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Abstract
The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) created within the framework of the World Trade Organization (WTO) poses a contentious discord between developed and developing nations. The criticism that TRIPS is nothing more than a modern vehicle of western imperialism encapsulates the perception that the TRIPS is inimical to the interests of developing countries.

The ostensible failure of the WTO regime to raise the living standards of developing countries, a centerpiece putative effect of economic liberalization heralded in the Uruguay Round, miserably highlighted the fundamental social, cultural and widening economic differences between the two bipolarized camps.

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BIOPROSPECTING OR BIOPIRACY:
DOES THE TRIPS AGREEMENT UNDERMINE THE INTERESTS OF DEVELOPING COUNTRIES?

Lowell B. Bautista*

International trade between my country and the West is like an antelope and a
giraffe competing for food which is at the top of a tree. You can make the ground
beneath their feet level but the contest will still not be fair.

- Dr Robert Abouyae-Mensah of Ghana

INTRODUCTION

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) created
within the framework of the World Trade Organization (WTO) poses a contentious discord between developed and developing nations. The
criticism that TRIPS is nothing more than a modern vehicle of western imperialism

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1 INTERNATIONAL FAIR TRADE ASSOCIATION, SPEAKING OUT FOR FAIR TRADE 24 (2002).
3 See for example, Marci A. Hamilton, The TRIPS Agreement: Imperialistic, Outdated, and Onerous, 29 VAND. J. INT'L L. 613, 615 (1996), which denounces the TRIPS as "old-fashioned, Western-style imperialism." In 2003, even the United Nations Development Program (UNDP) released a report on the world trading system that was highly critical of the TRIPS Agreement, stating that the "relevance of TRIPS is highly questionable for large parts of the developing world," urging developing countries to "begin dialogues to replace TRIPS... with alternative intellectual property paradigms" and to seek in the interim, "to modify ... the way the agreement is interpreted and implemented. Please see, UNDP, MAKING GLOBAL TRADE WORK FOR PEOPLE 221, 222 (2003).
4 See Lakshmi Sarma, Biopiracy Twentieth Century Imperialism in the Form of International Agreements, 13 TEMP. INT'L & COMP. L. J. 107 125 (1999) (discussing the GATT/TRIPs Agreement as simply a form of modern-
encapsulates the perception that the TRIPS is inimical to the interests of developing countries.⁵

The ostensible failure of the WTO regime to raise the living standards of developing countries,⁶ a centerpiece putative effect of economic liberalization heralded in the Uruguay Round,⁷ miserably highlighted the fundamental social, cultural and widening economic differences between the two bipolarized camps.⁸

Even from its inception, the apparent asymmetry in intellectual property protection within the TRIPS regime was met by vigorous resistance by developing
countries. However, the concept of the Uruguay Round of negotiations as constituting a "single package" undermined the resistance of developing countries not to accede to the instrument. It was a hard bargain. The developing countries felt that they left the negotiating table with very little, if any, benefit.

This constitutes the general backdrop that situates the current debate over the issue of misappropriation and exercise of proprietary rights by the developed nations over the biological material of the developing nations, within the framework of TRIPS. This is what has been labeled as "biopiracy," a term that describes the means by which corporations from the industrialized nations claim ownership of, free ride on, or otherwise take unfair advantage of, the genetic resources and traditional knowledge and technologies of developing countries.

In the interest of fairness, it must be underscored at the outset that the skepticism and mistrust cut both ways. The developing nations are apprehensive that the TRIPS is merely an exploitative mechanism employed to patent indigenous biological material. The developed nations, for their part, are likewise concerned that sans the incentive of intellectual property protection, the motivation to create, invest and invent will be lost.

This paper examines the debate over the issue of whether bioprospecting or biopiracy within the WTO multilateral trade regime, and specifically under TRIPS, undermines the interests of the developing countries. It likewise explores a potential compromise or settlement within the framework of the WTO and outside of it.

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16 Valentina Tejera, *Tripping Over Property Rights: Is it Possible to Reconcile the Convention on Biological Diversity with Article 27 of the TRIPS Agreement?*, 33 NEW ENGLAND L. REV. 967, 987 (1999). She states that "[W]ithout the protection afforded by intellectual property, economic incentives for spending millions of dollars on research ... would not exist."
This paper aims to: first, briefly outline and examine the international legal framework on the protection of intellectual property under the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) created within the framework of the World Trade Organization (WTO); second, situate and discuss the issue regarding the debate on bioprospecting or biopiracy as inimical to the interests of the developing nations; third, provide analytical illustrations of recent cases involving bioprospecting or biopiracy involving the patenting of biological material from developing nations by the developed nations; and fourth, form an informed position with respect to the issue posed and explore possible solutions toward a compromise or settlement of the issue both primarily within the legal framework of the WTO and outside of it.

I. INTELLECTUAL PROPERTY RIGHTS IN A MULTILATERAL TRADE REGIME

A. THE WORLD TRADE ORGANIZATION AND THE AGREEMENT ON TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS

The TRIPS Agreement is universally regarded as the most comprehensive international agreement on intellectual property rights. The TRIPS Agreement was adopted within the framework of the Uruguay Round of Multilateral Trade Negotiations, which incorporated for the first time, the protection of intellectual property rights into the General Agreement on Tariffs and Trades (GATT). The TRIPS Agreement expands and builds upon the substantive obligations of the main conventions of the World Intellectual Property Organization (WIPO), the Paris


19 Please see, Convention Establishing the World Intellectual Property Organization, Jul. 14, 1967, 21 U.S.T. 1772, 1772-73, 828 U.N.T.S. 3, 11, 13 [hereinafter WIPO CONVENTION]. The World Intellectual Property Organization ("WIPO"), established in 1967 under the WIPO Convention, is an intergovernmental organization with headquarters in Geneva, Switzerland. Its objective is "the promotion of the protection of intellectual property throughout the world through cooperation among States, and for the administration of various multilateral treaties dealing with the legal and administrative aspects of intellectual property." WIPO is one of sixteen specialized divisions of the United Nations, and is responsible for the administration and enforcement of the Paris Convention and the Berne Convention.
Convention for the Protection of Industrial Property (Paris Convention)\textsuperscript{20} which protects against trademark and patent infringement, and the Berne Convention for the Protection of Literary and Artistic Works (Berne Convention)\textsuperscript{21} which protects against copyright infringement.

The areas of intellectual property that it covers are: copyright and related rights;\textsuperscript{22} trademarks including service marks; geographical indications including appellations of origin; industrial designs; patents including the protection of new varieties of plants; the layout-designs of integrated circuits; and undisclosed information including trade secrets and test data.\textsuperscript{23}

B. DEFINITION AND RATIONALE FOR THE PROTECTION OF INTELLECTUAL PROPERTY

Intellectual property is broadly defined as "creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce."\textsuperscript{24} The objective behind the protection of intellectual property is the promotion of intellectual creativity and innovation.\textsuperscript{25} This purportedly impels scientific advancement by providing for incentives that reward intellectual activity that produces innovation and that contribute to the common good.\textsuperscript{26}

\textsuperscript{20}Paris Convention for the Protection of Industrial Property, Mar. 20, 1883, last revised at Stockholm, Jul. 14, 1967, 21 U.S.T. 1583, 828 U.N.T.S. 305 [hereinafter PARIS CONVENTION]. The Paris Convention is one of the oldest international agreements on the protection of intellectual property rights. Its objective is to provide "protection of industrial property . . . The protection of industrial property has as its object patents, utility models, industrial designs, trademarks, service marks, trade names, indications of source or appellations of origin, and the repression of unfair competition." [Art. 1, Paris Convention]. Please see, Article 2(1), TRIPS AGREEMENT, supra note 2

\textsuperscript{21}BERNE CONVENTION was established September 9, 1886, entered into force on December 5, 1887, and is codified at 331 U.N.T.S. 217. Please see, Article 9 (I), TRIPS AGREEMENT, supra Note 2.

\textsuperscript{22}Related rights pertain to the rights of performers, producers of sound recordings and broadcasting organizations. The TRIPS Agreement does not contain a definition of "intellectual property" or of "trade-related intellectual property rights" but the WIPO Convention in Article 2 (viii) defines the rights relating to intellectual property. See, Michael Blakeney, TRADE RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS: A CONCISE GUIDE TO THE TRIPS AGREEMENT 10-20 (1996).


\textsuperscript{26}Id. at 372. See Donald G. Richards, INTELLECTUAL PROPERTY RIGHTS AND GLOBAL CAPITALISM: THE POLITICAL ECONOMY OF THE TRIPS AGREEMENT 25 - 52 (2004), which provides justificatory arguments in discussing the ideology of intellectual property.
C. THE PROTECTION OF INTELLECTUAL PROPERTY AS A WESTERN AGENDA

The international agenda for the protection of intellectual property was essentially a proposal from the developed nations. Amidst serious oppositions from developing countries, the TRIPS Agreement was adopted in Marrakesh, Morocco on April 15, 1994 as part of the negotiations and agreements of the Uruguay Round of GATT. It came into force on January 1, 1995.

In view of the status of the TRIPs Agreement as a multilateral agreement under the WTO system, a country that wishes to accede to the WTO must also agree to abide by the TRIPs Agreement. Currently, there are 151 countries participating in the WTO, and consequently, in the TRIPs Agreement. Interestingly, in terms of numbers, it is obvious that the developing (and least developed) nations far outnumber the developed nations.

The TRIPs Agreement, institutionalizes an international norm that mirrors those currently used by developed countries, the United States in particular. The TRIPS Agreement seeks to impose and universalize the levels and forms of intellectual property protection existing in the North. Even conceptually, it is reasonably apparent that intellectual property fits awkwardly into the context of trade liberalization, which advances the removal of barriers to market competition.

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27 It was the United States, Japan, and the European Community which lobbied for the international protection of intellectual property rights to be added to the agenda of the Uruguay Round of General Agreement on Tariffs and Trade ("GATT") in 1994. See for example, Robert J. Pechman, Seeking Multilateral Protection for Intellectual Property: The United States TRIPS' Over Special 301, 7 MINN. J. GLOBAL TRADE 179, 183 (1998). Also, MEIR PÉREZ PUGACH, THE INTERNATIONAL POLITICAL ECONOMY OF INTELLECTUAL PROPERTY RIGHTS 156 (2004).


31 Id.

32 The TRIPS, however, does not impose a "universal" set of intellectual property protection rules. In fact, Article 1 provides:

Members shall give effect to the provisions of this Agreement. Members may, but shall not be obliged to, implement in their law more extensive protection than is required by this Agreement, provided that such protection does not contravene the provisions of this Agreement. Members shall be free to determine the appropriate method of implementing the provisions of this Agreement within their own legal system and practice.


34 Leanne M. Fectau, The Ayurvedic Patent Reexamination: Raising Questions About Current U.S. Patent Policy, 21 B.C. THIRD WORLD L. J. 69, 78 (2001). Please note that in the context of the WTO, North-South refers to debates or disputes between developed and developing countries, while North-North refers to debates or disputes between developed countries, and South-South refers to debates or disputes between developing countries.
as opposed to intellectual property protection which establishes private rights to prevent market competition.

D. A SURVEY OF MAIN PROVISIONS PERTINENT TO THE PATENTING OF BIOTECHNOLOGY

A patent is a right granted to the originator of an invention that is new, useful, and not-obvious. The patent grants the inventor, in return for its disclosure to the public, the exclusive rights to make, use, or sell the invention for a specified period. The general protection of intellectual property rights through patents is contained in Article 27 of the TRIPS Agreement, which provides: “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.”

This protection is subject to the generally accepted principles of national treatment and most favored nation treatment. In particular, the protection to pharmaceutical and agricultural chemical products is outlined in Article 70.8 of the TRIPS Agreement. This Article provides for the protection of these products even during the transitional period incorporated into the TRIPS Agreement for developing and least developed countries to attain the appropriate infrastructure to support compliant IPR regimes.

The TRIPS Agreement, in Article 27.2, provides for the right of member states to exclude from patentability inventions whose commercial use would jeopardize the “ordre public or morality” of their state. This broadly covers the exclusion of certain inventions from patentability in order to “protect human, animal or plant life or health or to avoid serious prejudice to the environment.” In addition, Article 27.3 (b) allows member states to exclude the following from patentability:

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36 Art. 27.1, TRIPS AGREEMENT, supra note 2. The terms “inventive step” and “capable of industrial application” are considered synonymous with the requirements of non-obviousness and usefulness.
37 See Art. 27, TRIPS AGREEMENT, supra note 2. It provides that: “patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.”
38 Article 4, id.
39 Article 70.8, TRIPS AGREEMENT, Id.
40 Articles 65 – 67, TRIPS AGREEMENT, Id.
41 Developed countries had until January 1, 1996 to implement the TRIPS obligations. Developing countries have an additional period of 4 years for implementation (i.e., until January 1, 2000). Least developed countries were not required to apply TRIPS provisions on intellectual property rights until 2006; i.e., 10 years from the date of application for developed countries. These time frames do not include obligations concerning national treatment and most-favoured-nation treatment, which became applicable in 1996. This reflects the social and economic significance of pharmaceutical and agricultural chemical products, as well as a recognition of the need for IPR protection of these products.
42 Article 27.2, TRIPS AGREEMENT, supra note 2.
plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof.  

This is the most relevant article in relation to biotechnology in the TRIPS Agreement. It must be noted, however, that the above terms (i.e., micro-organisms, biological processes, non-biological and microbiological processes) used in Article 27.3(b) are not defined in the TRIPS Agreement and are thus subject to national interpretation. The sweeping and vague language of Article 27.3(b) evinces a provisional middle ground among the many competing interests on the sensitive issue of biotechnology.

E. TRIPS AND THE CONVENTION ON BIOLOGICAL DIVERSITY

The Convention on Biological Diversity (CBD) is the first multilateral treaty regime that addressed the issue of preserving the planet’s biological resources. It is also the first convention to establish the sovereign right of a state over its natural resources, and its responsibility to facilitate access to those

43 Article 27.3 (a) provides for the exclusion of “diagnostic, therapeutic and surgical methods for the treatment of humans or animals.” The provisions of Article 27.3 (b) shall be reviewed four years after the date of entry into force of the WTO Agreement. Article 27.3, TRIPS AGREEMENT, supra note 2.


45 The inclusion of an early revision date for these provisions (January 1999) highlights the provisional nature of this compromise. In fact, this is the only article in the entirety of the TRIPS Agreement subject to an early revision — a special treatment that again indicates the controversial nature of these issues. The framers of this Article anticipated a negotiated revision of the terms of Article 27.3(b) as the primary way of resolving this controversy. A clarification of these nebulous terms can likewise be made through the use of the WTO’s administrative committees and dispute settlement procedures. See, for instance, Arts. 63, 64, TRIPS AGREEMENT, supra note 2.


47 See Amanda Hubbard, The Convention on Biological Diversity’s Fifth Anniversary: A General Overview of the Convention - Where Has it Been and Where is it Going, 10 TUL. ENV’T L. J. 415, 419 (1997). The sovereign authority of a State over its own natural resources is subject to the responsibility it must not use its resources in a way that will cause damage to the environment of other States or to areas beyond the limits of their national jurisdiction. See Articles 3, 10, CBD CONVENTION. Also TRAIL SMELTER CASE (UNITED STATES V. CANADA), 3 R.I.A.A. 1911 (1941) which establishes this responsibility under principles of customary international law.
resources. The Convention seeks towards "the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources." While some legal scholars have argued that there is an actual or potential conflict between the TRIPS Agreement and the CBD, it is beyond the scope of this paper, and will thus not be addressed.

The contentious provisions of the CBD which have a bearing on intellectual property rights are contained in Article 15, which governs access to genetic resources; Article 16, which promotes access to and transfer of technology derived from the research and development of genetic material; and Article 19, which requires "participating countries to pass legislation guaranteeing that biotech companies share the results and benefits of their research and development with genetic resource provider countries." The CBD accords a country the right to direct compensation for materials taken and to part of the income generated from any resulting products. Article 15 of the CBD is a departure from the traditional notion that genetic material belongs to the public domain, which is one reason industrialized nations have plundered the resources of the developing world without compensation to the latter.

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50 Article 1, CBD CONVENTION, supra note 46. Article 2 defines "biological diversity" as "the variability among living organisms from all sources," and "sustainable use" as "the use of components of biological diversity in a way and at a rate that does not lead to [their] long-term decline."


52 It states that "the authority to determine access to genetic resources rests with the national governments and is subject to national legislation." Nations with genetic resources must facilitate access by other nations while those countries or private companies which seek to utilize the resources must take measures to share in a "fair and equitable way" the benefits arising from the R&D of those resources. Article 15, CBD CONVENTION, supra note 46.

53 The Article states that "both access to and transfer of technology among Contracting Parties are essential elements for the attainment of the objectives of this Convention." Contracting parties are mandated to pass legislation to grant provider countries rights to the technology that makes use of the genetic material. In this manner, intellectual property rights in the technology in question will not interfere with the transfer of the technology. Article 16, CBD CONVENTION, supra note 46.

54 Elizabeth Longacre, Advancing Science While Protecting Developing Countries from Exploitation of Their Resources and Knowledge, 13 FORDHAM INT'L L. REV. 963, 976 - 977 (2003).
II. THE DEBATE: BIOPROSPECTING OR BIORPACY

'We want rules. But we want fair rules'.

-Martin Khor, Director of Third World Network

The exploration and utilization of biological material for the extraction of anything of potential value to medicine, agriculture, cosmetics or industry, preceded the creation of the WTO. Recently, this has been referred to as: bioprospecting, biotechnology, chemical prospecting, gene-hunting, or natural product research, or the politically-loaded term, "biopiracy." The variance in terminology, however, does not suggest that the idea is novel.

The debate is certainly not simple. Perhaps, at its core, albeit somewhat a peripheral issue, is the nagging apprehension of the developing world, with some vestiges of their colonial experience, that they are being taken advantage of, or exploited by the developed nations.

A. GLOBAL PATENT ENFORCEMENT: TAKING ADVANTAGE OF DEVELOPING COUNTRIES UNDER THE TRIPS AGREEMENT

Throughout history, the dynamics of the relationship between developed and developing countries have always been one of "chicanery, selfishness and exploitation." To the developing world, biopiracy, or the misappropriation, nay theft, of genetic material and indigenous knowledge from developing countries, is merely a new name to an old process. The strategy of industrialized countries towards the global liberalization of trade in an aim to dominate the world market is

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highly reminiscent of the exploitation and exercise of ownership rights by the
developed countries of the Western world over the South during the era of
colonization.62

Albeit admittedly much simplified, it is in this problematically turbulent
context that the interplay of the inherent tension between the North and the South
is best demonstrated. However, the hostility of developing countries against TRIPS
does not spring solely on account of their perception that it is a western imposition.
The problems it poses definitely are more than theoretical.63

B. THE EXPLOITATION OF INDIGENOUS AND LOCAL COMMUNITIES
THROUGH THE USE OF THEIR NATURAL RESOURCES AND TRADITIONAL
KNOWLEDGE

It is argued that stringent IP laws are a precursor to foreign investment,
and are thus, an incentive for developing countries.64 This emphasizes the role of
foreign capital investment from the developed nations as a critical factor for long-
term economic growth.65 The argument seems at best, unpersuasive, if not a
complete sham.

On a contrary point, it has been advanced that the main international
agreements from the Uruguay Round – TRIPS, TRIMS and GATS – systematically
tip the playing field against developing countries.66 It is a clear case of double-speak.

62 Please see, for example, TAMOON STEWART, THE THIRD WORLD DEBT CRISIS: A CONTINUITY OF
IMPERIALISM (2002). For academic literature on biopiracy from a developing country perspective, please see:
VANDANA SHIVA, BIOPIRACY: THE PLUNDER OF NATURE AND KNOWLEDGE (1997); SURENDER SINGH
CHAUHAN, BIODIVERSITY, BIOPIRACY, AND BIOPOLITICS: THE GLOBAL PERSPECTIVE (2001); VANDANA
SHIVA, PROTECT OR PLUNDER?: UNDERSTANDING INTELLECTUAL PROPERTY RIGHTS (2001); GRAHAM
DUTFIELD, INTELLECTUAL PROPERTY, BIOGENETIC RESOURCES, AND TRADITIONAL KNOWLEDGE (2004);
K. C. AGRAWAL, GLOBAL BIODIVERSITY: CONSERVATION, INDIGENOUS RIGHTS AND BIOPRIMARY (2002);
IKECHI MADUKA MGBOJI, GLOBAL BIOPRIMARY: PATENTS, PLANTS, AND INDIGENOUS KNOWLEDGE
(2006); A. MUSHITA AND CAROL B. THOMPSON, BIOPRIMARY OF BIODIVERSITY: GLOBAL EXCHANGE AS

64 Carsten Fink and Carlos A. Primo Braga, How Stronger Protection of Intellectual Property Rights Affects
International Trade Flows, in CARSTEN FINK AND KEITH E. MASKUS, INTELLECTUAL PROPERTY AND
DEVELOPMENT: LESSONS FROM RECENT ECONOMIC RESEARCH 19 - 40 (2003). They argue that stronger
IPRs have a significantly positive effect on total trade. See especially, Keith E. Maskus, The Role of Intellectual
Property Rights in Encouraging Foreign Direct Investment and Technology Transfer, in FINK AND MASKUS, ibid., at 41 –
74. See for example, Alireza Naghavi, Strategic Intellectual Property Rights Policy and North-South Technology Transfer.
Online at: The Fondazione Eni Enrico Mattei Note di Lavoro Series Index <http://www.feem.it/Feem/Pub/Publications/WPapers/default.htm>, who argues that stringent IPR
regime is always optimal for developing countries as it triggers technology transfer by inducing FDI in less
R&D-intensive industries and stimulates innovation by pushing multinationals to deter entry in high-
technology sectors.
65 Kimberly A. Czub, Argentina's Emerging Standard of Intellectual Property Protection: A Case Study of the
Underlying Conflicts between Developing Countries, TRIPS Standards, and the United States, 33 CASE W. RES. J. INT'L L.
66 Robert Hunter Wade, What strategies are viable for developing countries today? The World Trade Organization
and the shrinking of development space, CRISIS STATES PROGRAMME WORKING PAPER NO. 31, June 2003, at 2.
The US and European Union (EU) demand others to open up markets for free trade but have kept large parts of their own economies off the negotiating table and have avoided commitments to improve market access for developing countries. The truth is, this development agenda was not the formula followed by now-developed economies. The argument is a legal and economic curiosity for being almost devoid of historical basis.

Indeed, there is a very fine line between patenting and piracy. The following four examples, are illustrative of this conflict between the industrialized and the developing world over the ownership and/or patenting of biological material.

1. The Basmati Rice

Basmati rice is a traditional Pakistani and Indian food staple and export. In 1997, RiceTec, a Texas-based company, was awarded several patents on the basmati rice and grain lines. The governments of India and Pakistan have challenged the patents on the ground of lack of novelty. In 2001, the United States Patent and Trademark Office rescinded fifteen of the twenty patents granted to RiceTec. However, RiceTec still holds patent 484, which permits it to exclude others from making, using and selling its patented basmati rice in the United States until September 2017.

67 Id. FRANCESCO FRANCIONI AND TULLIO SCOVAZZI, (Eds.), BIOTECHNOLOGY AND INTERNATIONAL LAW 367 - 438(2006), which discuss the issue of biotechnology and regional economic integration specifically in the EU context. See also, CHRISTOPHER MAY AND SUSAN K. SELT, INTELLECTUAL PROPERTY RIGHTS: A CRITICAL HISTORY (2005).

68 Please see, HA-JOON CHANG AND DUNCAN GREEN, THE NORTHERN WTO AGENDA ON INVESTMENT: DO AS WE SAY, NOT AS WE DID (2003). They argue that almost all of the now-developed countries directly imposed restrictions on the entry of foreign investment; even providing for its ban for certain sectors or allowed entry on certain conditions (e.g. requirements for joint ventures, ceilings on foreign ownership). The following quote is most instructive:

"Our historical survey shows that in successful economies, only when domestic industry had reached a certain level of sophistication, complexity, and competitiveness did the benefits of non-discrimination and liberalization come to outweigh the costs. As a result, countries have generally moved towards a greater degree of non-discrimination and liberalization as they develop. In that sense, non-discrimination is better seen as an outcome of development, not a cause, and therefore an MIA founded on this principle is likely to harm the developing countries' prospects for development. Id. at 4.

69 Id at 39.

2. The Enola Bean Plant

The patent to the Enola Bean, also known as the Mayacoba bean in Mexico, was granted to Colorado bean industry executive Larry Procter, after allegedly cultivating yellow beans he bought in Mexico on vacation two years prior to his patent application. The company of Procter, Pod-Ners, does not deny that its Enola bean, is a descendant of the traditional Mexican bean from the Andes, the Mayacoba, but insists that it has a distinctive yellow color and a more consistent shape. The patent, as well as the U.S. Plant Variety Protection Certificate, Procter was able to secure, gave him a legal monopoly over yellow beans sold in the United States. The patent allows him to sue anyone in the United States who sells or grows a bean that he considers to be his particular shade of yellow. In addition, Procter profits from yellow beans imported from Mexico by imposing on them a six cent-per-pound royalty. This has resulted to great economic hardship for farmers both in the United States and particularly in Northern Mexico. ⁷¹

3. The Turmeric

Turmeric, a tropical herb grown in East India, has long been used in Indian traditional medicine. It is also used as a food dye and flavoring as well as an ingredient in medicines and cosmetics. In 1995, the U.S. Patent and Trademark Office (PTO) awarded to the University of Mississippi Medical Center in 1995, a patent⁷² for the use of powdered turmeric, particularly the "use of turmeric in wound healing." ⁷³

A challenge was filed by the Council of Scientific and Industrial Research (CIR) of India arguing that the patent failed the legal requirement of novelty because the long usage of turmeric to heal wounds was prior art. It presented Indian publications, including ancient Sanskrit writings, that documented turmeric's extensive and varied use throughout India's history. In 1997, the patent was revoked.

4. The Neem Tree

The neem tree (Azadirachta indica) is a tropical evergreen, related to the mahogany, that mainly grows in arid regions of India and Burma and Southwest Asia and West Africa. It has been used for hundreds of years by the rural people in


⁷² The U.S. Patent and Trademark Office (PTO) granted patent No. 5,401,504 for the use of powdered turmeric to speed the healing of wounds.

⁷³ Please see, Alyson Slack, *Turmeric*, Online at: Trade and Environment Database Case Studies <http://eagle1.american.edu/ as1440a/TURMERIC.htm>. Also, Downes, supra note 58 at 258, 278.
India for a variety of uses ranging from toothpaste to pesticide. In 1971, a timber company in the United States, having heard of the neem tree's usefulness in acting as a pesticide, began planting neem tree seeds and applied for and was granted a patent. In 1988, the patent was sold to the US based company W.R. Grace, which secured exclusive rights in 1992 to an emulsion formula derived from the seeds of the neem tree to make a powerful pesticide. It likewise sued many Indian companies for making the emulsion.74

The U.S. Company, W.R. Grace, was able to secure the patents over a number of inventions relating to the neem tree.75 The neem tree itself, or its seeds, being a product of nature is not patentable, and in fact, no patent has been issued over the neem tree or its seeds. However, it stands to reason that the "inventions" relating to the neem tree drew upon traditional knowledge and practices in India (as well as to Western practices in the public domain) without proper compensation to their individual or collective originators.76

C. BIOPIRACY: THE ABUSE OF IPRs IN THE GLOBAL MARKETPLACE

There are several noted scholars who have written, theorized and publicized what has been termed as the "Great Seed Rip-Off" – international conventions that grant plant breeders' rights allowing commercial plant breeders to use traditional indigenous varieties of seeds and improve them via minor genetic alterations, and then receive patents in the varieties.77 These seeds eventually find their way back to the developing world that produced them initially after the multinational firms from the industrialized world sells them back.78


75 In 1990, a U.S. patent was awarded to W.R. Grace which covers a technique for improving the storage stability of neem seed extracts containing azadirachtin. In 1994, another patent was obtained by Grace which covers a storage-stable insecticidal composition including a neem seed that had increased stability. Downes, supra note 58 at 280 – 281.

76 Downes, id.

77 J. M. Spector, Intellectual Property Dilemmas in the Biotech Domain & Treatment Equity for Developing Countries, 24 HOUSTON J. INT'L. L. 227, 236 (2002). See also, E. Jane Gindin, Maca: Traditional Knowledge, New World Online at: Trade and Environment Database Case Studies. <http://www.american.edu/ted/maca.htm>. For a more recent literature, please see: Christiane Gerstetter et al, The International Treaty on Plant Genetic Resources for Food and Agriculture within the Current Legal Regime Complex on Plant Genetic Resources, 10 J. WORLD INTELL. PROP. 259 - 283 (2007), which investigates the legal relationships between the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), which entered into force in 2004, on the one hand, and the Agreement on Trade-Related Aspects of Intellectual Property Rights, the Union for the Protection of New Varieties of Plants and the Convention on Biological Diversity (CBD) on the other. It arrives at the conclusion that there are no conflicts between the ITPGRFA and any of those treaties at present, while negotiations conducted currently in the framework of the World Intellectual Property Organization and the CBD need carefully to avoid creating such legal conflicts.

78 Donovan, supra 70 at 140 citing Vandana Shiva, GATT, Agriculture and Third World Women, ECOFEMINISM 231, 240 (1996).
Thus, there are clear economic costs to the exploitation of the genetic and biological resources of the Third World by the industrialized world. The dispute is far from being theoretical. The cash-strapped developing world loses billions of dollars annually, in terms of lost revenue. In addition, the costs of enforcing their obligations domestically under the TRIPS Agreement are likewise not insignificant. Even in instances where countries from the developing world legitimately feel that their intellectual property rights have been violated, the costs of launching patent litigation can be prohibitive.

III. THE IMPERATIVE OF STRIKING A BALANCE

As a starting point, there is an obvious imperative to recognize the structural imbalances in the global economy. The ubiquitous balancing act in the entirety of the TRIPS Agreement resulting from the call to harmonize the interests of the developed and developing nations is captured in the declared objective of the TRIPS Agreement:

the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.

The proposals below are not original in any way. In fact, they have been tried or are currently in effect in some parts of the globe. In a manner of speaking, these arrangements, short of tearing apart the framework of the TRIPS Agreement, which is likely impossible to happen, merely temper its application or cushion its negative impact, especially upon developing countries.

A. DOCUMENTING TRADITIONAL KNOWLEDGE AND USE OF INDIGENOUS GENETIC RESOURCES AS PRIOR ART

Traditional knowledge (TK), which is sometimes also referred to as indigenous knowledge and local knowledge, generally refers to the matured long-standing traditions and practices of certain regional, indigenous, or local communities. It may include the wisdom, knowledge, and teachings of these communities, orally passed for generations from person to person, expressed

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80 TWM, Bio-Piracy Costs Developing Countries and their Indigenous Peoples of $5.4 Billion a Year in Plant and Knowledge Royalties, Says Study Conducted for UNDP. Online at: TWM < http://twm.co.nz/Biopiracy.html>.


82 Article 7, TRIPS AGREEMENT, supra note 2
through stories, legends, folklore, rituals, songs, and even laws. The determinative criterion that makes knowledge “traditional” is not its antiquity but its character as being a vital, dynamic part of the contemporary lives of communities.

A traditional knowledge registry, such as that attempted in India and Australia, that documents traditional knowledge and practices would likely facilitate the establishment of a prior art for any invention that is based on traditional knowledge. A Registry of Traditional Knowledge should be put in place and the appropriate domestic legislation enacted to accord special intellectual property-like protection to traditional knowledge and genetic resources.

Moreover, the UNESCO/WIPO Model Provisions for National Laws on the Protection of Expressions of Folklore against Illicit Exploitation and Other Prejudicial Actions offers analogous statutory protection of traditional knowledge and genetic resources. The Model Provisions, although they address and ensure

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84 WORLD INTELLECTUAL PROPERTY OFFICE, INTELLECTUAL PROPERTY AND TRADITIONAL KNOWLEDGE WIPO, PUBLICATION No. 920(E) at 5, 6. Online at: <http://www.wipo.int/freepublications/en/th/920/wipo_pub_920.pdf> The WIPO publication enumerates some examples of traditional knowledge: Thai traditional healers use plaa·na to treat ulcers; the San people use Ixxxiia cactus to stave off hunger while out hunting; sustainable irrigation is maintained through traditional water systems such as the aflaj in Oman and Yemen, and the qanat in Iran; Cree and Inuit maintain unique bodies of knowledge of seasonal migration patterns of particular species in the Hudson Bay region; indigenous healers in the western Amazon use the Ayahuasca vine to prepare various medicines, imbued with sacred properties.

86 It must be noted, however, that under Section 102 of U.S. Patent Act, 35 U.S.C. 102, use in a foreign country is not recognized as a foreign art, except it is in a published form. This will exclude a great deal of traditional knowledge, which is transmitted orally and inter-generationally.

87 Access to the Registry might be reasonably restricted and governed by a Material Transfer Agreement, which binds the innovator of a derivative product to make stipulated compensation to the custodians of such knowledge. In these ways, the efficacy and advantages of a formal registry system cannot be doubted, but at the expense of the anglicization of traditional knowledge. Please see generally, Nwabueze, supra note 61 at 620 - 621. See comprehensive discussion of traditional knowledge in: Olufunmilayo B. Arewa, TRIPS and Traditional Knowledge: Local Communities, Local Knowledge, and Global Intellectual Property Frameworks, 10 MARQ. INTELL. PROP. L. REV. 155 (2006). Also see, Rhys Manely, Developmental Perspectives on the TRIPS and Traditional Knowledge Debate, 3 MACQUARIE J. INT‘L & COMP. ENV‘L L. 113 (2006).


89 See Harriet Fran Hunt, African Folklore: The Role of Copyright, 1 AFRICAN LEGAL STUDIES 87 (1969-1972), as cited by Nwabueze, supra note 61. The article discusses earlier attempts in the late 60s to draft the Model Provisions and its potential benefits for African countries.
special copyrightability of folklore, its framework is potentially applicable to ethnobotanical knowledge that are equally in need of protection.

B. REQUIRING GEOGRAPHICAL INDICATIONS OF ORIGIN AND PRIOR INFORMED CONSENT FOR PATENT APPROVAL

1. Geographical Indications of Origin

The TRIPS Agreement defines "geographical indications" as "indications which identify a good as originating in the territory of a [WTO] Member, 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." The states parties to TRIPS must proscribe the registration of trademarks that are misleading as to their geographic origin. Additionally, legal procedures for interested parties to prevent competitors from placing designations on their products that mislead the public about their geographic origin, must be put in place.

The TRIPS Agreement provides for additional protection of geographical indications for wine and spirits. The obligations regarding geographical indications, however, are subject to a number of exceptions that may render them less effective as a means of protecting traditional knowledge. Geographical indications and trademarks benefit consumers by providing them with reliable information and assurances of authenticity.

Geographical indications, as opposed to patents and copyrights, are not specifically designed to reward innovation. Rather, they can operate to maintain traditional knowledge and practices by rewarding producers that are situated in a certain region and that follow production practices associated with that region and

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90 Id.
93 Article 23, TRIPS AGREEMENT, supra note 2.
94 Article 24, TRIPS AGREEMENT, supra note 2. In Europe, the prime example of a system of geographic indications is found in France, where local products (produits de terroir) "occupy a special niche in the present agricultural and foodstuffs sector of southern Europe," including France, Spain, Italy and Portugal. Another example is the artisans of several Native American tribes from the southwestern region of the United States who earn as much as $ 800 million annually from commercial sales of arts and crafts. Downes, supra note 58 at 270.
95 See Paul J. Heald, Trademarks and Geographical Indications: Exploring the Contours of the TRIPS Agreement, 29 VAND. J. TRANSNAT’L L. 635, 655 (1996). They also respond to certain indigenous concerns more effectively than do other IPRs. In particular, rights to control trademarks and geographical indications can be maintained in perpetuity, and they do not confer a monopoly right over the use of certain information, but simply limit the class of people who can use a specific symbol.
its culture and customs. The goodwill and reputation built by producers over many years, and in some cases over centuries, are thus rewarded.

2. Prior Informed Consent

It is imperative that western corporations, pharmaceutical companies, and researchers secure prior informed consent from indigenous communities before they can legally utilize their traditional knowledge or native biological resources. An explicit prior informed consent, acquired in a way that is culturally sensitive to indigenous communities, must be secured prior to the collection of samples from any subjects. Biopiracy, is often a covert activity shrouded in corporate mystery. The exploitation of innocent and helpless members of the indigenous communities from developing countries, often without even the most basic of formal education, is a morally abhorrent act which must be made illegal.

CONCLUSION

Given the history of the international intellectual property system, the notion that either the pre- or post-TRIPS multilateral system is based upon consensus is still a myth as far as developing countries are concerned... [G]iven the values reflected in the current intellectual property system, values which are deemed "universal" yet are clearly not, there is no assurance that the current framework will benefit developing countries in any significant way.

- Ruth L. Gana


In concluding, the question is posed, thus: Is biotechnology or biopiracy within the framework of TRIPS inimical to the interests of developing nations? The answer to the question posed may clearly be in the affirmative, but the answer falls short of being the solution.

It is clear that the polarized international debate is oversimplified. This is, without a doubt, more than just a trade issue. From this perspective, the complex and evolving policy context of globalization and inequality must be considered, in order for the debate to be meaningful.101

The growing disparities between the North and the South puts to serious question the very tenets of free trade liberalization and its relationship to development.102 The unilinear model of development purportedly followed by the Western world failed to bring about its promise of economic growth to the Third World nations.103

In reality, the debate over the TRIPS Agreement for the poorest developing countries104 is one of practical insignificance.105 The promises of

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101 See for example, Keith Aoki, Neocolonialism, Anti-Corporate Property, and Bio-Piracy in the (Not-So- Brave) New World Order of International Property Protection, 6 GLOBAL LEGAL STUDIES J. 11 (1998-1999). The proponents of capitalist economic theory, from which TRIPS is premised, posit that a completely liberalized global market is will bring about development. However, in practice, eliminating barriers to trade and opening markets do not necessarily generate development. The global marketplace is dominated by rich developed countries and large multinational corporations which breed very unequal relations of power and information. Consequently, trade is inherently unequal and poor countries often experience not rising well-being but increasing unemployment, poverty, and income inequality. Also see, Ruth L. Okedji, The International Relations of Intellectual Property: Narratives of Developing Country Participation in the Global Intellectual Property System, 7 SING. J. INT'L & COMP. L. 315 (2003).


104 The United States is a part of the developed or industrialized world, which consists of about 50 countries with a combined population of only 0.9 billion, less than one sixth of the world's population. In contrast, approximately 5 billion people live in the developing world. This world is made up of about 125 low and middle-income countries in which people generally have a lower standard of living with access to fewer goods and services than people in high-income countries. Bread for the World Institute, Are We On Track To End Hunger? HUNGER REPORT 2004. Online at: <http://www.bread.org/institute/hunger_report/index.html >.

105 See for example, Keith E. Maskus, Intellectual Property Rights and Economic Development, 32 CASE W. RES.
economic growth, development and an improved standard of living seem all but illusory to them – because on a daily basis, the only issue that pre-occupies them is one of mere survival.\textsuperscript{106}

It is, however, not an entirely bleak picture. Not much can be gained if the developing world, nurturing perpetual feelings of distrust,animosity and suspicion, will isolate itself from the rest of the world.\textsuperscript{107} The current international legal, economic and political infrastructure, which includes the WTO and TRIPS, can provide an avenue for developing countries to articulate their needs. In fact, even within the framework of the TRIPS Agreement, there is much to be expected on what is on paper. The developing nations can explore these possibilities.\textsuperscript{108}

It may be too much optimism or naivety perhaps, but hope, especially for one coming from a developing country where it can be the only thing one has, is worth a lot.\textsuperscript{109}

\textsuperscript{106} J. Int'l L. 471 (2000), who provides an analytical overview of how economic development may be promoted or hindered by an effective system of intellectual property rights.


\textsuperscript{109} For example, developed countries members of WTO are obliged, under Article 67 of the TRIPs Agreement, to provide "technical and financial co-operation" in favour of developing and least developed countries to facilitate the implementation of the TRIPs Agreement. Such co-operation, which is to be provided upon request and on mutually agreed terms and conditions, includes assistance in the preparation of laws and regulations, support for domestic offices and in the prevention of abuse of IPRs. This obligation on the part of developed countries, if not adequately fulfilled, may be the subject matter of a claim before the Council for TRIPs, as in the case of any other obligation defined by the Agreement. See also the positive spirit in WTO. DOHA WTO MINISTERIAL 2001, DECLARATION ON THE TRIPS AGREEMENT AND PUBLIC HEALTH, (WT/MIN(01)/DEC/2 of November 20, 2001). See also, Hansel T. Pham, Developing Countries and the WTO: The Next for More Medication in the DSU, 9 Harv. Negotiation L. Rev. 331 (2004).

\textsuperscript{109} The author is from the Philippines, categorized a third-world nation, he surmises, probably ever since the label has been invented. It has been at the cusp of development for three centuries, after a succession of colonial rule.