1-1-2007

Bioprospecting or Biopiracy: Does the TRIPS Agreement Undermine the Interests of Developing Countries?

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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 (WIO) 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 wro 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.

Keywords

developing, interests, bioprospecting, undermine, countries, agreement, trips, does, biopiracy

Disciplines

Arts and Humanities | Law

Publication Details

L. Bautista, 'Bioprospecting or Biopiracy: Does the TRIPS Agreement Undermine the Interests of Developing Countries?' (2007) 82 (1) Philippine Law Journal 14-33.

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 Aboagye-Mensah of Ghana*[1]

INTRODUCTION

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS)[2] created within the framework of the World Trade Organization (WTO) poses a contentious discord between developed and developing nations.[3] The criticism that TRIPS is nothing more than a modern vehicle of western imperialism[4]

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[1] INTERNATIONAL FAIR TRADE ASSOCIATION, SPEAKING OUT FOR FAIR TRADE 24 (2002).

[2] Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, 1869 UNTS 299, 33 ILM 1197. (1994). The TRIPS Agreement is Annex 1C of the Marrakesh Agreement establishing the World Trade Organization, signed in Marrakesh, Morocco on 15 April 1994. This agreement puts in place a multilateral framework for addressing intellectual property issues in international commercial transactions. [hereinafter TRIPS AGREEMENT]

[3] See for example, Marci A. Hamilton, *The TRIPs Agreement: Imperialistic, Outdated, and Overprotective*, 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 modif[y] ... 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) (dismissing 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

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day colonialism disregarding the differing needs of the lesser developed nations); Michael W. Smith, *Bringing Developing Countries' Intellectual Property Laws to TRIPs Standards: Hurdles and Pitfalls Facing Vietnam's Efforts to Normalize an Intellectual Property Regime*, 31 CASE W. RES. J. INT'L L. 211, 227 (1999) (noting that there are many who view the TRIPs as a vehicle of Western imperialism).

[5] Please see, Peter M. Gerhart, *Reflections: Beyond Compliance Theory--TRIPS as a Substantive Issue*, 32 CASE W. RES. J. INT'L L. 357, 361 - 362 (2000). He argues that the issue of enforcement of TRIPS brings to fore the basic issue of its intrinsic validity. An international instrument which is perceived as unjust will face legitimacy problems which will render it hard for states to follow. See also, DAYA SHANKER, FAULT LINES IN THE WORLD TRADE ORGANIZATION: AN ANALYSIS OF THE TRIPS AGREEMENT AND DEVELOPING COUNTRIES, PhD Thesis, University of Wollongong, 2005. For academic literature that discuss the WTO and developing countries, please see: ANWARUL HODA AND ASHOK GULATI, WTO NEGOTIATIONS ON AGRICULTURE AND DEVELOPING COUNTRIES (2007); GEORGE A. BERMANN AND PETROS C. MAVROIDIS (EDS), WTO LAW AND DEVELOPING COUNTRIES (2007); LARRY CRUMP AND SYED JAVED MASWOOD (EDS), DEVELOPING COUNTRIES AND GLOBAL TRADE NEGOTIATIONS (2007); BIBEK DEBROY AND DEBASHIS CHAKRABORTY (EDS), THE TRADE GAME: NEGOTIATION TRENDS AT WTO AND CONCERNS OF DEVELOPING COUNTRIES (2006); BERNARD M. HOEKMAN AND PETER HOLMES, TRADE PREFERENCES AND DIFFERENTIAL TREATMENT OF DEVELOPING COUNTRIES (2006); BHAGIRATH LAL DAS, THE CURRENT NEGOTIATIONS IN THE WTO: OPTIONS, OPPORTUNITIES, AND RISKS FOR DEVELOPING COUNTRIES (2005); SANJAY KUMAR AND NUPUR CHOWDHURY, TRADE AND ENVIRONMENT IN THE WTO: NEGOTIATING OPTIONS FOR DEVELOPING COUNTRIES (2005); BASUDEB GUHA-KHASNOBIS (ED), THE WTO, DEVELOPING COUNTRIES AND THE DOHA DEVELOPMENT AGENDA: PROSPECTS AND CHALLENGES FOR TRADE-LED GROWTH (2004); HOMI KATRAK AND ROGER STRANGE (EDS), THE WTO AND DEVELOPING COUNTRIES (2004); IVAN M. ROBERTS, FRANK JOTZO AND BENJAMIN BUETRE, AGRICULTURAL TRADE REFORM IN THE WTO: SPECIAL TREATMENT FOR DEVELOPING COUNTRIES (2002); CONSTANTINE MICHALOPOULOS, DEVELOPING COUNTRIES IN THE WTO (2001); BERNARD M. HOEKMAN AND WILL MARTIN, DEVELOPING COUNTRIES AND THE WTO: A PRO-ACTIVE AGENDA (2001); PETER GALLAGHER, GUIDE TO THE WTO AND DEVELOPING COUNTRIES (2000); BERNARD M. HOEKMAN AND PETER HOLMES, COMPETITION POLICY, DEVELOPING COUNTRIES AND THE WTO (1999).

[6] Please see, Barry Coates, *A Development Agenda Without Development*, 24/25 SOUTHERN BULLETIN, 2001, at 10. Online at: South Centre <http://www.southcentre.org/info/southbulletin/bulletin24-25/bulletin24-25.pdf>. See also, Asoke Mukerji, *Developing Countries and the WTO: Issues of Implementation*, 34 J. WORLD TRADE (2000) 33 at 70. See also, Frank J. Garcia, *Trade and Inequality: Economic Justice and the Developing World*, 21 MICH. J. INT'L L. 975 (2000). See also discussion in Beverly M. Carl, *Current Trade Problems of the Developing Nations* in PETAR SARCEVIC AND HANS VAN HOUTTE (EDS.), LEGAL ISSUES IN INTERNATIONAL TRADE (1990) at 100-127.

[7] It was during the Doha Round of Negotiations (Fourth Ministerial Conference in Doha, Qatar which started on November 14, 2001) that the many concerns of the developing countries were heard. Please see, Inaamul Haque, *Doha Development Agenda: Recapturing the Momentum of Multilateralism and Developing Countries*, 17 AM. U. INT'L L. REV. 1097 (2002). See also, Peter M. Gerhart, *Slow Transformations: The WTO as a Distributive Organization*, 17 AM. U. INT'L L. REV. 1045 (2002). He argues that the Doha Round may mark the WTO's transformation from an organization concerned about the creation of wealth to an organization concerned also about the fair distribution of wealth.

[8] Michael W. Smith, *Bringing Developing Countries' Intellectual Property Laws to TRIPs Standards: Hurdles and Pitfalls Facing Vietnam's Efforts to Normalize an Intellectual Property Regime*, 31 CASE W. RES. J. INT'L L. 211 (1999).

countries.[9] 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.[10] It was a hard bargain. The developing countries felt that they left the negotiating table with very little, if any, benefit.[11]

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.[12] 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. [13]

In the interest of fairness, it must be underscored at the outset that the skepticism and mistrust cut both ways.[14] The developing nations are apprehensive that the TRIPS is merely an exploitative mechanism employed to patent indigenous biological material.[15] 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.[16]

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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[9] Paul J. Heald, *Mowing the Playing Field: Addressing Information and Asymmetry in the TRIPS Game*, 88 MINN. L. REV. 249 (2003 - 2004).

[10] MARCO C. E. J. BRONCKERS, A CROSS-SECTION OF WTO LAW (2000) at 187- 188. See, e.g., Ernst-Ulrich Petersmann, *Constitutionalism and International Organizations*, 17 NW. J. INT'L L. & BUS. 398, 442 (1996 - 1997) characterizing agreements relating to services and intellectual property as part of "global package deals" negotiated within the GATT/WTO.

[11] Evelyn Su, *The Winners and the Losers: The Agreement on Trade-Related Aspects of Intellectual Property Rights and Its Effects on Developing Countries*, 23 HOUSTON J. INT'L L. 169 (2000). Please see, Peter Drahos, *Developing Countries and Intellectual Property Standard-Setting*, 5 J. WORLD INTELL. PROP. 765, 769 - 770 (2002), who analysed the TRIPS negotiating history in detail and challenges the claim that the TRIPS was the "result of bargaining amongst sovereign and equal States... " Also see, Susan K. Kell, *TRIPS and the Access to Medicines Campaign*, 20 WIS. INT'L L. J. 481 (2002), who states that "TRIPS was a product of tireless and effective agency and economic coercion."

[12] Milan Bulajic, *A Changing World Calls for International Development Law*, in PETAR SARCEVIC AND HANS VAN HOUTTE (EDS.), LEGAL ISSUES IN INTERNATIONAL TRADE 1 - 22 (1990).

[13] NECTARIA CALAN. GLOBALISING BIOPIRACY: INTELLECTUAL PROPERTY RIGHTS, THE TRIPS AGREEMENT, AND THE APPROPRIATION OF TRADITIONAL KNOWLEDGE (2006).

[14] Please see, for example, Paul J. Heald, *The Rhetoric of Biopiracy*, 11 CARDOZO J. INT'L & COMP. L. 518 (2003- 2004).

[15] Frederick M. Abbot, *The WTO TRIPS Agreement and Global Economic Development*, 72 CHI. KENT. L. REV. 385 (1996 – 1997).

[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.[17] 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).[18] The TRIPS Agreement expands and builds upon the substantive obligations of the main conventions of the World Intellectual Property Organization (WIPO),[19] the Paris

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[17] For an overview of the TRIPS Agreement, please see: CARLOS M. CORREA AND ABDULQAWI YUSUF (EDS), INTELLECTUAL PROPERTY AND INTERNATIONAL TRADE: THE TRIPS AGREEMENT (1998); CARLOS M. CORREA, INTELLECTUAL PROPERTY RIGHTS, THE WTO, AND DEVELOPING COUNTRIES: THE TRIPS AGREEMENT AND POLICY OPTIONS (1999); CARLOS M. CORREA, TRADE RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS: A COMMENTARY ON THE TRIPS AGREEMENT (2006).

[18] MARCO C. E. J. BRONCKERS, A CROSS-SECTION OF WTO LAW (2000) at 185. The only provision under the original GATT Agreement of 1947 which substantively dealt with intellectual property was Article XX(d), which provided that under certain conditions, the contracting parties would be allowed to restrict trade in goods to protect intellectual property. For a concise history of the GATT international trading regime, please see: ROBERT E. HUDEC, THE GATT LEGAL SYSTEM AND WORLD TRADE DIPLOMACY (1990); ROBERT E. HUDEC, ENFORCING INTERNATIONAL TRADE LAW: THE EVOLUTION OF THE MODERN GATT LEGAL SYSTEM (1993); PETER GALLAGHER, THE FIRST TEN YEARS OF THE WTO: 1995-2005 (2005); TERENCE P. STEWART (ED), THE GATT URUGUAY ROUND: A NEGOTIATING HISTORY (1986-1992) (1993).

[19] Please see, Convention Establishing the World Intellectual Property Organization, Jul. 14, 1967, 21 U.S.T. 1770, 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)[20] which protects against trademark and patent infringement, and the Berne Convention for the Protection of Literary and Artistic Works (Berne Convention)[21] which protects against copyright infringement.

The areas of intellectual property that it covers are: copyright and related rights;[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.[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."[24] The objective behind the protection of intellectual property is the promotion of intellectual creativity and innovation.[25] This purportedly impels scientific advancement by providing for incentives that reward intellectual activity that produces innovation and that contribute to the common good.[26]

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[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

[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 (1), TRIPS AGREEMENT, *supra* Note 2.

[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).

[23] Paul Edward Geller, *Intellectual Property in the Global Marketplace: Impact of TRIPS Dispute Settlement*, 29 INT'L LAW. 99 (1995).

[24] Online at World Intellectual Property Organization <http://www.wipo.int/about-ip/en/>. The United Nations Universal Declaration of Human Rights provides that: "everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author." Universal Declaration of Human Rights, adopted Dec. 10, 1948, G.A. Res. 217A (III) U.N. Doc. No. A/810 at 27 (1948). For background general reading on intellectual property law, please see: JILL MCKEOUGH, INTELLECTUAL PROPERTY (1988); ANDREW CHRISTIE AND STEPHEN GARE, INTELLECTUAL PROPERTY (2003); WILLIAM VAN CAENEGEM, INTELLECTUAL PROPERTY (2005)

[25] Shanker A. Singham, *Competition Policy and the Stimulation of Innovation: TRIPS and the Interface Between Competition and Patent Protection in the Pharmaceutical Industry*, 26 BROOK. J. INT'L L. 363 (2000 - 2001).

[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.[27] 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.[28] It came into force on January 1, 1995.[29]

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.[30] Interestingly, in terms of numbers, it is obvious that the developing (and least developed) nations far outnumber the developed nations.[31]

The TRIPs Agreement, institutionalizes an international norm[32] that mirrors those currently used by developed countries, the United States in particular.[33] The TRIPS Agreement seeks to impose and universalize the levels and forms of intellectual property protection existing in the North.[34] 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 PEREZ PUGATCH, THE INTERNATIONAL POLITICAL ECONOMY OF INTELLECTUAL PROPERTY RIGHTS 156 (2004).

[28] Rochelle Cooper Dreyfuss and Andreas F. Lowenfield, *Two Achievements of the Uruguay Round: Putting TRIPS and Dispute Settlement Together*, 37 VA. J. INT'L L. 275 (1996-1997).

[29] Please see for additional information, WTO TRIPS Materials on the WTO Site. Online at: <http://www. wto.org/english/tratop_e/trips_e/trips_e.htm>.

[30] The WTO has 151 members, as of 27 July 2007. Online at: World Trade Organization <http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm>.

[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.

[33] Stefan Kirchanski, *Protection of U.S. Patent Rights in Developing Countries: U.S. Efforts To Enforce Pharmaceutical Patents in Thailand*, 16 LOY. L.A. INT'L & COMP. L. J. 569 (1994).

[34] Leanne M. Fecteau, *The Ayahuasca Patent Revocation: 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.[35] 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."[36]

This protection is subject to the generally accepted principles of national treatment[37] and most favored nation treatment.[38] In particular, the protection to pharmaceutical and agricultural chemical products is outlined in Article 70.8 of the TRIPS Agreement.[39] 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[40] to attain the appropriate infrastructure to support compliant IPR regimes.[41]

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."[42] In addition, Article 27.3 (b) allows member states to exclude the following from patentability:

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[35] Please see, Pollyanna E. Folkins, *Has the Lab Coat Become the Modern day Eye Patch? Thwarting Biopiracy of Indigenous Resources by Modifying International Patenting Systems*, 13 TRANSNAT'L L. & CONTEMP. PROBS. 339 (2003).

[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 be 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.[43]

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.[44] 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.[45]

E. TRIPS AND THE CONVENTION ON BIOLOGICAL DIVERSITY

The Convention on Biological Diversity (CBD)[46] is the first multilateral treaty regime that addressed the issue of preserving the planet's biological resources.[47] It is also the first convention to establish the sovereign right of a state over its natural resources, [48] and its responsibility to facilitate access to those

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[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.

[44] Carrie P. Smith, *Patenting Life: The Potential and the Pitfalls of Using the WTO to Globalize Intellectual Property Rights*, 26 N.C. J. INT'L L. & COM. REG. 143 (2000).

[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.

[46] United Nations Convention on Biological Diversity, 1992, 1760 UNTS 79; 31 ILM 818, opened for signature 5 June 1992, entered into force 29 December 1993. Online at: <http://www.biodiv.org>. The CBD was opened at the United Nations Conference on Environment and Development (the Rio "Earth Summit"). [Hereinafter CBD CONVENTION] For academic literature on the relation of intellectual property and the Convention on Biological Diversity, please see: CHARLES R. MCMANIS (ED), BIODIVERSITY AND THE LAW: INTELLECTUAL PROPERTY, BIOTECHNOLOGY AND TRADITIONAL KNOWLEDGE (2007); NATALIE P. STOIANOFF, (ED)ACCESSING BIOLOGICAL RESOURCES: COMPLYING WITH THE CONVENTION ON BIOLOGICAL DIVERSITY (2004); CHRISTOPHE BELLMANN, GRAHAM DUTFIELD AND RICARDO MELENDEZ-ORTIZ (eds), TRADING IN KNOWLEDGE: DEVELOPMENT PERSPECTIVES ON TRIPS, TRADE, AND SUSTAINABILITY (2003); PHILIPPE G. LE PRESTRE (ED), GOVERNING GLOBAL BIODIVERSITY: THE EVOLUTION AND IMPLEMENTATION OF THE CONVENTION ON BIOLOGICAL DIVERSITY (2002); GRAHAM DUTFIELD, INTELLECTUAL PROPERTY RIGHTS, TRADE AND BIODIVERSITY: SEEDS AND PLANT VARIETIES (2000).

[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. ENVT'L L. J. 415, 419 (1997).

[48] 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.[49] 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."[50]

While some legal scholars have argued that there is an actual or potential conflict between the TRIPS Agreement and the CBD,[51] 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;[52] Article 16, which promotes access to and transfer of technology derived from the research and development of genetic material;[53] 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.[54] 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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[49] Please see, Robin L. Scott, *Bio-Conservation or Bio-Exploitation: An Analysis of the Active Ingredients Discovery Agreement Between Brazilian Institution BIOAMAZONIA and the Swiss Pharmaceutical Nourtis*, 35 GEO. WASH. INT'L L. REV. 977 (2003).

[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."

[51] Charles R. McManis, *The Interface Between International Intellectual Property and Environmental Protection: Biodiversity and Biotechnology*, 76 WASH. U. L. Q. 255 (1998); 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 (1999); Meetali Jain, *Global Trade and the New Millennium: Defining the Scope of Intellectual Property Protection of Plant Genetic Resources and Traditional Knowledge in India*, 22 HASTINGS INT'L & COMP. L. REV. 777 (1999); Muria Kruger, *Harmonizing TRIPS and the CBD: a Proposal from India*, 10 MINN. J. GLOBAL TRADE 169 (2001).

[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 INTELL. PROP. MEDIA & ENT. L. J. 963, 976 - 977 (2003).

II. THE DEBATE: BIOPROSPECTING OR BIOPIRACY

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

-Martin Khor, Director of Third World Network[55]

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.[56] Recently, this has been referred to as: bioprospecting, biotechnology, chemical prospecting, gene-hunting, or natural product research,[57] or the politically-loaded term, "biopiracy."[58] The variance in terminology, however, does not suggest that the idea is novel.[59]

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.[60]

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."[61] 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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[55] *Martin Khor, Director of Third World Network* Online at: Christian Aid. <http://www.christianaid.org.uk/campaign/resource/quotes.htm#poverty>.

[56] Sean D. Murphy, *Biotechnology and International Law*, 42 HARV. INT'L L. J. 47 (2001). See also, Yvonne Cripps, *Patenting Resources: Biotechnology and the Concept of Sustainable Development*, 9 INDIANA J. GLOBAL LEGAL STUDIES 119 (2001).

[57] Corliss Karasov, *Who Reaps the Benefits of Biodiversity?*, 109 ENVIRONMENTAL HEALTH PERSPECTIVES 582 (2001). Online at: Environmental Health Perspectives < http://ehp.niehs.nih.gov/docs/2001/109-12/focus.html>

[58] Erin Kathleen Bender, *North and South: The WTO, TRIPs, and the Scourge of Biopiracy*, 11 TULSA J. COMP. & INT'L L. 281 (2003). See for example, David R. Downes, *How Intellectual Property Could be a Tool to Protect Traditional Knowledge*, COLUM. J. ENVT'L. L. 253, 263 (2000), who argues that "[t]he 'piracy' slogan is misleading."

[59] Young-Gyoo Shim, *Intellectual Property Protection of Biotechnology and Sustainable Development in International Law*, 29 N.C. J. INT'L L. & COM. REG. 157, 160 (2003).

[60] See for example, discussion in Walden Bello and Anuradha Mittal, *The Meaning of Doha*, 24/25 Southern Bulletin (2001) 7. Online at: South Centre <http://www.southcentre.org/info/southbulletin/bulletin24-25/bulletin24-25.pdf>.

[61] Remigius N. Nwabueze, *Ethnopharmacology, Patents and the Politics of Plants' Genetic Resources*, 11 CARDOZO J. INT'L. COMP. L. 585, 590 (2003).

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.

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[62] Please see, for example, TAIMOON 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 KNOWLDEGE (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 BIOPIRACY (2002); IKECHI MADUKA MGBEOJI, GLOBAL BIOPIRACY: PATENTS, PLANTS, AND INDIGENOUS KNOWLEDGE (2006); A. MUSHITA AND CAROL B. THOMPSON, BIOPIRACY OF BIODIVERSITY: GLOBAL EXCHANGE AS ENCLOSURE (2006)

[63] Shubha Ghosh, *Globalization, Patents, and Traditional Knowledge*, 17 COLUM. J. ASIAN L. 73 (2003).

[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 (2005). 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. 191, 202 (2001).

[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. Online at: <http://www.crisisstates.com/download/wp/WP31RW.pdf>

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.[67] The truth is, this development agenda was not the formula followed by now-developed economies.[68] The argument is a legal and economic curiosity for being almost devoid of historical basis. [69]

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.[70]

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[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. SELL, 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.

[70] Sumathi Subbiah, *Reaping What They Sow: The Basmati Rice Controversy and Strategies for Protecting Traditional Knowledge*, 27 B.C. INT'L & COMP. L. REV. 529 (2004); Erin Donovan, *Beans, Beans, the Patented Fruit: The Growing International Conflict over the Ownership of Life*, 25 LOY. L.A. INT'L & COMP. L. REV. 117 (2002); Michael Woods, *Food for Thought: The Biopiracy of Jasmine and Basmati Rice*, 13 ALBANY L. J. SCI. & TECH. 123 (2002); See also, Jolayemi Adewumi, *Basmati*. Online at: Trade and Environment Database <http://www.american.edu/projects/mandala/TED/basmati.htm>. RiceTec calls its aromatic rice sold within the US as "Basmati" and has tried to export Basmati-type rice, with the same label. This threatens to adversely affect Indian and Pakistani exports. See also, UZMA JAMIL, BIOPIRACY: THE PATENTING OF BASMATI BY RICETEC (1998); PETER PRINGLE, FOOD, INC.: MENDEL TO MONSANTO--THE PROMISES AND PERILS OF THE BIOTECH HARVEST 79-95 (2003).

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 patent[72] 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

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[71] Gillian N. Rattray, *The Enola Bean Patent Controversy: Biopiracy, Novelty and Fish and-Chips*, 8 DUKE L. & TECH. REV. 1 (2002); Erin Donovan, *Beans, Beans, the Patented Fruit: The Growing International Conflict over the Ownership of Life*, 25 LOY. L.A. INT'L & COMP. L. REV. 117 (2002); Gillian N. Rattray, *The Enola Bean Patent Controversy: Biopiracy, Novelty and Fish-and-Chips*, DUKE L. & TECH. REV. 8 (2002); Danielle Goldberg, *Jack and the Enola Bean*, online at: Trade and Environment Database Case Studies <http://www.american.edu/TED/enola-bean.htm>.

[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]

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[74] Please see, Sara Hasan, *The Neem Tree, Environment, Culture and Intellectual Property.* Online at: Trade and Environment Database Case Studies. <http://www.american.edu/TED/neemtree.htm>. Also, Downes, *supra* note 58 at 280 – 281. Also, Emily Marden, *The Neem Tree Patent: International Conflict over the Commodification of Life*, 22 B.C. INT'L & COMP. L. REV. 279 (1999); Shayana Kadidal, *Subject-Matter Imperialism - Biodiversity, Foreign Prior Art and the Neem Patent Controversy*, 37 IDEA 371 (1996-1997).

[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. Spectar, *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.[79] The dispute is far from being theoretical. The cash-strapped developing world loses billions of dollars annually, in terms of lost revenue.[80] In addition, the costs of enforcing their obligations domestically under the TRIPS Agreement are likewise not insignificant.[81] 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.[82]

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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[79] Mary Lynne Kupchella, *Agricultural Biotechnology: Why It Can Save the Environment and Developing Nations, But May Never Get a Chance*, WM. & MARY ENVT'L L. & POL'Y REV. 721 (2001). See also, Peter A. Zakrzewski, *Bioprospecting or Biopiracy? The Pharmaceutical Industry's Use of Indigenous Medicinal Plants as a Source of Potential Drug Candidates*, 79 U. TORONTO MEDICAL JOURNAL 252 (2002).

[80] TWM, *Bio-Piracy Cheats 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>.

[81] Peter M. Gerhart, *Reflections: Beyond Compliance Theory--TRIPS as a Substantive Issue*, 32 Case W. RES. J. INT'L L. 357, 358 (2000).

[82] Article 7, TRIPS AGREEMENT, *supra* note 2

through stories, legends, folklore, rituals, songs, and even laws.[83] 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.[84]

A traditional knowledge registry, such as that attempted in India and Australia,[85] that documents traditional knowledge and practices would likely facilitate the establishment of a prior art[86] 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.[87]

Moreover, the UNESCO/WIPO Model Provisions for National Laws on the Protection of Expressions of Folklore against Illicit Exploitation and Other Prejudicial Actions [88] offers analogous statutory protection of traditional knowledge and genetic resources.[89] The Model Provisions, although they address and ensure

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[83] For literature discussing the debate on the protection of traditional knowledge and intellectual property, please see: Stephen B. Brush, *Protecting Traditional Agricultural Knowledge*, 17 WASH. U. J. L. & POL'Y 59 (2005); Shubha Ghosh, *Reflections on the Traditional Knowledge Debate*, 11 CARDOZO JOURNAL OF INTERNATIONAL AND COMPARATIVE LAW 497 (2003-2004); Sarah Harding, *Defining Traditional Knowledge - Lessons from Cultural Property*, 11 CARDOZO JOURNAL OF INTERNATIONAL AND COMPARATIVE LAW 511 (2003-2004); Gerard Bodeker, *Traditional Medical Knowledge, Intellectual Property Rights and Benefit Sharing*, 11 CARDOZO JOURNAL OF INTERNATIONAL AND COMPARATIVE LAW 785 (2003-2004); Charles R. McManis, *Intellectual Property, Genetic Resources and Traditional Knowledge Protection: Thinking Globally, Acting Locally*, 11 CARDOZO JOURNAL OF INTERNATIONAL AND COMPARATIVE LAW 547 (2003-2004).

[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/tk/920/wipo_ pub_920.pdf> The WIPO publication enumerates some examples of traditional knowledge: Thai traditional healers use *plao-noi* to treat ulcers; the San people use *hoodia* 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.

[85] The various policy documents advocating special protection for indigenous knowledge in Australia can be profitably read on: http://www.icip.lawnet.com.au/ch18.html.

[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).

[88] United Nations Educational, Scientific and Cultural Organization, Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and other Prejudicial Actions, 1982, available at http://www.wipo.org/traditionalknowledge/pdf/1982-folklore-modelprovisions.

[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.[90]

B. REQUIRING GEOGRAPHICAL INDICATIONS OF ORIGIN AND PRIOR INFORMED CONSENT FOR PATENT APPROVAL[91]

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." [92] 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.[93]

The TRIPS Agreement provides for additional protection of geographical indications for wine and spirits.[94] 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.[95] Geographical indications and trademarks benefit consumers by providing them with reliable information and assurances of authenticity.[96]

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.*

[91] Please see, Nuno Pires de Carvalho, *Requiring Disclosure of the Origin of Genetic Resources and Prior Informed Consent in Patent Applications Without Infringing the TRIPS Agreement: The Problem and The Solution*, 2 WASH. U. J. L. & POL'Y 371 (2000). Also, Jinghua Zou, *Rice and Cheese, Anyone - The Fight over Trips Geographical Indications Continues*, 27 B.C. INT'L & COMP. L. REV. 1141 (2004).

[92] Article 22, TRIPS AGREEMENT, *supra* note 2. See Ronald Knaak, *The Protection of Geographical Indications According to the TRIPS Agreement*, in FROM GATTS TO TRIPS – THE AGREEMENT ON TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS (FRIEDRICH-KARL BEIR AND GERHARD SCHRICKER, EDS., 1996) at 117, 119.

[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] Article 15, TRIPS AGREEMENT, *supra* note 2.

[96] 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.[97] 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.[98] 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.[99]

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*[100]

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[97] For discussion on the definition and nature of legally-binding prior informed consent: please see: Melanie Nakagawa, *Overview of Prior Informed Consent from an International Perspective*, 4 SUSTAINABLE DEVELOPMENT LAW AND POLICY (2004) 4; Anne Perrault, *Facilitating Prior Informed Consent in the Context of Genetic Resources and Traditional Knowledge*, 4 SUSTAINABLE DEV'T L. & POL'Y 21 (2004); Jenifer Ross, *Legally Binding Prior Informed Consent*, 10 COLO. J. INT'L ENVT'L. L. & POL'Y 499 (1999); Nuno Pires de Carvalho, *From the Shaman's Hut to the Patent Office: In Search of a TRIPS-Consistent Requirement to Disclose the Origin of Genetic Resources and Prior Informed Consent*, 17 WASH. U. J. L. & POL'Y 111 (2005).

[98] See, Folkins, *supra* note 35 at 355. Joji Carino, *Indigenous Peoples' Right to Free, Prior, Informed Consent: Reflections on Concepts and Practice*, 22 ARIZ. J. INT'L & COMP. L. 19 (2005).

[99] Please see analogous discussion of prior-informed consent and indigenous communities, Alex Page, *Indigenous Peoples' Free Prior and Informed Consent in the Inter-American Human Rights System*, 4 SUSTAINABLE DEV'T L. & POL'Y 16 (2004); Fergus MacKay, *Indigenous Peoples' Rights to Free, Prior and Informed Consent and the World Bank's Extractive Industries Review*, 4 SUSTAINABLE DEV'T L. & POL'Y 43 (2004); Anne Deruyttere, *Potential Challenges to Recognition of Prior and Informed Consent of Indigenous Peoples and Other Local Communities: The Experience of the Inter-American Development Bank*, 4 SUSTAINABLE DEV'T L. & POL'Y 40 (2004).

[100] Ruth L. Gana, *The Myth of Development, The Progress of Rights: Human Rights to Intellectual Property and Development*, 18 LAW AND POLICY 315, 334 - 335 (1996).

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 countries[104] is one of practical insignificance.[105] The promises of

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[101] See for example, Keith Aoki, *Neocolonialism, Anti-Commons 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).

[102] The numerous works of Professor Reichman, among other leading scholars, extensively discusses this issue. Please see, J. H. Reichman, *Charting the Collapse of the Patent-Copyright Dichotomy: Premises for a Restructured International Property System*, 13 CARDOZO ARTS & ENT. L. J. 475 (1995); J. H. Reichman, *Compliance with the TRIPS Agreement: Introduction to a Scholarly Debate*, 29 VAND. J. TRANSNAT'L L. 363 (1996); J.H. Reichman, *From Free Traders to Fair Followers: Global Competition Under the Trips Agreement*, 29 N.Y.U. J. INT'L L.& POL. 11 (1997); J. H. Reichman, *The TRIPS Component of the GATT's Uruguay Round: Competitive Prospects for Intellectual Property Owners in an Integrated World Market*, 4 FORDHAM INTELL. PROP. MEDIA & ENT. L. J. 171 (1993); J.H. Reichman, *Universal Minimum Standards of Intellectual Property Protection under the TRIPS component of the WTO Agreement*, 29 INT'L LAW. 345 (1995).

[103] Gana, *supra* note 100. But see, Lee Petherbridge, *Intelligent TRIPS Implementation: A Strategy for Countries on the Cusp of Development*, 22 U. PA. J. INT'L ECON. L. 1029, 1032 (1995), who argues that it may be a more effective strategy for developing countries to embrace international property standards. See also, Jean Raymond Homere, *Intellectual Property Rights Can Help Stimulate the Economic Development of Least Developed Countries*, 27 COLUM. J. L. & ARTS 277 (2004). See also, John E. Guist, *Non-Compliance with TRIPS by Developed and Developing Countries: Is TRIPS Working?*, 8 IND. INT'L & COMP. L. REV. 69 (1997 – 1998).

[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] Seeratan Nadia Natasha, *The Negative Impact of Intellectual Property Patent Rights on Developing Countries: An Examination of the Indian Pharmaceutical Industry*, 3 THE SCHOLAR: ST. MARY'S LAW REVIEW ON MINORITY ISSUES 339 (2001). Also, 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*.[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.[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.[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.[109]

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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.

[106] According to the Food and Agriculture Organization of the United Nations, 852 million people across the world are hungry in 2004, up from 842 million a year ago. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, STATE OF FOOD INSECURITY IN THE WORLD 2004. Online at: <http://www.fao.org/documents /show_cdr.asp?url_file=/docrep/007/y5650e/y5650e00.htm>.

[107] Please see, Roy Culpeper, *Approaches to Globalization and Inequality within the International System*. Online at: The North South Institute < http://www.nsi-ins.ca/english/pdf/UNRISD_paper.pdf> at 7.

[108] 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 Need for More Mediation in the DSU*, 9 HARV. NEGOTIATION L. REV. 331 (2004).

[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.