of confidentiality and remuneration (usually, a royalty).

The Policy Sciences Center has piloted a trade secret approach for communities to use so that they can derive revenue from traditional ecological knowledge (Penna and Visser 2002). The center has made a grant to the NGO Otro Futuro in Venezuela, to assist it in helping the Yekuana Indians to develop an *Archive and Atlas* and to protect their IPRs. Those rights range from copyright for myths, stories, legends, and music to traditional ecological knowledge that can be patented. A community foundation⁴⁷ has been established with a board of directors composed of representatives of the 12 Yekuana tribes, inhabiting some 2 million square acres. The Yekuana perceive of their intellectual property as being communally owned. Such property now vests in the community foundation. To protect traditional ecological knowledge, it would be treated as a trade secret by the community foundation not to be disclosed to a pharmaceutical company or others unless such an "outsider" agreed to pay royalties to the foundation.

This approach is not free from pitfalls, either.

Trade secret protection usually depends on the legal rules of each country, and international attempts at harmonization have not yielded much. The TRIPS Agreement, for example, simply states that "[n]atural and legal persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices" (article 39.2).⁴⁸ The protected information should be 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; has commercial value because it is secret; and has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret. One problem with traditional ecological knowledge often may be that the steps to keep the information secret may not be sufficient under the existing common or civil law rules—secrecy often flows only from the fact that few people have access to the information concerned, based on customary law and practices (Gervais 2001).

The WIPO Model Provisions on Protection Against Unfair Competition do not take the matter much further. A proposal relating to unfair competition in respect of secret information⁴⁹ simply states that "[a]ny act or practice, in the course of industrial or commercial activities, that results in the disclosure, acquisition or use by others of secret information without the consent of the person lawfully in control of that information ... and in a manner contrary to honest commercial practices shall constitute an act of unfair competition" (article 6(1)). The examples of such unfair competition include secret information acquired in breach of contract or of confidence (article 6(2)). The same conditions as in the

TRIPS Agreement have to be satisfied in order for information to qualify as "secret" (article 6(3)). In determining whether reasonable steps have been taken to keep the information secret, account should be taken of the amount of effort and money spent by the rightful holder⁵⁰ on developing the secret information, the value of that information to him or her and to his or her competitors, the extent of the measures taken by the rightful holder to keep the information secret, and the ease or difficulty with which it could be lawfully acquired by others (note 6.20 on article 6). Also, the secret information has to be identifiable (for example, in documents, or through storage in a database).

So, to protect traditional ecological knowledge not only in the country of origin but also in foreign countries, the legal rules relating to trade secret protection may have to be reviewed and strengthened internationally.

The fact that the secret information has to be identifiable (in this context, usually in a database such as the *Archive and Atlas* of the Yekuana Indians) raises a further issue: the protection of nonoriginal compilations of data. Essentially, two main approaches to such protection can be discerned.

The first approach grants the maker of the database strong *sui generis* intellectual property protection in the form of exclusive rights. For example, in terms of the European Database Directive (1996 *O.J.* (L 77)), the maker of a database obtains an exclusive "right to prevent extraction and/or reutilization of the whole or of a substantial part Y of the contents of that database" (article 7(1)). This approach usually results in a rights regime of almost unlimited duration, subject to few, if any, public policy limitations. For this reason it has been argued persuasively that this type of protection jeopardizes basic research, eliminates competition in the markets for value-added products and services, and converts existing barriers to entry into insuperable legal barriers to entry (Reichman and Samuelson 1997). Economic efficiency, in contrast, demands low prices for such use and favors minimum incentives to provide the needed investment and services.

The second approach favors a weak intellectual property right to overcome the risk of market failure⁵¹ without creating legal barriers to entry. A modest adoption of this approach calls for a misappropriation model based on simple unfair competition principles. Courts could use market-oriented factors to determine whether there has been an "unfair extraction" from a database. Useful factors include the extent of the data appropriation by the user; the nature of the data appropriated; the purpose for which the user appropriated the data; the degree of investment initially required to bring the data into being; the degree of dependence, or independence, of the user's own development effort and how substantial the user's own investment in such an effort has been; the degree of similarity between the contents of the database and a product developed by the user; the proximity or remoteness of the markets in which the database maker and the user are operating;

and how quickly the user was able to come to the market with his or her own product as compared with the time required to develop the original database (Reichman and Samuelson 1997). Obviously, any such protection has to be balanced with limitations and exceptions favoring science and education.

Of these two approaches, the second is obviously of more benefit to developing countries. While it allows makers of databases to be protected against the risk of market failure, it does not create real barriers to market entry at the expense of the scientific and educational sectors.

Legal Hybrid I: Compensatory Liability In a different context, Professor Jerome Reichman (1994) has suggested a "third intellectual property paradigm," loosely derived from classical trade secret law and from antitrust principles that apply to two-party transfers of unpatented industrial know-how. The proposed regime

... aims to avoid market failure without introducing the market distortions characteristic of intellectual property rights and without forfeiting the pro-competitive social benefits that result from trade secret laws under optimum conditions. It solves the free-rider problem facing growing numbers of investors in applied know-how by directly linking the prospects for short-term returns on investment to the stipulation of a standard, multi-party set of default rules applicable to eligible forms of innovation.

The proposed "compensatory liability" regime is inspired by the Italian neighboring right that protects engineering projects. In terms of article 99 of the Italian Copyright Law of 1941, authors of engineering projects, or other analogous productions, who contribute novel (but not obvious) solutions to technical problems are entitled to a reasonable royalty from third parties who commercially exploit their technical contributions *without authorization*. This right to "equitable compensation" subsists for 20 years from registration. An appropriate notice must appear on copies of the plans.

Reichman (2000) has argued that this regime could solve some pressing needs of developing countries:

As with small-scale innovations, the goal is to reward both first comers (in this case, the relevant indigenous community), and second comers (those who build on the community's cultural heritage), without impeding access to the public domain or the flow of new products. With small amounts of tinkering, a compensatory liability regime could be adapted to encourage use of traditional knowledge without denying the relevant indigenous communities the right to a fair share of the proceeds.

This regime could best be extended to traditional ecological knowledge. Legislation can allow "second comers" commercially to exploit such knowledge without prior authorization, subject to an obligation to pay a reasonable royalty to a designated

person or institution. At the international level, the legal framework for this regime can be established either by an express provision in a future trade instrument or by incorporation within article 10^{bis} of the Paris Convention.

Legal Hybrid II: A Global Biocollection Society An alternative hybrid form of protection has been proposed by Professor Peter Drahos: a global biocollecting society (GBS), possibly under the auspices of the World Bank. Membership would be open on a voluntary basis to both companies and groups that had claims to traditional ecological knowledge and genetic resources. The GBS would act as the repository for community registers of such knowledge and as the custodian of these registers under strict obligations of confidentiality. It could also assist in negotiations between companies and groups for the use of genetic resources, set standards for such contracts, and provide a dispute-resolution mechanism. The advantage of such a system is that it obviates the need for negotiating an international treaty on IPRs for genetic resources (Subramanian 2002). It can also create an incentive for pharmaceutical companies to join the GBS, as transaction costs of dealing with the GBS would be lower than those associated with national bureaucracies that administer national laws.

Conclusions and Recommendations

Copyright and Related Rights

1. In the interest of developing their traditional cultural industries, countries should adopt the WCT and the WPPT. Doing so will establish strong regimes of copyright and related rights protection for tangible, contemporary traditional cultural expressions and indirect protection for all performance-based traditional cultural expressions. Countries should pay careful attention, though, to exceptions and limitations in favor of education and research. They should also be careful not to overextend the sanction of technical protection measures.
2. Countries with a fixation requirement for copyright protection should abolish such requirement for traditional cultural expressions, in order to also protect intangible cultural expressions. This is especially important for traditional musical cultural expressions.
3. Countries may consider adopting a sui generis system of protection for traditional cultural expressions along the lines of the UNESCO-WIPO Model Provisions, but again with careful consideration of exceptions and limitations to such protection, so as to allow the continuing artistic development of traditional cultural expressions.

4. While the sui generis protection of nonoriginal databases (those that do not meet the requirement of originality in copyright law) is important for the protection and exploitation of traditional technical and ecological knowledge, developing countries should study the possible negative impact of a strong exclusive rights regime on science, technology, and education in their countries.

Trademarks and Geographical Indications

1. Countries should refuse to register trademarks (or cancel their registration at any time) where their registration or use is likely to offend a significant section of indigenous or local communities, or where such trademarks consist of or comprise matter that falsely suggests a connection with such communities, or bring them into contempt or disrepute.
2. The protection of geographical indications should be strengthened. Developing countries should argue strongly for extending a notification and registration system of geographical indications for wines to other products that can be recognized by their geographical origins and that are economically and culturally important to these countries, such as handicrafts and agrofood products.
3. Countries should allow the registration of designations of authenticity in the form of certification marks.

Patents

1. Countries should use the (optional) morality requirement in the TRIPS Agreement to refuse the registration of a patent where the invention to which the application relates has special cultural or spiritual significance for indigenous or local communities, or where the application is likely to be considered culturally offensive to such communities.
2. Patent statutes should provide that where an applicant for the revocation of a patent for lack of prior informed consent can prove that the invention uses or derives from a genetic resource found within its territory, or from traditional ecological knowledge held by a local or indigenous community in it, it is presumed that the patentee has taken such resource or knowledge without the prior informed consent of the relevant indigenous or local community. Also, instead of revocation, patent statutes can allow the transfer of the patent to the successful applicant, effective from the filing date of the patent application.
3. Patent statutes should state that prior use by a local community of an invention that utilizes such community's traditional technical knowledge does not anticipate (or destroy the novelty of) such invention.

Unfair Competition

1. As an alternative to an exclusive rights regime for the protection of nonoriginal databases, countries can instead adopt an expropriation model of protection.
2. As an alternative to extending the protection of geographical indications, countries can strengthen the protection against misleading the public as a form of unfair competition.
3. To protect traditional ecological knowledge against misappropriation, trade secret protection should be strengthened.

Notes

1. Alternative terms in international instruments include, for example, "knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity" (Convention on Biological Diversity, article 8(j)); "indigenous knowledge (systems and practices)" (United Nations Draft Declaration on the Rights of Indigenous Peoples, preamble); "indigenous cultural and intellectual property" (United Nations Draft Declaration on the Rights of Indigenous Peoples, article 29); "community knowledge" (the Organization of African Unity's Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Genetic Resources); "local and traditional knowledge" (United Nations Convention to Combat Desertification in Those Countries Experiencing Drought and/or Desertification, Particularly in Africa, article 16(g)); and "traditional and local technology, knowledge, know-how and practices" (United Nations Convention to Combat Desertification, articles 17.1(c) and 18.2(a) and (b)).

2. The terms "traditional" and "tradition-based" refer to knowledge systems, creations, innovations, and cultural expressions that have, generally, been transmitted from generation to generation, are generally regarded as pertaining to a particular people or its territory, and continuously evolve in response to a changing environment (World Intellectual Property Organization (WIPO) 2002a).

3. This is in line with the use of the term by the WIPO. So knowledge systems, properties, and other materials that are not the result of intellectual creativity in the industrial, scientific, literary, or artistic fields are excluded. Examples are burial sites, languages, spiritual beliefs, and human remains (WIPO 2001).

4. Sometimes called "folklore" or "expressions of folklore." These terms have been argued to carry negative and Eurocentric connotations, suggestive of "something dead to be collected and preserved, rather than as part of an evolving living tradition" (Janke 1997). To Spanish-speaking countries, especially, "folklore was an archaism, with the negative connotation of being associated with the creations of lower or superseded civilizations" (Blakeney 2000).

5. The TRIPS Agreement is not a freestanding agreement but is Annex 1C of the Agreement Establishing the World Trade Organization (WTO). This agreement reflects the outcome of the Uruguay round of General Agreement on Tariffs and Trade (GATT) negotiations that lasted from 1986 through 1994. On April 15, 1994, the agreement was signed by ministers from most of the 125 participating governments at a meeting in Marrakesh, Morocco. It entered into force on January 1, 1995.

6. The following intellectual property rights are covered specifically by the TRIPS Agreement: copyright, related rights (the rights of performers, broadcasters, and producers of sound recordings), patents, trademarks, geographical indications of origin, semiconductor chip topographies, and unfair competition.

7. There are no WTO definitions of "developed" and "developing" countries. Members announce for themselves whether they are "developed" or "developing" countries. But other members can challenge the decision of a member to make use of provisions aimed at assisting developing countries.

8. The WTO recognizes as LDCs those that have been designated as such by the United Nations. Today there are 49 LDCs on the UN list, 30 of which have become WTO members. They are Angola, Bangladesh, Benin, Burkina Faso, Burundi, Central African Republic, Chad, Democratic Republic of the Congo, Djibouti, The Gambia, Guinea, Guinea Bissau, Haiti, Lesotho, Madagascar, Malawi, Maldives, Mali, Mauritania, Mozambique, Myanmar, Niger, Rwanda, Senegal, Sierra Leone, Solomon Islands, Tanzania, Togo, Uganda, and Zambia. Nine LDCs are in the process of acceding to the WTO: Bhutan, Cambodia, Cape Verde, Lao People's Democratic Republic, Nepal, Republic of Yemen, Samoa, Sudan, and Vanuatu. Ethiopia and São Tomé and Príncipe are WTO observers.

9. At the Ministerial Conference in Doha, Qatar, the conference agreed that LDCs will not be obliged, with respect to pharmaceutical products, to implement or apply certain TRIPS provisions, or to enforce rights provided for in these provisions, until January 1, 2016.

10. In Doha, the Ministerial Conference reaffirmed that "that the provisions of Article 66.2 ... are mandatory, [and] ... agreed that the TRIPS Council shall put in place a mechanism for ensuring the monitoring and full implementation of the obligations in question" (Decision on Implementation-Related Issues and Concerns, adopted on November 14, 2001, at the Ministerial Conference, Fourth Session, in Doha, November 9–14, 2001 (WT/MIN(01)/17) § 11.2).

11. FDI refers, in a nutshell, to an investment involving management control of an entity resident in one economy by an enterprise resident in another economy. FDI involves a long-term relationship that reflects an investor's lasting interest in a foreign entity. FDI increased by 18 percent in 2000, but was expected to decline in 2001 (United Nations Conference on Trade and Development [UNCTAD] 2001). Although the flow of FDI to developing countries increased to US\$240 billion, more importantly, these countries' share of the global inflows has decreased over three consecutive years to 19 percent, the lowest since 1991. FDI inflows to LDCs increased, too, but with only 0.3 percent of the global total, these inflows remain negligible.

12. In terms of article 4 of the Agreement between the WIPO and the WTO concluded in Geneva on December 22, 1995, which entered into force on January 1, 1996.

13. A collective mark does not distinguish the goods or services of one enterprise from those of other enterprises. Rather, it distinguishes the origin or common characteristics of the goods or services of different enterprises that use the mark under the control of its owner (WIPO 2001).

14. It is wrong, of course, to claim that "not all [intellectual property rights] are individualistic," since "[i]ncreasingly, invention and creation take place in firms where groups or persons may be cited as co-inventors or co-authors, concepts recognized by the [intellectual property] system" (WIPO 2001). Coinventors and coauthors jointly still hold individual rights—the content and nature of the right of a patentee or an author do not change by virtue of the fact that such is held jointly by two or more people.

15. WIPO uses the term "traditional knowledge holders" to refer to all persons who create, originate, develop, and practice traditional knowledge in a traditional setting and context. Although indigenous communities, peoples, and nations are traditional knowledge holders, not all traditional knowledge holders are indigenous (WIPO 2002a).

16. In terms of the Patents Act, an invention cannot be patented if "(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent," or "(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country more than one year prior to the application for patent in the United States" (35 USC § 102, emphasis added).

17. Article 52(1) of the European Patent Convention requires a patentable invention to be "new." An invention is new if it does not form part of the state of the art (article 54(1)). The "state of the art" comprises "everything made available to the public by way of a written or oral description, by use, or in any other way" before filing an application for a European patent (article 54(2)).

18. This committee was established at the 26th Session of the WIPO General Assembly in Geneva, September 26–October 3, 2000.

19. For example, one can argue that a substantive consent or disclosure requirement violates the principle of nondiscrimination as to subject matter, which is implicit in article 27.1 of the TRIPS Agreement.

20. Article 29.1 of the TRIPS Agreement stipulates disclosure of the patented invention and the best method to perform it. In addition, member states are allowed to request information about foreign patent applications and grants (article 29.2).

21. This mechanism is known to the TRIPS Agreement: see article 34 in respect of the reverse burden of proof in civil proceedings relating to process patents.

22. In terms of the Uniform Domain-Name Dispute-Resolution Policy (UDRP) of the Internet Corporation for Assigned Names and Numbers (ICANN), available at <http://www.icann.org/udrp/>. For an example of a statutory provision authorizing the transfer of a domain name to a trademark owner in the event of cybersquatting, see 15 USC § 1125(d)(2)(C).

23. Available at <http://www.wipo.int/globalissues/databases/tkportal/index.html>.

24. Article 53(a) of the convention states that "European patents shall not be granted in respect of ... inventions the publication or exploitation of which would be contrary to 'ordre public' or morality, provided that the exploitation shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all of the Contracting States."

25. For example, Tunisia, 1967 and 1994; Bolivia, 1968 and 1992; Chile, 1970; Islamic Republic of Iran, 1970; Morocco, 1970; Algeria, 1973; Senegal, 1973; Kenya, 1975 and 1989; Mali, 1977; Burundi, 1978; Côte d'Ivoire, 1978; Sri Lanka, 1979; Guinea, 1980; Barbados, 1982; Cameroon, 1982; Colombia, 1982; Madagascar, 1982; Rwanda, 1983; Benin, 1984; Burkina Faso, 1984; Central African Republic, 1985; Ghana, 1985; Dominican Republic, 1986; Zaire, 1986; Indonesia, 1987; Nigeria, 1988 and 1992; Lesotho, 1989; Malawi, 1989; Angola, 1990; Togo, 1991; Niger, 1993; and Panama, 1994. The Tunis Model Law on Copyright for Developing Countries (1976) and the Bangui text of 1977 of the Convention Concerning the African Intellectual Property Organization did the same. In China, the Copyright Law of 1999 indicates its intention to protect expressions of folklore by copyright. But article 6 of the Law states merely that "[r]egulations for the protection of copyright in expressions of folklore shall be established by the State Council." The Copyright Ordinance of 1994 of Vietnam states likewise: "Protection of copyright granted to folklore works shall be prescribed by the Government"

26. Article 15(4) forms part of the Stockholm (1967) and Paris (1971) Acts of the Convention. According to the intention of the revision conference, this article implies the possibility of granting protection to traditional cultural expressions (Ficsor 1997).

27. An interesting exception to this general observation has been noted in respect of the traditional Onge people of the Andaman Islands in the Bay of Bengal (Norchi 2000). Songs are composed for certain occasions, and their performance may be requested again later. Only the original composer is then allowed to sing the song. Should anyone else try to do so without his or her permission, that act is treated as theft.

28. For example, the "life plus 70" rule (copyright ceases to subsist 70 years after the death of the author) introduced for Europe by article 1.1 of the Council Directive 93/98 of October 29, 1993, harmonizing the terms of protection of copyright and certain related rights [1993] O.J. L290/9.

29. The Tunis Model Law on Copyright was adopted by the Committee of Governmental Experts convened by the Tunisian government in Tunis from February 23–March 2, 1976, with the assistance of WIPO and the United Nations Educational, Scientific and Cultural Organization (UNESCO). Its provisions are compatible with the Paris Act of the Berne Convention.

30. This provision is optional, as the fixation requirement is typically part of the Anglo-Saxon copyright approach, unlike the Francophone *droit d'auteur* approach where fixation is not required.

31. For example, through the use of passwords and encryption.

32. For example, through the use of software that limits the number of copies that can be made of a digital work.

33. The inclusion of temporary ("ephemeral") copies within the reproduction right had the potential of defeating the entire treaty (Vinje 1997). Even this Agreed Statement, unlike the other Agreed Statements, was adopted not by consensus but by majority vote.

34. This general obligation leaves an important degree of flexibility to the contracting parties when drafting their domestic legislation to choose the types of technological measures that should be protected, the types of sanctions that should be imposed, and the actual activities that should be targeted (Reinbothe, Martin-Prat, and Von Lewinsky 1997).

35. This provision reflects the general agreement on the need to protect certain types of information attached to works in order to provide some security for their identification and tracking in open information networks (Reinbothe, Martin-Prat, and Von Lewinsky 1997).

36. Some may argue that this proposal amounts to a new form of (indirect) taxation, which may make its adoption politically difficult in countries such as the United States (Gervais 2001).

37. This right is subject to the impairment test also found in respect of the limited (copyright) rental right in the TRIPS Agreement (article 11).

38. A certification mark, in terms of the Trade Marks Act of 1995 (Cth), is a sign used, or intended to be used, to distinguish goods or services dealt with or provided in the course of trade, and certified in relation to quality, accuracy, or some characteristic (such as origin, material, or mode of manufacture), from other goods or services dealt with or provided in the course of trade, but not so certified (section 169). Certification marks symbolize and promote the collective interests of certain groups of traders—by preventing traders whose goods do not comply with the certification process from using the mark, the integrity of those traders whose goods are certified is maintained (Wiseman 2001).

39. The goods may include a wide range, such as fabrics, boomerangs, coolamons, nets, traps, seed and shell necklaces, didgeridoos, musical recordings, sticks, and sculptures (Wiseman 2001).

40. The services may include activities such as theater, dance, concerts, and educational and tourism programs (Wiseman 2001).

41. The special protection of well-known marks is based on article 6^{bis} of the Paris Convention, as extended by articles 16.2 and 16.3 of the TRIPS Agreement. This protection is further extended by the adoption of the Joint Recommendation Concerning Provisions on the Protection of Well-known Marks, by the Assembly of the Paris Union for the Protection of Industrial Property and the General Assembly of WIPO, September 20–29, 1999. The recommendation raises clearly the level of protection beyond that of the TRIPS Agreement and extends the scope of the substantive subject matter by dealing, for example, also with business identifiers and domain names (Kur 2000).

42. For an analysis of the key United States Supreme Court decision in *Two Pesos v Taco Cabana* 505 US 763 (1992), in which case the court protected the ambience and décor of a Mexican fast-food restaurant, see Dinwoodie (1997).

43. A "false indication" does not correspond to the facts—an indication relating to a geographical area for goods not originating in that area. An indication is false only where it is understood as such by the public in the country where the indication is used for such products (Baeumer 1997).

44. The term "appellation of origin" connotes "the geographical name of a country, region, or locality, which serves to designate a product originating therein, the quality or characteristics of which are due exclusively and essentially to the geographical environment, including natural and human factors" (article 2(1)).

45. Although this definition is based on that of an "appellation of origin" in the Lisbon Agreement, it is broader in one respect: the TRIPS Agreement protects goods that derive a reputation from their place of origin without their having a quality or other characteristic that is due to that place (Baeumer 1997).

46. Whether such prior use would actually destroy the novelty of the invention for which a patent is sought will depend on the patent law of the country in which protection is sought. Under the Patents Act of 1977 in the United Kingdom, for example, use founds an attack on novelty if it effects a public release equivalent to publication (Cornish 2003). The question is whether a skilled worker, by observation or analysis, could discover and reproduce the invention (*Stahlwerk Becker's Patent* (1919) 36 R.R.C. 13 (HL)).

47. Another option is to establish a not-for-profit corporation (Norchi 2000).

48. The phrase "a manner contrary to honest commercial practices" connotes "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" (note 10).

49. The use of the expression "secret information" as opposed to "undisclosed information" in the TRIPS Agreement does not imply any difference in substance: it merely indicates that the rightful holder of the information must take certain measures or must behave in a certain way to keep the information unknown to third parties (note 6.01 on article 6).

50. The "rightful holder" of secret information is the natural or legal person who is lawfully in control of such information (note 6.03 on article 6).

51. It has been argued that traditional intellectual property models, as supplemented by classic trade secret law, often fail to afford those who produce the current most commercially valuable information goods enough lead time to recoup their investments. The risk of market failure inherent in this "state of chronic under-protection tends to keep the production of information goods at suboptimal level" (Reichman 1994).

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