

TRIPS AND TRADITIONAL KNOWLEDGE: LOCAL COMMUNITIES, LOCAL KNOWLEDGE, AND GLOBAL INTELLECTUAL PROPERTY FRAMEWORKS

OLUFUNMILAYO B. AREWA*

INTRODUCTION	156
I. TRIPS AND THE GLOBALIZATION OF INTELLECTUAL PROPERTY.....	156
<i>A. The Incorporation of Intellectual Property into the World Trading System.....</i>	156
<i>B. The Historical Origins of Global Power Relationships and Global Intellectual Property Standards.....</i>	159
<i>C. TRIPs and the Third World.....</i>	163
1. Treatment of Local Knowledge Under TRIPs	164
2. TRIPs and Commercial Interests	166
3. Intellectual Property and Scientific, Technological, and Institutional Capacity	167
4. The Uncertain Short-Term Benefits of TRIPs for Third World Countries	168
II. TRIPs, LOCAL COMMUNITIES, AND LOCAL KNOWLEDGE.....	169
<i>A. TRIPs, Local Communities, and Development.....</i>	169
<i>B. TRIPs and Narratives of Appropriation of Local Knowledge.....</i>	170
1. Agriculture and Medicinal and Other Plants.....	170
2. Expressive Culture	176
3. Other Commercial Uses: Images of Indigenous Peoples.....	178
<i>C. TRIPs and “Biopiracy”</i>	179
CONCLUSION.....	180

* Visiting Assistant Professor, University of Georgia School of Law (Fall 2005); Assistant Professor, Case Western Reserve University School of Law. Harvard College (A.B.); University of California, Berkeley (M.A., Ph.D., Anthropology); University of Michigan (A.M., Applied Economics); Harvard Law School (J.D.). Email: oba1@case.edu.

INTRODUCTION

The Agreement on Trade-Related Aspects of Intellectual Property Rights¹ (TRIPs Agreement) represents a significant step in the globalization of intellectual property. How such global frameworks reflect and respond to the needs and concerns of developing countries and local communities with respect to traditional or local knowledge has become an issue of increasing discussion and debate in the post-TRIPs era.²

I. TRIPs AND THE GLOBALIZATION OF INTELLECTUAL PROPERTY

A. *The Incorporation of Intellectual Property into the World Trading System*

The TRIPs Agreement reflects an important step in the globalization of intellectual property frameworks. One key element of this globalization has been the development under TRIPs of global minimum standards for intellectual property.³ Such trends towards

1. See Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, 33 I.L.M. 1125, 1197 (1994) [hereinafter TRIPs Agreement]; Keith Aoki, *Sovereignty and the Globalization of Intellectual Property: Neocolonialism, Anticommons Property, and Biopiracy in the (Not-So-Brave) New World Order of International Intellectual Property Protection*, 6 IND. J. GLOBAL LEGAL STUD. 11, 26 (1998) (noting unidirectional drain of intellectual resources from the Third World); Keith E. Maskus & Jerome H. Reichman, *The Globalization of Private Knowledge Goods and the Privatization of Global Public Goods*, 7 J. INT'L ECON. L. 279 (2004); Ruth L. Okediji, *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).

2. See *infra* note 57 and accompanying text; see also U.N. DEV. PROGRAMME, MAKING GLOBAL TRADE WORK FOR PEOPLE 221, 222 (2003), available at <http://www.undp.org/dpa/publications/globaltrade.pdf> (questioning the relevance of TRIPs for large parts of the Third World); COMM'N ON INTELLECTUAL PROP. RIGHTS, INTEGRATING INTELLECTUAL PROP. RIGHTS & DEV. POLICY 73–87 (2002), available at http://www.iprcommission.org/papers/pdfs/final_report/CIPRfullfinal.pdf [hereinafter IPR COMM'N REPORT] (discussing the treatment of traditional knowledge under existing intellectual property frameworks); Olufunmilayo B. Arewa, *Piracy, Biopiracy and Borrowing: Culture, Cultural Heritage and the Globalization of Intellectual Property* (unpublished manuscript at 32–51, on file with author) [hereinafter Arewa, *Piracy*] (discussing the development of intellectual property frameworks and the treatment of traditional knowledge under such frameworks).

3. See TRIPs Agreement, *supra* note 1 (establishing minimum levels of intellectual property protection that Members of the World Trade Organization must implement); Adebambo Adewopo, *The Global Intellectual Property System and Sub-Saharan Africa: A Prognostic Reflection*, 33 U. TOL. L. REV. 749, 751 (2002) (“The era after the second World

increasing globalization of international economic relations are by no means limited to the intellectual property sphere, but are evident more generally as well.⁴ As has been the case with globalization more generally,⁵ the increasingly global reach of intellectual property frameworks has led to both positive and negative effects. Assessing these effects requires an understanding of the context within which the TRIPs Agreement was negotiated and implemented, particularly as that context relates to countries in the Third World.⁶

In response to significant pre-World War II economic chaos,⁷ the current world economic, monetary, and trading system was initially created in 1944 at Bretton Woods, New Hampshire with the formation of the International Monetary Fund and the International Bank for Reconstruction and Development (World Bank).⁸ A third organization, the International Trade Organization (ITO), was contemplated at Bretton Woods but never formed, although its charter was drafted in Havana in 1948.⁹ Instead, the General Agreement on Tariffs and Trade (GATT), a transitional collection of international trade rules formulated in 1947, substituted for the ITO.¹⁰ The world trading system established at Bretton Woods was further developed through several rounds of negotiations, ending with the Uruguay Round in 1994, which

War showed a more promising and dynamic trend towards globalization, with the linking of intellectual property with trade relations.”); J.H. Reichman, *The TRIPs Agreement Comes of Age: Conflict or Cooperation with the Developing Countries*, 32 CASE W. RES. J. INT’L L. 441, 443 (2000) (noting that TRIPs imposes a comprehensive set of relatively high minimum standards).

4. See JAGDISH BHAGWATI, IN DEFENSE OF GLOBALIZATION (2004) (advocating a managed approach to globalization); JOSEPH E. STIGLITZ, GLOBALIZATION AND ITS DISCONTENTS (2002); Doris Estelle Long, “*Democratizing*” Globalization: *Practicing the Policies of Cultural Inclusion*, 10 CARDOZO J. INT’L & COMP. L. 217 (2002).

5. See AMY CHUA, WORLD ON FIRE: HOW EXPORTING FREE-MARKET DEMOCRACY BREEDS ETHNIC HATRED AND GLOBAL INSTABILITY 37, 245 (2003) (noting that although globalization has had some positive effects, an estimated two billion people had not benefited from globalization in the two decades ending in the late 1990s).

6. The terms Third World and South or West and North will be used herein to describe countries that are often referred to as developing and developed. See Arewa, *Piracy*, *supra* note 2, at 11–13 (discussing use of terms Third World, West, North, South, developing, and developed).

7. Sandra Blanco & Enrique Carrasco, *Pursuing the Good Life: The Meaning of Development as it Relates to the World Bank and the IMF*, 9 TRANSNAT’L L. & CONTEMP. PROBS. 67, 68 (1999) (noting that those who attended the Bretton Woods Conference wanted to establish a monetary system to avoid a repetition of pre-war economic chaos).

8. JOHN H. JACKSON, THE WORLD TRADING SYSTEM 27–30 (1989).

9. Michael P. Malloy, *Shifting Paradigms: Institutional Roles in a Changing World*, 62 FORDHAM L. REV. 1911, 1919–20 (1994).

10. *Id.* at 1920.

led to the formation of the World Trade Organization (WTO) and the incorporation of intellectual property into the existing world trading system through the TRIPs Agreement.¹¹

The multilateral global trading system that emerged following World War II was developed by a relatively small group of countries in the North and later expanded to other countries, including Third World countries.¹² Although global in scope, such multilateral frameworks have always existed together with bilateral and regional trading relationships and agreements.¹³

A dominant ethos underlying the formation and activities of both the GATT and the WTO has been advancing global free trade.¹⁴ The WTO and GATT advocacy of global free trade is based on the presumed benefits of international trade for all parties involved in trade relations. Such presumed benefits derive from the theoretical underpinnings of international trade theory that delineate the benefits of free trade and the elimination of trade barriers. During the post-war era, the GATT system was associated with unprecedented prosperity,¹⁵ albeit with progressively increasing complexity and accompanying problems. By the post-independence era, Third World countries had begun to be added to this existing system, which magnified existing problems in the GATT system.¹⁶

Although economic theory suggests that free trade yields benefits in certain instances, the reality of the implementation of free trade in the global arena may not always yield such benefits for all involved parties.¹⁷ This is at least partly a consequence of the fact that international trade accords are negotiated and implemented in a real world of power asymmetries and webs of history and culture that often condition the

11. See Chi Carmody, *Beyond the Proposals: Public Participation in International Economic Law*, 15 AM. U. INT'L L. REV. 1321 (2000).

12. John C. Thomure, Jr., *The Uneasy Case for the North American Free Trade Agreement*, 21 SYRACUSE J. INT'L L. & COM. 181, 189 (1995) ("The founders of the postwar system had been a club of relatively like-minded nations; mostly advanced industrial economies, mostly welfare states with strong union movements, mostly net importers of raw materials, and mostly net exporters of manufactured goods.").

13. See Ruth L. Okediji, *Back to Bilateralism? Pendulum Swings in International Intellectual Property Protection*, 1 U. OTTAWA L. & TECH. J. 127 (2004) (discussing bilateralism in intellectual property protection).

14. Thomure, *supra* note 12, at 188 (noting that the GATT-Bretton Woods System was designed to eliminate historic barriers to trade).

15. *Id.*

16. *Id.* at 189.

17. See *infra* notes 75–79 and accompanying text.

assumptions and relationships of participants in such negotiations.¹⁸ In addition, relative competitive advantage, including scientific, technological, and institutional capacity, can play an important role in determining the beneficiaries of a particular global intellectual property framework or bilateral or regional agreements within such a framework. As a result, the negotiation and implementation of agreements such as TRIPs cannot be understood without assessing the relative position of the parties at the negotiating table.¹⁹ In addition, strategic positioning and trade-offs that are part of the negotiation and implementation processes also influence the outcome.²⁰ Particularly relevant to the context of TRIPs is the broader discourse between North and South and the political economy and history of relationships between the North and the South.²¹

B. The Historical Origins of Global Power Relationships and Global Intellectual Property Standards

The global power relationships evident at the negotiating table in the international trade and other international arenas reflect longstanding global power hierarchies. Such hierarchies are in large part a consequence of historical patterns of relationships, particularly hierarchies of culture and power.²² Hierarchies of culture reflect nineteenth century evolutionary assumptions about the relative status of

18. See SUSAN K. SELL, *POWER AND IDEAS: NORTH-SOUTH POLITICS OF INTELLECTUAL PROPERTY AND ANTITRUST* 107-08 (1998) (discussing differences in views of certain developing and developed countries in Paris Convention Revision negotiations from 1980 to 1984).

19. See Arewa, *Piracy*, *supra* note 2, at 32-51 (discussing historical role of hierarchies of culture, power, and taste in the development of global intellectual property frameworks).

20. See Laurence R. Helfer, *Regime Shifting: The TRIPs Agreement and New Dynamics of International Intellectual Property Lawmaking*, 29 *YALE J. INT'L L.* 1 (2004) (assessing various international regimes involved in and related to discussions concerning intellectual property matters as well as strategic positioning in negotiations accomplished through regime shifting).

21. See Karin Mickelson, *Rhetoric and Rage: Third World Voices in International Legal Discourse*, 16 *WIS. INT'L L.J.* 353 (1998) (discussing Third World approaches in international legal discourse); A.O. Adede, *The Political Economy of the TRIPs Agreement: Origins and History of Negotiations* 24 (*Int'l Ctr. for Trade & Sustainable Dev.*, July 30, 2002), available at <http://www.ictsd.org/dlogue/2001-07-30/Adede.pdf>; Jakkrit Kuanpoth, *The Political Economy of the TRIPs Agreement: Lessons from Asian Countries* (*Int'l Ctr. for Trade & Sustainable Dev.*, Apr. 19, 2002), available at <http://www.ictsd.org/dlogue/2002-04-19/Kuanpoth.pdf>; Suman Sahai, *Protection of Indigenous Knowledge and Possible Methods of Sharing Benefits with Local Communities* 3, (*Int'l Ctr. for Trade & Sustainable Dev.*, Apr. 19, 2002), available at <http://www.ictsd.org/dlogue/2002-04-19/Sahai.pdf>.

22. See Arewa, *Piracy*, *supra* note 2, at 32-50.

different cultures.²³ As a result of such hierarchies, a relative ranking of cultures became predominant in the nineteenth century.²⁴ These evolutionary rankings assumed that all societies moved through an identical progression from “savagery” to “barbarism” to “civilization,” and that European countries represented “civilization,” or the apex of these rankings.²⁵ Most current Third World countries were ranked on the lower rungs of this evolutionary ladder by those at the top.²⁶

These hierarchies of culture are important for both global power relationships and the development of global intellectual property standards. Such hierarchies became a justification for political domination and suppression.²⁷ As a result of the global political structures that emerged in the nineteenth century based on colonialism, for example, those who lived in cultures that were deemed less advanced were often denied the opportunity to participate in the negotiation of accords and agreements that directly concerned them.²⁸ This was evident, for example, at the Berlin Conference of 1884–1885, at which the continent of Africa was divided among European powers in a game of “Imperial Monopoly.”²⁹ Local communities in such areas of the world were largely denied any opportunity to participate in the decision-making process or to be represented at the negotiating table.³⁰

Cultural hierarchies also played an important role in the type of

23. *Id.* at 32–35.

24. *Id.*

25. *Id.*

26. *Id.*

27. See TER ELLINGSON, *THE MYTH OF THE NOBLE SAVAGE*, at xiii (2001) (noting that “cultural inferiority [became] an ideological ground for political subordination”); NIALL FERGUSON, *EMPIRE: HOW BRITAIN MADE THE MODERN WORLD* 259–63 (2003) (discussing racial hierarchies in imperialist discourse); Ruth L. Gana, *Has Creativity Died in the Third World? Some Implications of the Internationalization of Intellectual Property*, 24 *DENV. J. INT’L L. & POL’Y* 109, 114 (1995) (commenting that “[r]aces and cultures were repeatedly classified in a hierarchical fashion, setting the stage for the series of historical events such as slavery and colonialism”).

28. See Arewa, *Piracy*, *supra* note 2, at 43–44.

29. See FERGUSON, *supra* note 27, at 233–35 (“The biggest game of Monopoly in history was about to begin. Africa was the board.”).

30. See *id.* at 238 (“Imperial Monopoly was a game played according to the amoral rules of *Realpolitik* . . . The Sultan [Bargash, ruler of Zanzibar], by contrast, was an African ruler. There could be no place round the board for him.”); Daniel J. Gervais, *The Internationalization of Intellectual Property: New Challenges from the Very Old and the Very New*, 12 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 929, 941 (2002) (noting that the Paris and Berne Conventions were negotiated on trans-Atlantic basis with limited input from other areas of the world, including a few countries such as Japan and Australia); Okediji, *supra* note 1, at 315.

knowledge that came to be protected under global intellectual property standards.³¹ The global intellectual property system that began to emerge at the end of the nineteenth century was based on existing national intellectual property systems and bilateral arrangements between certain countries.³² These existing systems protected knowledge that was thought to exist within the “civilized” countries.³³ They also reflected more general societal beliefs in Europe and the United States about the devolution of certain forms of knowledge such as folklore.³⁴ This devolutionary ethos formed the flip side of dominant evolutionary ideas by assuming that folklore would disappear with the evolution of societies from “savagery” to “barbarism” to “civilization.”³⁵ At least partially as a result of the evolutionary assumptions about the development of cultural systems and the existing dynamics of global power relationships, emerging global intellectual property frameworks largely did not protect folklore or most other forms of local knowledge.³⁶ One type of local knowledge that did find protection in existing national intellectual property systems and eventually in global frameworks as well was geographical indications, which is notable because such frameworks protected types of knowledge that existed in Europe.³⁷

The provisions in TRIPs that protect geographical indications reflect the historical experience of national lawmaking in Europe, which began in France in 1824.³⁸ A number of World Intellectual Property Organization (WIPO) conventions also protect geographical indications: The Paris Convention provides protections against false

31. See Arewa, *Piracy*, *supra* note 2, at 18–21.

32. See Peter Drahos, *The Universality of Intellectual Property Rights: Origins and Development*, in INTELLECTUAL PROPERTY AND HUMAN RIGHTS 13, 16 (1998), available at <http://www.wipo.int/tk/en/hr/paneldiscussion/papers/pdf/drahos.pdf> (commenting that international cooperation on intellectual property was first evident in bilateral agreements).

33. See Arewa, *Piracy*, *supra* note 2, at 35–41.

34. See Alan Dundes, *The Devolutionary Premise in Folklore Theory*, in ANALYTIC ESSAYS IN FOLKLORE 17 (1975) (discussing a widespread premise in folklore theory that argues that as societies progressed, they were destined to lose their folklore).

35. See Arewa, *Piracy*, *supra* note 2, at 35–36.

36. *Id.*

37. *Id.*; see also Laurence Bérard & Philippe Marchonay, *Tradition, Regulation and Intellectual Property: Local Agricultural Products and Foodstuffs in France*, in VALUING LOCAL KNOWLEDGE: INDIGENOUS PEOPLE AND INTELLECTUAL PROPERTY RIGHTS 230–43 (Stephen B. Brush & Doreen Stabinsky eds., 1996) (discussing geographical indication protection for *produits de terroir* in France, which are a system of local knowledge); Harun Kazmi, *Does It Make a Difference Where That Chablis Comes From? Geographical Indications in TRIPs and NAFTA*, 12 J. CONTEMP. LEGAL ISSUES 470 (2001).

38. Kazmi, *supra* note 37, at 471.

indications of source, the Madrid Convention protects against false indications of source and appellations of origin, and the Lisbon Convention provides for an international registration system for appellations of origin.³⁹ The European Union was a strong proponent for the protection of geographical indications in TRIPs.⁴⁰ The addition of geographical indications provisions to TRIPs, thus, reflects the experience of national and international lawmaking in geographical indications and the vigorous advocacy of such protection by the European Union during the adoption of TRIPs.⁴¹

As a result of power dynamics and cultural assumptions, certain types of local knowledge such as folklore were not protected within existing intellectual property frameworks in the nineteenth and early twentieth centuries.⁴² It is telling that the issue of such lack of protection came to the international intellectual property negotiating table in the post-colonial era.⁴³ The 1967 Stockholm Revision Conference of the Berne Convention reflects the fact that newly independent former colonies had types of knowledge that had not previously been protected and that, for the first time, these colonies had a place at the negotiating table to raise these concerns.⁴⁴ After the lack of protection of folklore

39. See Lisbon Agreement for the Protection of Appellations of Origin and Their International Registration, Oct. 31, 1958, 923 U.N.T.S. 205 (as revised Jan. 1, 1994), available at http://www.wipo.int/lisbon/en/legal_texts/index.html; Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods, Apr. 14, 1891, 828 U.N.T.S. 389, [1 Basic Docs.] Int'l Econ. L. (CCH) 781 (1994), available at <http://www.wipo.int/treaties/en/ip/madrid/index.html>; Paris Convention for the Protection of Industrial Property, opened for signature Mar. 20, 1883, 21 U.S.T. 1630, 828 U.N.T.S. 305 (as revised at Stockholm on July 14, 1967), available at <http://www.wipo.int/treaties/en/ip/paris/index.html>; Leigh Ann Lindquist, *champagne or Champagne? An Examination of U.S. Failure to Comply with the Geographical Provisions of the TRIPS Agreement*, 27 GA. J. INT'L & COMP. L. 309, 314–15 (1999).

40. See TRIPs Agreement, *supra* note 1, arts. 22–24.

41. See generally Lindquist, *supra* note 39 (discussing the compliance of various countries with TRIPs obligations with respect to geographical indications).

42. See Arewa, *Piracy*, *supra* note 2, at 50–55.

43. *Id.*

44. See Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, 25 U.S.T. 1341, 828 U.N.T.S. 221 (as revised at Paris on July 24, 1971), available at <http://www.wipo.int/treaties/en/ip/berne/index.html> [hereinafter Berne Convention]; SAM RICKETSON, *THE BERNE CONVENTION FOR THE PROTECTION OF LITERARY AND ARTISTIC WORKS: 1886–1986*, at 314 (1987) (noting that the inadequacy of the Berne Convention was not recognized until the Indian delegation proposed the inclusion of folklore in the enumeration of literary and artistic works in Article 2(1)); Silke von Lewinski, *The Protection of Folklore*, 11 CARDOZO J. INT'L & COMP. L. 747, 751 (2003) (noting that by the time of the Stockholm Revision Conference, “most former colonies had become independent states and had started to represent their own interests as developing countries”).

was raised by the Indian delegation at the 1967 conference, the Berne Convention was amended in 1971 to include folklore in the enumeration of literary and artistic works.⁴⁵

Nineteenth century hierarchies, thus, played an important role in determining who participated in decisions about intellectual property and in shaping what was deemed protectable under emerging global standards. Such hierarchies also led to certain types of knowledge that were concentrated in the Third World as essentially being deemed public domain resources that were freely appropriable.⁴⁶ The TRIPs Agreement echoes this treatment of local knowledge.⁴⁷

C. TRIPs and the Third World

The power dynamics evident in nineteenth and early twentieth century colonial and other unequal relationships remain today.⁴⁸ Third World countries today are in many instances the countries that were ranked at the bottom of nineteenth century hierarchies of culture and power. As a result, TRIPs and other international negotiations occurred in the shadow of such unequal power relationships. Such power relationships do not, however, necessarily mean that Third World countries have no negotiating leverage.⁴⁹ In addition, the effective participation of Third World countries in the international intellectual property arena is often limited at times by lack of institutional capacity as well as a paucity of internal domestic constituencies that advocate particular intellectual property frameworks.⁵⁰

45. See Berne Convention, *supra* note 44, art. 15(4).

46. See Graham Dutfield, *TRIPs-Related Aspects of Traditional Knowledge*, 33 CASE W. RES. J. INT'L L. 233, 238 (2001) (noting that traditional knowledge is "often (and conveniently) assumed to be in the public domain").

47. See Anupam Chander & Madhavi Sunder, *The Romance of the Public Domain*, 92 CAL. L. REV. 1331, 1351 (2004) (noting that TRIPs has left traditional knowledge in the global commons while protecting intellectual products of the developed world).

48. See R.A. Mashelkar, *Intellectual Property Rights and the Third World*, 81 CURRENT SCI. 955, 956 (2001) (noting that the battle today is between unequal players, both economically and institutionally).

49. See generally Helfer, *supra* note 20 (discussing how a strategy of "regime shifting" by developing countries and non-governmental organizations (NGO) through which those dissatisfied with TRIPs provisions can seek ways to recalibrate, revise or supplement the treaty).

50. SUSAN K. SELL, *PRIVATE POWER, PUBLIC LAW: THE GLOBALIZATION OF INTELLECTUAL PROPERTY RIGHTS* (2003); Charles R. McManis, *Biodiversity, Biotechnology and the Legal Protection of Traditional Knowledge*, 17 WASH. U. J.L. & POL'Y 225 (2005) (noting lack of legal capacity as an issue in the traditional knowledge area).

1. Treatment of Local Knowledge under TRIPs

What is often termed “traditional knowledge” is in many respects a negative category that is typically applied to types of knowledge found to a greater extent in the Third World and among indigenous peoples.⁵¹ The term “local knowledge” will be used herein to refer to traditional knowledge and other types of knowledge typically subsumed within the categories of knowledge that fall within the rubric of WIPO’s Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC).⁵² This knowledge within the IGC’s rubric includes a broad range of knowledge that is most united in having the common characteristic of not being protected under existing intellectual property frameworks.⁵³ As a result of the negative nature of the definition of traditional knowledge, a wide range of cultural knowledge falls within its rubric, including “biological and other materials for medical treatment and agriculture, production processes, designs, and literature, music, rituals and other techniques and arts.”⁵⁴ Local knowledge also plays a vital role in much of the Third World for medicinal treatment and other purposes.⁵⁵ The breadth of the material falling within the category of local knowledge at times makes discussions about protection of local knowledge complex and the goals of those who seek protection for local knowledge potentially quite varied.⁵⁶

The adoption of the TRIPs Agreement and common minimum global standards for intellectual property frameworks for Members of the WTO has led to increasing debate and dialogue about the lack of

51. See Arewa, *Piracy*, *supra* note 2, at 28.

52. *Id.* (discussing use of the term local knowledge).

53. *Id.*

54. Hilary Nwokeabia, *Why Industrial Revolution Missed Africa: A “Traditional Knowledge” Perspective* 11–12 (U.N. Econ. Comm’n for Africa, Working Paper No. 01/02, 2002), available at http://www.uneca.org/eca_resources/conference_reports_and_other_documents/espd/2002/tkb.pdf (noting that traditional knowledge encompasses a wide variety of types of knowledge, including in relation to biological and other material for medical treatment, agriculture, production processes, literature, music, rituals and other techniques and arts).

55. IPR COMM’N REPORT, *supra* note 2, at 73 (noting vital role traditional knowledge plays in lives of vast majority of people in the world); Nwokeabia, *supra* note 54, at 4 (noting that traditional knowledge is a central component of daily life in Africa, playing a vital role in food security, the development of agriculture and the provision of medical treatment for up to eighty percent of the African rural economy).

56. See Michael H. Davis, *Some Realism About Indigenism*, 11 CARDOZO J. INT’L & COMP. L. 815, 816 (2003) (identifying five different goals of “indigenism”); Arewa, *Piracy*, *supra* note 2, at 17.

protection for local knowledge under TRIPs.⁵⁷ Current global dialogue about intellectual property treatment of local knowledge is taking place at WIPO. WIPO was established in 1967 as a specialized United Nations agency and now administers a number of intellectual property treaties, including the Berne and Paris Conventions.⁵⁸ In 2000, WIPO established the IGC.⁵⁹ The IGC is intended to deal with the range of cultural material falling under the rubric of local knowledge. The choice of WIPO as a forum for local knowledge discussions may reflect the general lack of consensus about how local knowledge should be treated under existing intellectual property frameworks. Placing this forum at WIPO may also represent a potential effort to divert discussion of local knowledge from the WTO.⁶⁰ This is particularly true because the WTO was chosen as a forum for TRIPs, at least in part because the WTO had greater enforcement power through international trade mechanisms than WIPO.⁶¹ WIPO was formerly the dominant arena for international

57. See Gerard Bodeker, *Traditional Medical Knowledge, Intellectual Property Rights and Benefit Sharing*, 11 CARDOZO J. INT'L & COMP. L. 785, 785 (2003) (noting increasing international debate and legal challenge over traditional knowledge and intellectual property rights); Shubha Ghosh, *Globalization, Patents, and Traditional Knowledge*, 17 COLUM. J. ASIAN L. 73, 80 (2003) (noting polarized and strident nature of current discussions about traditional knowledge); Charles R. McManis, *The Interface Between International Intellectual Property and Environmental Protection: Biodiversity and Biotechnology*, 76 WASH. U. L.Q. 255, 255–56 (1998) (noting conflict between technology-rich industrialized countries of North and biodiversity-rich developing countries located primarily in South); John Ntambirweki, *Biotechnology and International Law Within the North-South Context*, 14 TRANSNAT'L L. 103, 128 (2001) (commenting on the wars and skirmishes for equity and justice that continue in the international arena, and that “[t]he principal lesson of the last ten years—the seemingly stalemated war of the less developed states vying for a slice of the benefits from the advantages to be gained through the biotechnology revolution—is an old one”); Peter K. Yu, *Traditional Knowledge, Intellectual Property, and Indigenous Culture: An Introduction*, 11 CARDOZO J. INT'L & COMP. L. 239, 239 (2003) (noting that the misappropriation of folklore, traditional knowledge, and genetic resources is increasingly an issue in global politics); Lakshmi Sarma, Note, *Biopiracy: Twentieth Century Imperialism in the Form of International Agreements*, 13 TEMP. INT'L & COMP. L.J. 107 (1999) (noting North-South aspects of current global intellectual property debates); Arewa, *Piracy*, *supra* note 2, at 11–12 (noting that treatment of local knowledge under TRIPs has become part of a politicized and rhetoricized debate that takes place within the context of broader global North-South political dialogue).

58. L. Danielle Tully, Note, *Prospects for Progress: The TRIPS Agreement and Developing Countries After the DOHA Conference*, 26 B.C. INT'L & COMP. L. REV. 129, 132 (2003) (discussing the formation of WIPO).

59. See Helfer, *supra* note 20, at 69–71.

60. *Id.* at 79 (noting that Western states may be using the WIPO IGC as a safety valve for Third World countries to divert issues from the WTO and reduce pressure to address such issues at the WTO).

61. *Id.* at 18–24 (discussing the reasons why countries in the West sought to place intellectual property issues within the framework of the WTO rather than WIPO).

intellectual property matters.⁶²

2. TRIPs and Commercial Interests

The negotiation, implementation, and substantive content of TRIPs reflect the influence of its beneficiaries.⁶³ Primary among those are private and public interests in countries such as the United States, the member states of the European Union and Japan.⁶⁴ Commercial interests in such countries played a critical role in the shaping of provisions of the TRIPs Agreement and provided a significant impetus for its implementation.⁶⁵ Such commercial interests were also motivated by the increasing value of knowledge assets protectable by intellectual property in the post-industrial digital era.⁶⁶ The role of commercial interests in the adoption of TRIPs reflects an ongoing relationship between such interests and intellectual property rights frameworks.⁶⁷

62. *Id.*

63. DONALD G. RICHARDS, *INTELLECTUAL PROPERTY RIGHTS AND GLOBAL CAPITALISM: THE POLITICAL ECONOMY OF THE TRIPs AGREEMENT* 112 (M.E. Sharpe 2004) (noting that the countries that supported the TRIPs Agreement “have well-developed technology-intensive productive capacities”); Andrew T. Guzman, *International Antitrust and the WTO: The Lesson from Intellectual Property*, 43 VA. J. INT’L L. 933, 947 (2003) (noting that countries with greater research and development expenditures prefer a more expansive and rigorously enforced global intellectual property system); *see infra* note 64.

64. *See* SELL, *supra* note 50, at 2 (noting that the United States, Europe, Japan, and their respective intellectual property industries are the strongest proponents of TRIPs); Susan K. Sell, *Post-Trips Developments: The Tension Between Commercial and Social Agendas in the Context of Intellectual Property*, 14 FLA. J. INT’L L. 193, 194 (2002) (discussing American intellectual property industry lobbying groups that “played a major role in drafting and insuring the adoption of TRIPs”).

65. SELL, *supra* note 50, at 7–8.

66. *See generally* Olufunmilayo B. Arewa, *Measuring and Representing the Knowledge Economy: Accounting for Economic Reality under the Intangibles Paradigm*, 54 BUFFALO L. REV. (forthcoming 2006) (manuscript on file with author) (discussing the implications of the age of intangibles for existing legal frameworks); Gana, *supra* note 27, at 119 (noting that the digital economy has “increased the stakes in the global dimensions of intellectual property rights”); Okediji, *supra* note 13, at 135 (noting that the consolidation of comparative advantage to exploit factor endowments and to adjust to a new global division of labor were factors in the adoption of TRIPs); Tully, *supra* note 58, at 132.

67. *See* Olufunmilayo B. Arewa, *Copyright on Catfish Row: Musical Borrowing, Porgy and Bess and Unfair Use*, 37 RUTGERS L. J. (forthcoming 2006) (manuscript at 6, 10–15, on file with author) [hereinafter Arewa, *Catfish Row*] (discussing the role of commercial interests in the passage of the Copyright Term Extension Act); Olufunmilayo B. Arewa, *From J.C. Bach to Hip Hop: Musical Borrowing, Copyright and Cultural Context*, 84 N.C. L. REV. 547, 593–94, 604–09 (2006) (discussing the role of U.S. commercial interests in shaping copyright frameworks); Jessica Litman, *Innovation and the Information Environment: Revising Copyright Law for the Information Age*, 75 OR. L. REV. 19, 22–23 (1996) (“Until now, our copyright law has been addressed primarily to commercial and institutional actors who participated in copyright-related businesses.”); Arewa, *Piracy*, *supra* note 2, at 30–32, 40.

In addition, an important part of the post-TRIPs turmoil concerning local knowledge relates to the commercialization of knowledge that is currently not protected under global intellectual property frameworks.⁶⁸ This has led to the development and intensification of narratives of appropriation in discussions of local knowledge and intellectual property that outline in detail what are seen as inappropriate uses of local knowledge. These narratives of appropriation also highlight the extent and nature of uses of such knowledge by commercial actors, most of which are located in the North.⁶⁹

3. Intellectual Property and Scientific, Technological, and Institutional Capacity

Underlying narratives of appropriation is yet another asymmetry: relative scientific, technological, and institutional capacity between North and South.⁷⁰ Although not a homogenous group, an immense technological disparity exists between North and South.⁷¹ Consequently, many countries in the South do not have extensive internal technological and scientific capacity to enable them to transform local knowledge into knowledge that might be protected under current intellectual property frameworks.⁷² Without the establishment of structures within current global intellectual property frameworks intended to help the development of such capacity, TRIPs has the potential to exacerbate existing disparities in technological and scientific capacity. This is partly a result of the relative inflexibility of TRIPs for

68. Arewa, *Piracy*, *supra* note 2, at 15–17.

69. *Id.*

70. Tully, *supra* note 58, at 129 (discussing technological gap between developing and developed countries).

71. IPR COMM'N REPORT, *supra* note 2, at 2 (noting that the OECD countries spend far more on research and development than India's national income); Tully, *supra* note 58, at 129–30 (noting that with the exception of the relatively recent emergence of a few East Asian countries and newly industrialized countries, developed countries continue to retain economic power and developing countries and least developed countries continue to face economic marginalization).

72. Naomi Roht-Arriaza, *Of Seeds and Shamans: The Appropriation of the Scientific and Technical Knowledge of Indigenous and Local Communities*, 17 MICH. J. INT'L L. 919, 961 (1996) (commenting that "so long as communities in Southern countries continue to act as mere providers of raw materials for processing elsewhere, they forfeit the value-adding possibilities of in-country processing of such materials"); *see also* Alan S. Gutterman, *The North-South Debate Regarding the Protection of Intellectual Property Rights*, 28 WAKE FOREST L. REV. 89, 121 (1993) (noting that Third World countries are more interested in technology transfer than in encouraging domestic innovation because they lack scientific and financial infrastructure to create patent-induced innovations).

Third World countries.⁷³ In addition, the existence of technological and scientific disparities means that some countries in the South are less likely to experience the benefits that are supposed to accompany free trade in the intellectual property arena.⁷⁴

4. The Uncertain Short-Term Benefits of TRIPs for Third World Countries

TRIPs is based on an assumption that technological capacity fosters development.⁷⁵ Despite this assumption, the relative scientific and technological disparity between North and South means that countries in the South may, in the aggregate, suffer a net loss as a consequence of TRIPs.⁷⁶ As a result, in the short-run, developing countries are worse off under TRIPs.⁷⁷ The extent to which countries in the South continue to experience losses under TRIPs may depend in part on how global intellectual property frameworks treat resources found in greater abundance in the South.⁷⁸ The business practices of companies that use local knowledge and the circumstances and relative terms of such usage will also be important.⁷⁹

73. Tully, *supra* note 58, at 135 (discussing inflexibility of TRIPs).

74. IPR COMM'N REPORT, *supra* note 2, at 2 (noting that 60% of poor people in the world live in countries with some technological capacity, primarily in India and China, while 25% of poor people in the world live in African countries with weak technological capacity).

75. *Id.* at 134–35.

76. IPR COMM'N REPORT, *supra* note 2, at 5–6 (noting that TRIPs standards of intellectual property protection may result in greater costs than benefits in the Third World).

77. Guzman, *supra* note 63, at 950.

[D]eveloping countries prefer a weak international IP regime. These countries tend to be consumers of new technologies rather than producers of it, and, therefore, benefit from a regime that allows the copying of new technologies and their rapid and inexpensive distribution. In other words, developing countries are worse off under TRIPs, at least in the short run. Thus, until the Uruguay Round, they refused to consent to any similar agreement.

Id.

78. Kevin W. McCabe, *Diverging Views of Developed and Developing Countries Toward the Patentability of Biotechnology*, 6 J. INTELL. PROP. L. 41, 55 (1998). In the short run, stronger intellectual property protection under TRIPs will result in higher royalty payments from Third World countries to the West because “[d]eveloping countries are importers of technology and rely heavily on technologies created by developed countries. The relative cost of royalty payments can be further exacerbated in developing countries because of fluctuations in the foreign currency exchange rates.” *Id.*

79. Arewa, *Piracy*, *supra* note 2, at 75–83 (discussing the importance of the development of business frameworks in the local knowledge context).

II. TRIPS, LOCAL COMMUNITIES, AND LOCAL KNOWLEDGE

Local knowledge is in many respects a negative category, shaped as much by history and culture as by the composition of the actual knowledge contained in this category.⁸⁰ How global intellectual property frameworks treat local knowledge today is in part a function of how local communities interface with intellectual property systems. Local communities include both people in the South as well as indigenous groups in both the North and South.⁸¹ Local knowledge is an acknowledged and important resource in many such local communities.⁸² At least partly as a result of the globalization of intellectual property frameworks under TRIPs, local communities today have far less flexibility to craft intellectual property frameworks to help develop technological capacity. This contrasts with the development experience of other countries, such as the United States in the nineteenth century⁸³ as well as countries in East Asia in the twentieth century.⁸⁴

A. TRIPs, Local Communities, and Development

Global intellectual property frameworks should to a greater extent

80. *Id.*

81. *Id.* (discussing local communities as referring to both communities in Third World countries that utilize local knowledge and indigenous communities situated in states in both the Third World and the West).

82. IPR COMM'N REPORT, *supra* note 2, at 73 (noting the crucial role traditional knowledge plays in lives of vast majority of people in the world); Nwokeabia, *supra* note 54, at 4 (noting that traditional knowledge is a central component of daily life in Africa, playing a vital role in food security, the development of agriculture and the provision of medical treatment for up to eighty percent of the African rural economy).

83. IPR COMM'N REPORT, *supra* note 2, at 18.

For instance between 1790 and 1836, as a net importer of technology, the US restricted the issue of patents to its own citizens and residents. Even in 1836, patents fees for foreigners were fixed at ten times the rate for US citizens (and two thirds as much again if one was British!). Only in 1861 were foreigners treated on an (almost wholly) non-discriminatory basis. . . .

Until 1891, US copyright protection was restricted to US citizens but various restrictions on foreign copyrights remained in force (for example, printing had to be on US typesets) which delayed US entry to the Berne Copyright Convention until as late as 1989, over 100 years after the UK.

Id.; see also DORON S. BEN-ATAR, TRADE SECRETS: INTELLECTUAL PIRACY AND THE ORIGINS OF AMERICAN INDUSTRIAL POWER (2004).

84. IPR COMM'N REPORT, *supra* note 2, at 20 (noting that “the best examples in the recent history of development are the countries in East Asia which used weak forms of IP protection tailored to their particular circumstances at that stage of their development”); Tully, *supra* note 58, at 129–31.

allow for more flexibility for local communities.⁸⁵ In cases of local knowledge, this means that local communities should have some ability to participate in decisions regarding uses of local knowledge as well as the development of intellectual property frameworks that influence the treatment of such knowledge.⁸⁶ Such steps may help encourage the development of technological, scientific, and institutional capacity that could help local communities realize more broadly the benefits of free trade. The current imbalances in scientific and technological capacity and the distribution of short-term benefits of TRIPs have contributed to the opposition to TRIPs in the Third World.⁸⁷ Part of the opposition to TRIPs is evident in the development of narratives of appropriation in which the uses of resources of the South are characterized as misappropriation or even “biopiracy.”

B. TRIPs and Narratives of Appropriation of Local Knowledge

Narratives of appropriation are typically told with respect to three broad categories: Agriculture and medicinal and other plants, expressive culture, and other commercial uses. A significant number of such narratives are becoming increasingly part of the discourse with respect to global intellectual property frameworks. These narratives also reflect the tensions inherent in the broader application of a global intellectual property framework that developed in a particular historical and cultural context. The section that follows outlines some of the narratives of appropriation of local knowledge that are mentioned in discussions of intellectual property. These narratives relate to a wide variety of types of knowledge in varied regions of the world.

1. Agriculture and Medicinal and Other Plants

One of the most prominent narratives of appropriation involves the neem tree. Called the “curer of all ailments” in Sanskrit, the neem tree is used for medicinal, agricultural, pesticidal, contraceptive, cosmetic

85. Arewa, *Piracy*, *supra* note 2, at 71–74 (discussing the need for additional flexibility in global intellectual property frameworks).

86. See AMARTYA SEN, *DEVELOPMENT AS FREEDOM* 38–39 (1999) (viewing economic facilities, which “refer to the opportunities that individuals respectively enjoy to utilize economic resources for the purpose of consumption, or production, or exchange,” as core instrumental freedoms in the process of development that contribute to the “general capability of a person to live more freely”).

87. Helfer, *supra* note 20, at 24 (noting that the TRIPs implementation process “fostered a growing belief, shared by many developing countries, NGOs, and commentators, that TRIPs was a coerced agreement that should be resisted rather than embraced”).

and dental applications.⁸⁸ From 1992 to 1995, W.R. Grace & Co. received several U.S. and European patents for applications relating to the neem seed.⁸⁹ Although the U.S. Patent & Trademark Office (PTO) has permitted neem patents to stand, the European Patent Office has revoked its neem patent on the basis of biopiracy.⁹⁰ The neem tree case highlights the fact that varying national patent standards can lead to different outcomes when patents based on local knowledge are challenged. The neem tree is perhaps the most prominent of a number of cases involving local knowledge in India. In addition to the basmati rice, tumeric, and arogyapaacha cases discussed below, karela juice and *Phyllanthus amarus* are cases mentioned in discussions of local knowledge in India.⁹¹

The basmati rice case demonstrates that revocation of patents based on local knowledge does not always adequately secure rights with

88. 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, 344-45 n.24 (2003); Shayana Kadidal, *Subject-Matter Imperialism? Biodiversity, Foreign Prior Art and the Neem Patent Controversy*, 37 *IDEA* 371, 371-73 (1997); Emily Marden, *The Neem Tree Patent: International Conflict Over the Commodification of Life*, 22 *B.C. INT'L & COMP. L. REV.* 279, 283 (1999).

89. U.S. Patent No. 5,409,708 (filed Jan. 31, 1994) (issued Apr. 25, 1995) (relating to novel fungicide compositions prepared from neem seeds); U.S. Patent No. 5,356,628 (filed Dec. 2, 1993) (issued Oct. 18, 1994) (covering fungicidal applications of neem); U.S. Patent No. 5,405,612 (filed Dec. 2, 1993) (issued Apr. 11, 1995) (covering applications of neem as an insecticide); U.S. Patent No. 5,368,856 (filed Aug. 2, 1993) (issued Nov. 29, 1994) (disclosing a novel method of controlling fungi through the use of a neem oil fungicide derived from a neem seed extract); U.S. Patent No. 5,124,349 (filed Oct. 31, 1990) (issued June 23, 1992) (granting patent for the storage of stable pesticide compositions comprised of neem seed extracts); Eur. Patent No. 494067 (issued Aug. 13, 1997) (granting patent for novel pesticide preparations derived from neem oil and neem wax fractions); Eur. Patent No. 436257 (filed Dec. 20, 1990) (published Sept. 14, 1994) (granting patent for insecticide derived from a neem seed extract comprising neem oil).

90. Case No. T0146/01-3.3.2, *Method for Controlling Fungi on Plants by the Aid of a Hydrophobic Extracted Neem Oil* (B.A. Eur. Patent Office Mar. 8, 2005) (upholding on final appeal the 2001 revocation of European Patent Office neem patent); see also Linda Bullard, *Freeing the Free Tree*, Mar. 2005, <http://www.womenandlife.org/WLOE-en/information/globalization/neembriefmar05.html>.

91. See U.S. Patent No. 5,900,240 (filed Mar. 6, 1998) (issued May 4, 1998) (covering uses of two herbs from list as an edible dietary supplement intended to reduce glucose levels in the blood of mammals, including human beings with diabetes); Dutfield, *supra* note 46, at 257 (noting that *Phyllanthus amarus* is a medicinal plant used in India to treat jaundice, that tests showed effectiveness against hepatitis B and E, and that the Fox Chase Cancer Center was awarded a patent for a pharmaceutical preparation containing an extract of the plant); Miriam L. Quinn, *Protection for Indigenous Knowledge: An International Law Analysis*, 14 *ST. THOMAS L. REV.* 287, 290 (2001) (noting that karela juice is used in India for treatment of diabetes and that a herbal mixture containing karela and other ingredients was the basis for a patent obtained by a New Jersey company).

respect to the contested knowledge. In 1997, the U.S. firm RiceTec, Inc. received a patent relating to plants and seeds with a relationship to basmati rice.⁹² Basmati, long grown in India and Pakistan, is a major export crop with estimated annual export revenues of \$300 million.⁹³ India requested reexamination of the basmati patent in 2000.⁹⁴ In response, RiceTec withdrew its claims relating to basmati-type rice.⁹⁵ The debate over basmati then moved to use of the name basmati and whether basmati could be deemed a generic term, which would mean that rice grown outside of India and Pakistan could be marketed as basmati rice.⁹⁶ The United States has found basmati to be a generic term.⁹⁷

In yet another case involving local knowledge in India, a patent involving tumeric was successfully revoked based on prior art. Tumeric is used in India for cooking, dying, cosmetics, and medicinal purposes.⁹⁸ In 1995, a U.S. patent was granted to two Indian national researchers at the University of Mississippi Medical Center for use of tumeric in wound healing.⁹⁹ The Indian Center for Scientific and Industrial Research asked for reexamination of the tumeric patent based on prior art in ancient Sanskrit texts and in a 1953 article in the *Journal of the Indian Medical Association*.¹⁰⁰ The PTO then revoked the patent.¹⁰¹

The arogyapaacha plant of India is a case that shows the potential prospects of benefit-sharing agreements for uses of local knowledge. The arogyapaacha plant is used by the Kani in South India for medicinal purposes.¹⁰² An anti-stress and anti-fatigue sports drug named Jeevani

92. See IPR COMM'N REPORT, *supra* note 2, at 89; U.S. Patent No. 5,663,484 (filed Jul. 8, 1994) (issued Sept. 2, 1997) (granting basmati patent); Mashelkar, *supra* note 48, at 962.

93. See IPR COMM'N REPORT, *supra* note 2, at 89.

94. *Id.*

95. Reexamination Certificate, U.S. Patent No. 5,663,484 C1 (requested Apr. 28, 2000) (issued Jan. 29, 2002) (canceling certain claims and confirming others for basmati patent).

96. See IPR COMM'N REPORT, *supra* note 2, at 89.

97. *Id.*

98. *Id.* at 76.

99. U.S. Patent No. 5,401,504 (filed Dec. 28, 1993) (issued Mar. 28, 1995) (granting original tumeric patent).

100. IPR COMM'N REPORT, *supra* note 2, at 76; Mashelkar, *supra* note 48, at 960.

101. Reexamination Certificate, U.S. Patent No. 5,401,504 B1 (requested Oct. 28, 1996) (issued Apr. 21, 1998) (canceling all claims in original patent).

102. World Intellectual Property Organization, *Protection of Traditional Knowledge and Genetic Resources: A Bottom-up Approach to Development*, WIPO MAG., Nov.-Dec. 2003, at 18 [hereinafter WIPO, *Bottom-Up Approach*]; Rekha Ramani, Note, *Market Realities v. Indigenous Equities*, 26 BROOK. J. INT'L L. 1147, 1151-59 (2001).

has been developed based on the arogyapaacha plant.¹⁰³ The active compounds in arogyapaacha were isolated by scientists at the Tropical Botanic Garden and Research Institute in India.¹⁰⁴ Patents were filed based on Kani know-how and the technology licensed to Arya Vaidya Pharmacy, Ltd., an Indian pharmaceutical manufacturer.¹⁰⁵ A benefits-sharing arrangement was established to share any benefits with the Kani from commercialization of Kani traditional knowledge.¹⁰⁶

A number of cases of uses of African local knowledge are also mentioned in narratives of appropriation, including rosy periwinkle, Hoodia cactus, and rooibos tea. The case of rosy periwinkle illustrates the potential difficulty of sorting out proprietary claims to some types of local knowledge.¹⁰⁷ As the narrative is typically told, rosy periwinkle was originally native to the island of Madagascar.¹⁰⁸ The rosy periwinkle was used to develop two pharmaceutical drugs for treating Hodgkin's disease and juvenile leukemia.¹⁰⁹ The rosy periwinkle used to develop these drugs was eventually grown almost entirely in Texas and not in Madagascar.¹¹⁰ Eli Lilly and Co. has profited from the sale of the anticancer drugs vinblastine and vincristine extracted from the rosy periwinkle.¹¹¹ Although Eli Lilly earned millions of dollars per year from these drugs, no compensation has been given to Madagascar.¹¹² As anthropologist Michael Brown has pointed out, however, the story of the rosy periwinkle may not be quite as simple as is sometimes presented and illustrates the potential difficulties in ascribing ownership

103. WIPO, *Bottom-Up Approach*, *supra* note 102, at 18.

104. *Id.*

105. *Id.*

106. *Id.*

107. MICHAEL F. BROWN, WHO OWNS NATIVE CULTURE? 136–38 (2003) (suggesting that assertions about rosy periwinkle conceal a much more complex story by pointing out the potential difficulty of disentangling proprietary claims originating in folk traditions).

108. See Peter Jaszi & Martha Woodmansee, *Beyond Authorship: Refiguring Rights in Traditional Culture and Bioknowledge*, in SCIENTIFIC AUTHORSHIP: CREDIT AND INTELLECTUAL PROPERTY IN SCIENCE 195, 200–01 (Mario Biagioli & Peter Galison eds., 2001); Shayana Kadidal, *Plants, Poverty, and Pharmaceutical Patents*, 103 YALE L.J. 223, 223 (1993); James O. Odek, *Bio-Piracy: Creating Proprietary Rights in Plant Genetic Resources*, 2 J. INTELL. PROP. L. 141, 143, 147 (1994); Srividhya Ragavan, *Protection of Traditional Knowledge*, 2 MINN. INTELL. PROP. REV. 1, 8 (2001); Roger A. Sedjo, *Property Rights, Genetic Resources, and Biotechnological Change*, 35 J.L. & ECON. 199, 199 (1992).

109. Kadidal, *supra* note 108, at 223.

110. BROWN, *supra* note 107, at 136–38.

111. Kadidal, *supra* note 108, at 223–24.

112. Odek, *supra* note 108, at 147.

rights with respect to certain types of cultural knowledge.¹¹³

Hoodia cactus is an appetite-suppressant used by the San of Southern Africa.¹¹⁴ A patent for P57, the active ingredient in Hoodia, was granted to the South African Council for Scientific and Industrial Research (CSIR) based on San local knowledge about Hoodia.¹¹⁵ This patent was then licensed to a British pharmaceutical company.¹¹⁶ Pfizer then acquired the rights to develop and market drugs based on P57.¹¹⁷ After the San threatened to sue under the Convention on Biodiversity (CBD), the CSIR entered into a benefit-sharing arrangement with the San.¹¹⁸ The CBD reflects the use of non-intellectual property frameworks as a source of authority in discussions of local knowledge.¹¹⁹

Reflecting some of the issues that have arisen in the basmati rice case with respect to uses of names, the rooibos case involves naming rights with respect to tea derived from a bush that grows in South Africa.¹²⁰ The rooibos tea case involves a U.S. trademark acquired by an American company from a South African company for the mark ROOIBOS.¹²¹ Rooibos, which means “red bush,” is a plant indigenous to South Africa that is used to make a number of products, including tea.¹²² A recent settlement has been made with respect to this case and the trademark has been abandoned by the U.S. company that had

113. BROWN, *supra* note 107, at 136–38; Arewa, *Piracy*, *supra* note 2, at 6 n.5.

114. IPR COMM’N REPORT, *supra* note 2, at 75.

115. *Id.* at 77.

116. *Id.*

117. *Id.*

118. *Id.* (noting the threat of suit based on CBD and failure to obtain informed prior consent); Convention on Biological Diversity, *opened for signature* June 5, 1992, 31 I.L.M. 822 (1992), available at <http://www.biodiv.org/convention/articles.asp>; see Victoria E. Spier, Note, *Finders’ Keepers: The Dispute Between Developed and Developing Countries over Ownership of Property Rights in Genetic Material*, 7 WIDENER. L. SYMP. J. 203, 205–07 (2001).

119. Helfer, *supra* note 20, at 30 (noting that the CBD has a goal of conserving biological diversity and sustainable use of resources and ensuring fair and equitable compensation of benefits from utilization of such resources); see Ashish Kothari & R.V. Anuradha, *Biodiversity and Intellectual Property Rights: Can the Two Co-Exist?* 2 J. INT’L WILDLIFE L. & POL’Y 204 (1999).

120. Rakesh Amin, Mark Blumenthal & Wayne Silverman, *Rooibos Tea Trademark Dispute Settled*, 68 HERBALGRAM 60–62 (2005), available at <http://www.herbalgram.org/herbalgram/articleview.asp?a=2891> (noting that “[r]ooibos, otherwise known as red bush (*Aspalathus linearis* [Burm.f.] Dahlgren, Fabaceae), is a small plant or bush used to make rooibos tea”).

121. *Id.*; see also *Rooibos Ltd. v. Forever Young (Pty) Ltd.*, No. 25,676, 2003 T.T.A.B. LEXIS 65 (T.T.A.B. Feb. 13, 2003).

122. *Id.* at *3.

purchased it.¹²³ Other cases discussed in the African context include *Maytenus buchananii*, the endod berry, Monellin, and Thaumalin.¹²⁴

A number of narratives of appropriation are also discussed in the South American context. Quinine, a treatment for malaria, is derived from cinchona bark, which has long been used by indigenous groups in the Andes as a cure for fevers.¹²⁵ In 1630, Peruvian indigenous peoples gave Jesuit priests information about the use of chichona bark to treat fevers and malaria.¹²⁶ Since the initial disclosure of this knowledge, a number of pharmaceutical drugs have been developed, including quinine (isolated in 1820), its synthetic derivative, and quinidine for treating arrhythmia.¹²⁷

The Enola bean case involves the issuance of a patent for the yellow variety of a common field bean.¹²⁸ The patent holder bought a variety of seeds in Mexican markets and bred and patented the yellow beans from this broader range of seeds.¹²⁹ The patent holders have since attempted to block imports of mixed beans from Mexico that contain the yellow variety.¹³⁰

The ayahuasca vine is native to the Amazon rain forest and is used by shamans and healers for medicinal and spiritual purposes. In 1986, an

123. Republic of Tea, Inc. v. Burke-Watkins, No. 4:03CV1862 HEA (E.D. Mo. Jan. 27, 2005); see also U.S. Patent & Trademark Office, Latest Results for Registration No. 1,864,122, available at <http://www.uspto.gov> (follow "Status" hyperlink under "Trademark") (stating that trademark application was abandoned Sept. 21, 2005).

124. Quinn, *supra* note 91, at 291–92 (noting that the U.S. National Cancer Institute collected more than twenty-five tons of *Maytenus buchananii* plant, which is traditionally used by the Digo of Kenya as an anti-cancer agent, but did not acknowledge the origins of this material); Roht-Arriaza, *supra* note 72, at 923 (noting that the Endod berry, related to soapwort, is used in Ethiopia as a laundry soap, fish intoxicant, and medical treatment for schistosomiasis, and that the endod berry was the basis for a patent granted to the University of Toledo on account of the endod berry's "crustacean killing properties"); Spier, *supra* note 118, at 204 (noting that patents for products incorporating Monellin and Thaumalin have resulted in \$900 million a year in profits in the low calorie sweetener market).

125. See Walter H. Lewis & Veena Ramani, Ethics and Practice in Ethnobiology: Analysis of the International Cooperative Biodiversity Group Project in Peru (unpublished manuscript at 2, on file with the Wash. Univ. Sch. of Law Ctr. for Interdisciplinary Stud.), <http://law.wustl.edu/centeris/confpapers/PDFWrdDoc/lewisramani.pdf>.

126. *Id.*

127. *Id.*

128. BROWN, *supra* note 107, at 105–06.

129. *Id.*

130. See U.S. Patent No. 5,894,079 (filed Nov. 15, 1996) (issued Apr. 13, 1999) (granting Enola bean patent); BROWN, *supra* note 107, at 105–06; Gillian N. Rattray, Note, *The Enola Bean Patent Controversy: Biopiracy, Novelty and Fish-and-Chips*, 2002 DUKE L. & TECH. REV. 8, available at <http://www.law.duke.edu/journals/dltr/articles/PDF/2002DLTR0008.pdf>.

American scientist was granted a patent on a strain of the ayahuasca vine.¹³¹ In 1999, a council representing some four hundred indigenous groups was successful in having the ayahuasca patent cancelled by the PTO.¹³²

Pozol is used by the Maya in Mexico for nutritional purposes and prevention of intestinal ailments, including giardia and amoebas. In 1999, Quest International, a Dutch corporation, and the University of Minnesota were granted a patent for the active component in pozol, giving no acknowledgement or recognition to knowledge upon which the patent was based.¹³³

Two Colorado State University researchers acquired a patent for quinoa based upon knowledge of Bolivian farmers, who shared seeds from their quinoa crop with the researchers. The researchers abandoned the quinoa patent after confronting global opposition to their attempt to assert proprietary rights, including a plea at the U.N. General Assembly. The researchers failed to pay a fee to the PTO, thus allowing the patent to lapse.¹³⁴

The tamate, a small cylindrical tomato, was used by Amazonian Indians in Ecuador for its cancer-fighting properties. The active ingredient in the tamate, lycopene, was isolated by a multi-national pharmaceutical company that now sells lycopene as a cancer treatment.¹³⁵

2. Expressive Culture

Although many cases involving uses of local knowledge come from the medicinal plant and agriculture area, other cases involve expressive culture. These include the Ami "Song of Joy," the album "Deep Forest," and other cases.¹³⁶

131. See IPR COMM'N REPORT, *supra* note 2, at 76–77.

132. *Id.* at 77; U.S. Plant Patent No. 5751 (filed Nov. 7, 1984) (issued June 17, 1986) (granting patent for a plant (Da Vine) that was discovered growing in a domestic garden in the Amazon rain forest of South America); Leanne M. Fecteau, *The Ayahuasca Patent Revocation: Raising Questions about Current U.S. Patent Policy*, 21 B.C. THIRD WORLD L.J. 69, 70, 85–86 (2001); Mashelkar, *supra* note 48, at 961.

133. See Marcia E. DeGeer, Note, *Biopiracy: The Appropriation of Indigenous Peoples' Cultural Knowledge*, 9 NEW ENG. J. INT'L & COMP. L. 179, 200–01 (2003).

134. See U.S. Patent No. 5,304,718 (filed Feb. 3, 1992) (issued Apr. 19, 1994) (relating to cytoplasmic male sterile quinoa); Folkins, *supra* note 88, at 345 n.30.

135. See Elizabeth Longacre, Note, *Advancing Science While Protecting Developing Countries from Exploitation of Their Resources and Knowledge*, 13 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 963, 970 (2003).

136. See *infra* notes 137–149 and accompanying text.

The Ami “Song of Joy” involves use for a commercial recording of a sample made from the voices of indigenous people in Taiwan.¹³⁷ In 1996, “Return of Innocence,” a song by “ethno-techno” artist Enigma, was licensed for use in the 1996 Atlanta Olympics.¹³⁸ This song included a sampling from a recording made in 1988 of a live performance of members of the Ami, Taiwan’s largest indigenous group.¹³⁹ The French cultural organization that made the original recording licensed the sample to Enigma without any authorization or license from any Ami or representatives of the Ami.¹⁴⁰ Five million copies of “Return of Innocence” were sold worldwide.¹⁴¹ Following a lawsuit that settled out of court, the defendant record companies gave formal thanks and full credit to the Ami in future releases of “Return of Innocence” and established a foundation with the proceeds of the settlement.¹⁴²

As was the case with the Ami “Song of Joy,” “Deep Forest” involved the use of samples of indigenous people in commercial recordings.¹⁴³ “Deep Forest” was a techno-house dance rhythm album created in 1992 that fused digital samples from Ghana, the Solomon Islands, and African pygmies.¹⁴⁴ “Deep Forest” sold over two million copies by May 1995, received a Grammy nomination, and remained on Billboard Magazine’s “top album” chart for twenty-five weeks.¹⁴⁵ A number of companies, including Porsche, Sony TV and Coca-Cola have used music from “Deep Forest” in advertising campaigns.¹⁴⁶ The musicians sampled do not appear to have received any benefit from the

137. See *infra* notes 138–142 and accompanying text

138. See KEMBREW MCLEOD, OWNING CULTURE 48–49 (2001).

139. *Id.* at 48.

140. *Id.*

141. Rosemary J. Coombe, *Fear, Hope, and Longing for the Future of Authorship and a Revitalized Public Domain in Global Regimes of Intellectual Property*, 52 DEPAUL L. REV. 1171, 1187–88 (2003).

142. *Id.* at 187–88; Mark Perry, *Digital Propertization of the New Artifacts: The Application of Technologies for “Soft” Representations of the Physical and Metaphysical*, 11 CARDOZO J. INT’L & COMP. L. 671, 684 (2003); Angela R. Riley, *Recovering Collectivity: Group Rights to Intellectual Property in Indigenous Communities*, 18 CARDOZO ARTS & ENT. L.J. 175, 175–77 (2000); Timothy D. Taylor, *A Riddle Wrapped in a Mystery: Transnational Music Sampling and Enigma’s “Return to Innocence,”* in MUSIC AND TECHNOCULTURE 64–92 (René T.A. Lysloff & Leslie C. Gay, Jr., eds., 2003).

143. Sherylle Mills, *Indigenous Music and the Law: An Analysis of National and International Legislation*, 28 YEARBOOK TRADITIONAL MUSIC 57, 59–61 (1996).

144. *Id.*

145. *Id.*

146. *Id.*

proceeds of commercialization of their music.¹⁴⁷

A final case that should be noted relates to blues and rock-and-roll music. A number of commentators have noted a longstanding use of blues traditions in commercial popular music in the United States.¹⁴⁸ Particularly noteworthy are uses of blues music by rock-and-roll performers. In a case that eventually settled out of court, blues singer Willie Dixon sued the rock group Led Zeppelin, alleging that Led Zeppelin's song "Whole Lotta Love" constituted copyright infringement of Dixon's song "I Need Love."¹⁴⁹ Although the uses of blues music do not involve Third World countries or indigenous peoples, they do illustrate the ways in which hierarchies of power can influence the operation and beneficiaries of intellectual property protection.

3. Other Commercial Uses: Images of Indigenous Peoples

A number of other uses connected to discussions of misappropriation of local knowledge relate to the images of indigenous peoples. Also relevant is the use of unauthorized symbols of indigenous peoples for commercial benefit.

The use of Native American words and symbols by sports teams is an issue of continuing debate and dialogue.¹⁵⁰ Native American sports team logos such as those of the Washington Redskins, Cleveland Indians, Atlanta Braves, Chicago Blackhawks, and Kansas City Chiefs remain a point of continuing tension and debate in the United States. A recent case brought by several Native American petitioners against the Washington Redskins charged that "Redskin" was a disparaging mark that should be cancelled.¹⁵¹ Although the mark was found to be

147. BROWN, *supra* note 107, at 62.

148. K.J. Greene, *Copyright, Culture & Black Music: A Legacy of Unequal Protection*, 21 HASTINGS COMM. & ENT. L.J. 339 (1999); Perry A. Hall, *African-American Music: Dynamics of Appropriation and Innovation*, in BORROWED POWER: ESSAYS ON CULTURAL APPROPRIATION 31-51 (Bruce Ziff & Pratima V. Rao eds., 1997).

149. See SIVA VAIDHYANATHAN, COPYRIGHTS AND COPYWRONGS 117-48 (2001); Willie Dixon v. Atl. Recording Corp., 227 U.S.P.Q. 559 (S.D.N.Y. 1985).

150. See generally Bruce C. Kelber, "Scalping the Redskins:" *Can Trademark Law Start Athletic Teams Bearing Native American Nicknames and Images on the Road to Racial Reform?*, 17 HAMLINE L. REV. 533 (1994); Kimberly A. Pace, *The Washington Redskins Case and The Doctrine of Disparagement: How Politically Correct Must a Trademark Be?* 22 PEPP. L. REV. 7 (1994); Note, *A Public Accommodations Challenge to the Use of Indian Team Names and Mascots in Professional Sports*, 112 HARV. L. REV. 904 (1999).

151. See Harjo v. Pro-Football, Inc., Cancellation No. 21,069, 1999 T.T.A.B. LEXIS 181 (T.T.A.B. Apr. 2, 1999) (canceling the Washington Redskins' federal trademark registrations).

disparaging by the PTO's Trademark Trial and Appeal Board and although the Washington Redskins' federal trademarks were cancelled, the Federal Circuit Court of Appeals later reversed cancellation of the marks.¹⁵²

Similar cases have arisen in other countries, such as New Zealand. In one case, Air New Zealand removed the Maori-derived koru logo from its floor mats.¹⁵³ This removal was a result of complaints about situating the logo in a place where people would walk on it (although the koru symbology was retained in the airline logo).¹⁵⁴

Another New Zealand case involved Maori images. The Lego Corporation received letters from lawyers representing Maori indigenous non-governmental organizations concerning the use of Maori words and historical figures in "Bionicle" action toys that were combined with terms and figures from Easter Island and Polynesian cultures. After receiving these letters, the Lego Corporation agreed to "engage Maori advisors as consultants in the development of a code of conduct for governing the use of traditional knowledge in the manufacture of toys."¹⁵⁵

C. TRIPs and "Biopiracy"

Narratives of appropriation are often closely related to discourse that terms use of local knowledge as "biopiracy."¹⁵⁶ Such talk of "biopiracy" reflects the increased property-based rights talk that characterizes intellectual property discourse today.¹⁵⁷ It also clearly responds to the property-based rights talk that was integral to the process of negotiating and adopting TRIPs.¹⁵⁸ The discourse of TRIPs proponents focused on property-based rights talk emphasized the "piracy" of a wide range of actors, even when activities fell within the applicable legal boundaries.¹⁵⁹ Between accusations of "piracy" and

152. *Pro-Football, Inc. v. Harjo*, 284 F. Supp. 2d 96 (D.C. Cir. 2003) (reversing T.T.A.B. decision canceling Washington Redskins federal trademarks).

153. See Perry, *supra* note 142, at 701.

154. *Id.*

155. Coombe, *supra* note 141, at 1189–90.

156. VADANA SHIVA, *BIOPIRACY: THE PLUNDER OF NATURE AND KNOWLEDGE* (1997) (giving an overview of the biopiracy issue and advocating a much more aggressive control of uses of traditional knowledge internationally); Arewa, *Piracy*, *supra* note 2, at 5, 16.

157. Arewa, *Piracy*, *supra* note 2, at 55.

158. SELL, *supra* note 50, at 5, 51.

159. *Id.*

counter-accusations of “biopiracy” stands a range of uses for which such characterizations are inaccurate, including uses that borrow from existing materials and resources.¹⁶⁰

CONCLUSION

TRIPs raises a number of issues of significant concern with respect to local knowledge. How global intellectual property frameworks address local knowledge is of critical importance to many local communities. Such frameworks have the potential to be a source of wealth creation for local communities to the extent that they are designed in a flexible manner. Such flexible frameworks may enable the flow of resources to be reversed and enable local communities to benefit to a greater extent from the potential benefits of global trade frameworks.

160. See generally Arewa, *Catfish Row*, *supra* note 67; Arewa, *Piracy*, *supra* note 2.