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North and South: The WTO, Trips, and the Scourge of Biopiracy

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NORTH AND SOUTH: THE WTO, TRIPS, AND THE SCOURGE OF BIOPIRACY

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I. INTRODUCTION

In 1865, following the culmination of the American Civil War, President Abraham Lincoln addressed a torn nation with these words:

> With malice toward none, . . . with charity for all; with firmness in the right, as God gives us to see the right, let us strive on to finish the work we are in; to bind up the nation's wounds; to care for him who shall have borne the battle, and for his widow and his orphan--to do all which may achieve and cherish a just and lasting peace, among ourselves, and with all nations.[1]

On September 11, 2001, the United States was again reeling from the tragic loss of human life, an attack on American soil. The reaction of many was to retaliate against those who had harmed us, to look out for the United States, the rest of the world be damned. However, Lincoln's words are more important now than ever.[2] Despite the terrible animosity Americans in the North and South had for one another following a war full of betrayal and bloodshed, President Lincoln urged the nation to focus on healing, rather than continued resentment.[3]

Now the world is divided into North and South, the industrialized nations of the North struggling to control the growth and development of the poor countries of the South, jealously guarding

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1. BROTHER AGAINST BROTHER 408 (George Constable ed., 1990).
2. *Id.*
3. *Id.*

their own interests at the expense of the developing countries.[4] Due in part to the continued colonial attitude of the North, many people in developing countries harbor a deep resentment towards the North, and towards the United States in particular.[5] Lincoln charged the United States to focus on forgiveness within the country.[6] He also acknowledged the responsibility of Americans to look beyond our borders and to "achieve and cherish a just and lasting peace . . . with all nations."[7] Now more than ever, in the aftermath of September 11th and the ongoing struggles with the Middle East, we must embrace this duty to establish such a peace.

Unfortunately, the international intellectual property system, which has been shaped largely by the United States, does very little to establish a just and lasting peace with the developing countries of the world.[8] The World Trade Organization (WTO) dominates all international trade, and has been tailored by the industrialized countries of the North to embed Northern dominance over the South.[9] As several commentators note, the Agreement on Trade-Related aspects of Intellectual Property Rights (TRIPS), annexed to the WTO, especially disadvantages the agriculture-reliant countries of the South.[10] One of the most serious implications of this Northern dominance is the scourge of biopiracy.

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4. Countries formerly known as 'developed' or 'first world' countries are now commonly referred to as 'the North,' while countries formerly known as 'developing' or 'third world' countries are now commonly referred to as 'the South.' 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, 921 n.5 (1996).

5. *See, e.g.*, Vandana Shiva, *Intellectual Property Protection in the North/South Divide, in* INTELLECTUAL PROPERTY IN THE DIGITAL AGE: CHALLENGES FOR ASIA 113 (Christopher Heath & Anselm Kamperman Sanders eds., 2001). [hereinafter *North/South*] (Shiva is one of the foremost spokespersons for the South and for Southern rights).

6. BROTHER AGAINST BROTHER, *supra* note 1.

7. *Id.*

8. *See, e.g., North/South*, *supra* note 5.

9. *See generally* Walden Bello, *Building an Iron Cage: The Bretton Woods Institutions, the WTO, and the South, in* VIEWS FROM THE SOUTH: THE EFFECTS OF GLOBALIZATION AND THE WTO ON THIRD WORLD COUNTRIES 54 (Sarah Anderson ed., 2000) (Walden Bello co-directs Focus on the Global South, a research, analysis, and advocacy program that focuses on North-South issues in connection with the Chulalongkorn University Social Research Institute).

10. Agreement on Trade-Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods, April 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, LEGAL INSTRUMENTS – RESULTS OF THE

This comment will focus on the role of patent law, in particular, in this global conflict. Part II will briefly examine the purposes of patent law and the early development of Northern patent systems, focusing on plant varieties protection. Part III will consider the most important aspects of the Southern view of "intellectual property" and its related fields. Part IV will address some recent developments in international intellectual property, with special focus on the aftermath of *Diamond v. Chakrabarty*, and on *Ex parte Hibberd*, a closely related case.[11] The Southern view of the ramifications of these cases will be the focal point of this section.

In Part V, the clash between the property systems of the North and the South will be examined. First, this comment will address the World Trade Organization and the ways it affords unfair advantages to the industrialized countries of the North.[12] Next, this comment will examine the TRIPS Agreement and how it disadvantages the South.[13] Biopiracy, one of the most devastating consequences of the TRIPS Agreement, will then be addressed. Several concrete instances of biopiracy will be provided to better illustrate the problem from the Southern point of view.

Finally, possible solutions to this crisis will be discussed. Walden Bello's proposal for developing countries to overload the existing system, thereby rendering it non-functional, will be addressed briefly.[14] Another potential solution, defining the *sui generis* system for plant protection (required by the TRIPS Agreement) in a way that provides protection for farmers' and indigenous people's rights, will be discussed in more detail.[15]

URUGUAY ROUND, vol. 31, 33 I.L.M. 81 (1994), *reprinted in* Graeme B. Dinwoodie, et al., INTERNATIONAL INTELLECTUAL PROPERTY LAW AND POLICY 29 (Supp. 2001). [hereinafter TRIPS Agreement]. This agreement is a creation of the General Agreement on Tariffs and Trade (GATT), a central force in international trade, and one largely influenced by the United States and other Northern powers. *See* discussion *infra* Part V.B.1-2.

11. Diamond v. Chakrabarty, 447 U.S. 303, 305 (1980); *Ex parte* Hibberd, 227 U.S.P.Q. (BNA) 443 (1985), J.E.M. Agric. Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc., 534 U.S. 124 (2001).

12. *See, e.g.*, Bello, *supra* note 9.

13. *See* discussion *infra* Parts V.B.1-2.

14. Bello, *supra* note 9, at 90.

15. TRIPS Agreement, *supra* note 10, art. 27 para. 2(b). This article provides in relevant part, "Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof."

II. THE NORTH – PATENTS AND THE INTELLECTUAL PROPERTY REGIME

A. What is a Patent?

A patent can be defined as "a right granted to the inventor of a technological product that is new (or novel), useful (or is capable of industrial application), and involves an inventive step (or is non-obvious)."[16] The patent grants the inventor the exclusive rights to make, use, or sell the invention for a specified period in exchange for making the invention or technology known to the public.[17]

Patent law has generally required the satisfaction of four criteria for obtaining exclusive rights.[18] The first criterion is that the invention be new or novel.[19] This means that the invention has not been described or disclosed before the filing of a patent application.[20] A patent examiner determines whether the patent is sufficiently new or novel by looking to see whether a prior invention (process or device) anticipates the invention in question.[21]

The second criterion requires that the invention be useful, or capable of industrial application.[22] In early patent law, this requirement rarely caused controversy, as most patents filed dealt with developments in industry and manufacturing.[23] However, this aspect has gained importance in recent years due to the proliferation of biotechnical and chemical innovations whose commercial value is uncertain.[24]

The third criterion is the inventive step or non-obviousness of the invention.[25] To obtain a patent, the inventor must have improved something already in existence in a non-obvious way.[26] Abbott uses the example of an inventor being granted a patent for a pen clip that allows someone to clip the pen onto a shirt.[27] If the original design had a pointed clip, causing it to poke holes in shirts, and another

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16. FREDERICK ABBOTT ET AL., THE INTERNATIONAL INTELLECTUAL PROPERTY SYSTEM 25, 25 (1999).
17. *Id.*
18. *Id.* at 26.
19. *Id.*
20. *Id.*
21. *Id.*
22. ABBOTT ET AL., *supra* note 16, at 26.
23. *Id.*
24. *Id.*
25. *Id.*
26. *Id.*
27. *Id.* at 26-27.

inventor submitted a patent for the same device, only with a rounded clip, the "invention" would probably be too obvious a step for a patent to be granted.[28]

The fourth criterion is that the inventor must disclose in the patent application the means for practicing the invention.[29] The theory behind this requirement is that patent law's purpose is to encourage and facilitate technological advances.[30] Disclosure enables everyone to benefit from the inventor's new idea, while the patent continues to protect the inventor's interest for a time.[31]

B. The Scope of Patentable Products

Individuals or corporations can obtain patents for a wide variety of inventions.[32] However, the law has drawn a distinction between "inventions" and "discoveries," creating a significant limitation on what constitutes patentable material.[33] Even if a scientist makes a discovery with great profit-making potential, he or she may not obtain a patent for it.[34] For example, if a scientist discovers that a certain naturally occurring bacteria turns red when it comes in contact with methane gas, the scientist may not patent the discovery of the bacteria, even though it may be useful in preventing methane poisoning.[35] This limitation long served as a significant restriction on what types of things could be patented. However, recent advances in the field of biotechnology have led U.S. courts to extend patentability to life forms, as will be discussed later.[36]

C. The Early History of Patent Law

A brief look at the history of patent law may shed light on contemporary issues. Western Civilization has a long history of encouraging new technology through the granting of patents to inventors and purveyors of new technology.[37] The Venetians granted

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28. ABBOTT ET AL., *supra* note 16, at 27.

29. *Id.*

30. *Id.*

31. *Id.*

32. *Id.* at 25.

33. *Id.*

34. ABBOTT ET AL., *supra* note 16, at 25.

35. This is in marked contrast to a scenario where a scientist genetically alters existing bacteria, thereby creating a strain of bacteria that does not otherwise occur in nature. Such situations will be discussed later. *See id.*

36. *Id.* at 25.

37. PAUL GOLDSTEIN, INTERNATIONAL INTELLECTUAL PROPERTY LAW 297, 297 (2001).

the first known patents for the protection of useful inventions in the mid-fifteenth century.[38] The system, codified in 1474, encouraged the development of new technology by granting the person who had first introduced the technology into Venice the exclusive right to practice the art for a ten to fifty year period.[39] Throughout the sixteenth and seventeenth centuries, other European states followed suit, developing their own patent systems.[40]

The English Statute of Monopolies of 1624, while generally ratifying the Venetian system, also set limits on which items could be patented.[41] The Crown had been abusing the system by granting patents to favorite nobles for everyday items such as vinegar.[42] The Statute of Monopolies provided that patents could only be granted to the true inventor of a new process or product, if the product would not hurt trade.[43] This system set the stage for the independent patent systems that have since prevailed.[44]

Despite the early success of patent systems, the nineteenth century brought anti-patent reactions throughout Europe, spurred by fear of their potential limiting effects on free trade.[45] However, this reactionary period did not last long, and patent systems survived in almost all of Western Europe and the United States.[46] Although substantially similar, each patent system differed in some respect, and a need arose for the international harmonization of patent law.[47]

D. The Paris Convention

A group of European nations realized this needed harmonization when they concluded the Paris Convention for the Protection of Industrial Property in 1883.[48] The treaty established an international legal entity with administrative power to enforce the treaty's

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38. *Id.*
39. *Id.*
40. *Id.*
41. *Id.*
42. *Id.*
43. GOLDSTEIN, *supra* note 37.
44. *Id.*
45. *Id.* at 298.
46. *Id.*
47. *Id.* at 298-99.
48. Paris Convention for the Protection of Industrial Property, March 20, 1883, *reprinted in* INTERNATIONAL TREATIES ON INTELLECTUAL PROPERTY 17 (Michael A. Leaffer ed., 1990). [hereinafter Paris Convention].

provisions.[49] Three basic principles lie at the heart of the Paris Convention: national treatment, right of priority, and uniform rules. "National treatment" requires that each member state affords to nationals of other member states the same protection it provides for its own nationals.[50] For example, if a French national holds a monopoly over his or her invention for fifteen years, a German national must also be granted a fifteen-year patent for a similar invention.[51] "Right of priority" allows any signatory of the Convention who has filed a patent application in his own state a one-year grace period to file in other member states.[52] If the patent is filed within the grace period, the original filing date becomes the official filing date in all the other member countries.[53] The "uniform rules" requirement establishes a minimum level of protection for industrial property rights while otherwise allowing the individual states to devise their own national systems.[54] While the Paris Convention may seem limited because it dealt only with industrial property, it defined "industrial property" broadly, and its three underlying principles have proved essential to the development of all intellectual property law in the North.[55]

F. Plants and Intellectual Property in the North

1. Plant Protection in the North Before the 1930s

Until the 1930s, patent protection in the North did not extend to plants.[56] As mentioned above, in the North, biological life forms were considered discoveries, not inventions.[57] Therefore, plant varieties

49. *Id.*

50. *Id.* at 18.

51. This example, of course, assumes that both France and Germany are members to the Paris Convention. *See id.*

52. *Id.*

53. *Id.*

54. Paris Convention, *supra* note 48, at 18.

55. The Paris Convention defines "industrial property" as follows: "Industrial property shall be understood in the broadest sense and shall apply not only to industry and commerce proper, but likewise to agricultural and extractive industries and to all manufactured or natural products, for example, wines, grain, tobacco leaf, fruit, cattle, minerals, mineral waters, beer, flowers, and flour." *Id.* at art. 1, para. 3.

56. ABBOTT ET AL., *supra* note 16, at 65.

57. *Id.*

were excluded from the patent system.[58] Two additional factors supported the exclusion. In the technological realm, reproducing plants so that they maintain certain characteristics over time posed difficulties.[59] Administratively, difficulty in describing the specific characteristics that made a particular plant unique created obstacles. Furthermore, others had expressed concern that plants lack the "industrial applicability" or "utility" normally required under patent law.[60]

2. A Northern Change in Attitude Towards the Patentability of Plants

a. Patenting Plants

In 1930, due to a heightened recognition of the importance of increasing plant diversity, the United States developed a statutory system of patent protection for plant varieties.[61] The Plant Patent Act addressed both of the major areas of concern with regard to plant patent protection.[62] Congress assured the maintenance of "true to type" characteristics in plants over several generations by limiting protection to "asexually" reproduced plants.[63] Congress then addressed the administrative issue by relaxing general patent law's description requirement by allowing for a merely reasonable description.[64]

Other (Northern) nations followed the United States' lead and developed their own systems of plant patent protection.[65] In 1970, the United States went a step further with the Plant Variety Protection Act, which "granted patent-like protection to new varieties of 'sexually' reproduced plants."[66] This new allowance greatly expanded the ability of agricultural researchers and scientists to obtain patents on the fruits of their labor.[67] It meant that even seeds could be

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58. *Intellectual Property Rights: Ultimate Control of Agricultural R & D in Asia*, March 2001, *at* http://www.grain.org/publications/asiaipr-en.cfm (last visited Oct. 16, 2003). [hereinafter *R & D in Asia*].

59. ABBOTT ET AL., *supra* note 16, at 65.

60. GOLDSTEIN, *supra* note 37, at 311.

61. ABBOTT ET AL., *supra* note 16, at 65.

62. *Id.*

63. *Id.*

64. *Id.*

65. *Id.*

66. *Id.* at 65-66.

67. ABBOTT ET AL., *supra* note 16, at 65-66.

patented in some instances, which would later have a heavy impact on farmers throughout the world.[68]

b. Diamond v. Chakrabarty – A Turning Point for U.S. Patent Law

Diamond v. Chakrabarty involved a U.S. microbiologist, Chakrabarty, who developed a new strain of bacteria through genetic engineering.[69] The bacteria had high potential for commercial profitability, because it could break down multiple components of crude oil, and thereby help to clean oil spills.[70] The issue in the case was whether Chakrabarty could obtain a patent on the bacteria itself.[71] The patent examiner denied the claim for the bacteria itself because the bacterium was a microorganism and therefore a "product of nature," and because living things were not patentable under 35 U.S.C. § 101.[72] The Patent Office Board of Appeals affirmed the rejection on the second grounds, that living things are not patentable under 35 U.S.C. § 101.[73]

Given the reason for the rejection, the Court construed the issue to be whether the microorganism constituted "a 'manufacture' or 'composition of matter' within the meaning of the statute."[74] Looking both to case law and to legislative history, the Court determined that Congress intended that the patent laws be given wide scope.[75] Although it reaffirmed that natural phenomena generally could not receive patent protection, the Court nevertheless held that Chakrabarty's "microorganism plainly qualifies as patentable subject matter."[76] It based this holding on the following reasoning: Chakrabarty had "produced a new bacterium with markedly different characteristics from any found in nature and one having the potential for significant utility. His discovery is not nature's handiwork, but his own; accordingly it is patentable subject matter under § 101."[77]

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68. *Id.* at 66.

69. Diamond v. Chakrabarty, 447 U.S. 303, 305 (1980).

70. *Id.*

71. *Id.* at 305-06.

72. *Id.*

73. *Id.*

74. *Id.* at 307.

75. *Chakrabarty,* 447 U.S. 303, 308. Specifically, the Court relied on Am. Fruit Growers, Inc. v. Brogdex Co., 283 U.S. 1, 11, (1931), and Shell Dev. Co. v. Watson, 149 F. Supp. 279, 280 (Dist. Ct. D.C. 1957).

76. *Chakrabarty,* 447 U.S. 303, 309.

77. *Id.* at 310.

This monumental decision, marking "the first patent on life granted by the US patent office," would have a profound affect on both international Intellectual Property (IP) law and on international trade.[78]

III. THE SOUTH – TRADITIONAL KNOWLEDGE, COMMON RESOURCES, AND FREE EXCHANGE

A. Traditional Knowledge

In "the South, patents were never allowed on life forms because of ethics, colonial legacies, and the threat that statutory monopolies in the health and food sectors pose to peoples' basic needs."[79] Rather, as Graham Dutfield emphasizes, countries in the South operate on informal systems of "traditional knowledge" (TK).[80] Although TK has proved difficult to define, anthropologist Martha Johnson sheds light on the meaning of the term,[81] defining "traditional ecological knowledge" (considered a subdivision of TK) as "a body of knowledge built by a group of people through generations living in close contact with nature. It includes a system of classification, a set of empirical observations about the local environment, and a system of self-management that governs resource use."[82]

Many indigenous communities in the South display a remarkable knowledge of the qualities, uses, and growing conditions of local

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78. *North / South, supra* note 5, at 119.

79. *R & D in Asia, supra* note 58.

80. *See generally* Graham Dutfield, *TRIPS-Related Aspects of Traditional Knowledge*, 33 CASE W. RES. J. INT'L L. 233 (2001) (discussing the importance of traditional knowledge and its relationship to international IP systems).

81. The reader may also find Naomi Roht-Arriaza's definition of the word "heritage" useful:

> "Heritage" is everything that belongs to the distinct identity of a people and is theirs to share, if they wish, with other peoples. It includes all of those things which international law regards as the creative production of human thought and craftsmanship, such as song, stories, scientific knowledge and artworks. It also includes inheritances from the past and from nature, such as human remains, the natural features of the landscape, and naturally-occurring species of plants and animals with which a people has long been connected.

Roht-Arriaza, *supra* note 4, at 930-31.

82. Martha Johnson, *Research on Traditional Environmental Knowledge: Its Development and Its Role, in* LORE: CAPTURING TRADITIONAL ENVIRONMENTAL KNOWLEDGE 3, 4 (Martha Johnson ed., 1992), *quoted in* Dutfield, *supra* note 80, at 240-41.

plants.[83] As Naomi Roht-Arriaza illustrates through several illuminating examples, many useful plants have been identified and developed by indigenous peoples.[84] Ethiopian farmers have developed a variety of barley that is resistant to yellow-dwarf virus.[85] They have also used the endod berry as a fish intoxicant, laundry soap, and as a medicine to treat a disease transmitted by aquatic snails.[86] Latin American indigenous communities developed naturally colored cotton through centuries of plant breeding.[87] Living close to the land and relying on agriculture has given indigenous communities an intimate understanding of their natural surroundings, especially the local flora.[88]

While knowledge of plants constitutes an important part of TK and helps to clarify its definition, it is important to note that "traditional knowledges are incredibly diverse not just between different peoples, groups and communities, but within them too."[89] This diversity can be attributed in part to the fact that traditional or indigenous peoples make up most of the world's cultural diversity.[90] Further adding to the diversity inherent in TK is the fact that TK arises and develops as indigenous people struggle to address problems arising in their everyday lives.[91] Thus, the woman searching for a way to launder her family's clothes will likely develop different knowledge than the village healer who wants to cure a boy of malaria.[92] This diversity does not differ much from the diversity inherent in the scientific traditions of the North.[93] If biology and particle physics can both be classified as science, then knowledge of berries with cleansing properties and knowledge of the healing properties of quinine can both be classified as TK.[94] In fact, in many ways, TK mirrors the scientific tradition of the North.[95]

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83. *See generally* Roht-Arriaza, *supra* note 4.
84. *Id.* at 923-24.
85. *Id.* at 924.
86. *Id.* at 923.
87. *Id.* at 924.
88. *Id.*
89. Dutfield, *supra* note 80, at 240.
90. *Id.*
91. *Id.*
92. *Id.*
93. *Id.* at 241.
94. *Id.*
95. Dutfield, *supra* note 80, at 240.

The similarities between TK and the Northern scientific tradition may add confusion to the definition of TK.[96] To clarify further the definition of this somewhat slippery term, Martha Johnson further identifies seven factors that distinguish TK from Northern scientific knowledge:

> Thus, TK
>
> - is recorded and transmitted through oral tradition;
>
> - is learned through observation and hands-on experience;
>
> - is based on the understanding that the elements of matter have a life force (All parts of the natural world are therefore infused with spirit);
>
> - does not view human life as superior to other animate and inanimate elements: all life-forms have kinship and are interdependent;
>
> - is holistic (whereas western science is reductionist);
>
> - is intuitive in its mode of thinking (whereas western science is analytical);
>
> - is mainly qualitative (whereas western science is mainly quantitative);
>
> - is based on data generated by resource users. (As such it is more inclusive than western science, which is collected by a specialized group of researchers who tend to be more selective and deliberate in the accumulation of facts);
>
> - is based on diachronic data (whereas western science is largely based on synchronic data);
>
> - is rooted in a social context that sees the world in terms of social and spiritual relations between all life-forms. (In contrast, western science is hierarchically organized and vertically compartmentalized); and
>
> - derives its explanations of environmental phenomena from cumulative, collective and often spiritual experiences. Such explanations are checked, validated, and revised daily and seasonally through the annual cycle of activities.[97]

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96. *See generally id.*

97. Martha Johnson, *Research on Traditional Environmental Knowledge: Its Development and Its Role, in* LORE: CAPTURING TRADITIONAL ENVIRONMENTAL KNOWLEDGE 3, 4 (Martha Johnson ed., 1992) *quoted in* Dutfield, *supra* note 80, at 240.

As this list illustrates, TK differs from the Northern scientific tradition in many ways.[98] Its outlook on the relationship between humans and the environment, and its methodology of gathering and sharing information, in particular, contrast to the Northern scientific approach.[99] Traditional farmers often share knowledge in ways Northern science does not recognize, such as the oral traditions of stories and songs.[100] However, TK is not completely exclusive in regard to Northern scientific tradition.[101] Both traditions borrow from one another, and in some ways both compile techniques and discoveries from the smaller groups that compose these larger traditions.[102]

Finally, we must understand the context in which sociologists and scientists use the word "traditional" regarding TK.[103] While the "use of 'traditional' suggests a certain lack of novelty," this connotation does not suit the use of the word in this context.[104] Rather, the word describes the way communities use the knowledge.[105] So while the knowledge itself may be new, the methods of gathering and sharing that knowledge are steeped in tradition.[106]

B. Common Resources

One of the most important features of TK is that it is "collectively-held and generated."[107] The collective nature of the creative process in the South stands in stark contrast to the individual view of creativity in the North.[108] Many countries in the South operate in common property systems, as opposed to the private property systems of the North.[109] Thus, the valuable resources of many Southern countries are known as common resources.[110]

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98. *Id.* at 241.
99. *Id.*
100. Roht-Arriaza, *supra* note 4, at 932.
101. Dutfield, *supra* note 80, at 241.
102. *Id.*
103. *Id.* at 242.
104. *Id.*
105. *Id.*
106. *Id.*
107. Dutfield, *supra* note 80, at 254.
108. *Id.*
109. VANDANA SHIVA, BIOPIRACY: THE PLUNDER OF NATURE AND KNOWLEDGE 67 (1997). [hereinafter BIOPIRACY].
110. *Id.*

Biodiversity, in particular, has been recognized recently as a fundamentally important resource in countries in both the North and the South.[111] While almost all people recognize its value, most of the biological diversity on earth remains in the South.[112] Many important medicines come from southern jungles and aquatic areas.[113] Quinine, used to treat malaria, is derived from the bark of the Peruvian cinchona tree.[114] The rosy periwinkle plant of Madagascar possesses certain cancer-fighting properties.[115] Biodiversity also presents natural pesticides, new plant varieties, foods, and an array of other potential benefits to mankind.[116]

Despite its potential to generate great wealth, the South has long considered biodiversity to be a common resource.[117] Vandana Shiva presents a concise (albeit somewhat idealistic) view of the Southern attitude towards biodiversity:

> Biodiversity has always been a local common resource. A resource is common property when social systems exist to use it on the principles of justice and sustainability. This involves a combination of rights and responsibilities among users, a combination of utilization and conservation, a sense of coproduction with nature and of gift giving among members of the community.[118]

When communities view biodiversity in this way, they recognize that the products of nature have developed over millions of years, and realize that they are merely custodians of nature's gifts.[119] The developments they make are viewed as "cocreation" and "codevelopment," rather than invention.[120] This belief, coupled with the belief that all life is infused with spirit and on the same level as human life, makes claiming biodiversity as part of private property an untenable proposition.[121]

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111. *North/South, supra* note 5, at 113.

112. BIOPIRACY, *supra* note 109, at 65.

113. *See generally id.*

114. Roht-Arriaza, *supra* note 4, at 921.

115. *Id.* at 922.

116. *See id.* at 921-30.

117. BIOPIRACY *supra* note 109, at 65.

118. *Id.* at 67. Shiva argues that the decentralized, communal systems of the South have helped to preserve biodiversity, while centralized, private-property systems in the North merely facilitate the consumption of biodiversity. *Id.*

119. *Id.*

120. *Id.*

121. *See* discussion *infra* Part III.A.

C. Free Exchange

In most developing countries, the farmers who develop new plant varieties freely share their knowledge with the community.[122] The spread of knowledge depends not only on the sharing of knowledge within communities, but also across generations.[123] The fact that many traditional societies within a region use the same plants for the same uses is evidence of this sharing of information across different communities and cultures in the same region.[124] Furthermore, in many traditional communities, women do much of the farming and plant cultivation in kitchen gardens for their families' consumption, and share their knowledge amongst themselves.[125] Apart from this informal sharing amongst members of the community, governments in the South have long supported agricultural development as a public-good/public-sector investment.[126]

As Naomi Roht-Arriaza relates, this principle of freedom of exchange has led the South to view Northern patent regimes as a form of neo-colonialism:[127]

> As far as they are concerned, the misappropriation of their knowledge and the patenting of inventions based upon this knowledge are just as colonialist as the seizure of their territories and their displacement from their homelands. To them, territories, ecosystems, folk varieties, medicinal plants, and their knowledge have always been and continue to be treated as if they are free for the taking until they are "discovered" by explorers, scientists, governments, corporations, and conservation organizations and subsequently privatized.[128]

Southern countries often do not trust Northern intellectual property systems, seeing them as a tool to continue their colonial

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122. Roht-Arriaza, *supra* note 4, at 932.

123. *Of Patents & Pi@ates: Patents on Life: the Final Assault on the Commons,* July 2000, *at* http://www.grain.org/publications/pirates-en.cfm (last visited Oct. 16, 2003).

124. Lakshmi Sarma, Notes & Comment, *Biopiracy: Twentieth Century Imperialism in the Form of International Agreements*, 13 TEMP. INT'L & COMP. L.J. 107, 111 (1999).

125. Roht-Arriaza, *supra* note 4, at 932.

126. Joel I. Cohen, *Managing Intellectual Property—Challenges and Responses for Agricultural Research Institutes, at* http://www.cgiar.org/biotechc/cohenji.htm (last visited Oct. 16, 2003).

127. Dutfield, *supra* note 80, at 258.

128. *Id.*

legacy of dominating developing countries.[129] Furthermore, countries in the South recognize the importance of free access to knowledge concerning health and food, and fear that IP regimes will interfere with such access.[130] The fact that government entities have traditionally carried out much agricultural research, and have made the results of that research freely available to the public has caused concern about the private patenting of plants throughout the globe.[131]

IV. RECENT DEVELOPMENTS IN U.S. LAW

A. The Aftermath of *Diamond v. Chakrabarty*[132]

1. The Slippery Slope

Vandana Shiva, an outspoken advocate for the South, marks the beginning of the age of biopiracy with the U.S. Supreme Court's decision in *Diamond v. Chakrabarty*.[133] The decision marked the Court's willingness to allow patents on life, and set a precedent that would have a profound effect on the world.[134] Shiva notes the irony of the fact that the Court granted Chakrabarty's patent request even though the inventor himself admitted that he merely shuffled some genes, thereby changing bacteria already in existence, rather than actually creating new life.[135] "On such slippery grounds, the first patent on life was granted, and, in spite of the exclusion of plants and animals from patenting under U.S. law, the United States has since rushed to grant patents on all kinds of life-forms."[136]

In short, *Diamond v. Chakrabarty* opened the door to the patenting of all genetically engineered life, from "Dolly the sheep" to genetically modified corn.[137] Shiva sees the Court's decision in *Chakrabarty* as the beginning of the "slide down the slippery slope" of

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129. *See generally* BIOPIRACY, *supra* note 109. (Arguing that Northern Countries use intellectual property regimes to continue colonial dominance over countries of the South).

130. *See id.* at 67.

131. ABBOTT ET AL., *supra* note 16, at 66.

132. *See* discussion *infra* Part II.F.2.b.

133. *North/South*, *supra* note 5, at 119.

134. *Id.*

135. *Id.*

136. *Id.*

137. *Id.* Shiva is particularly disturbed that the decision to allow patents on life was made first in a patent office, and finalized in a courtroom, rather than in some representative or legislative forum.

patenting all forms of life, thereby appropriating what should be part of the common heritage of mankind.[138] Indeed, the patenting of life soon led to the appropriation of Southern biological discoveries and developments by Northern corporations, a phenomenon known as biopiracy, which will be discussed later.[139]

2. The Slide Quickens: *Ex parte Hibberd*[140] and the Patenting of Plants

In *Ex parte Hibberd*, the U.S. patent courts upheld geneticist Kenneth Hibberd and his team's patent for an entire corn plant, including the seed.[141] In 2001, the U.S. Supreme Court explicitly reaffirmed this issue in *J.E.M. Agric. Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, when it held that utility patents might be issued for plants.[142] Because of these decisions, large corporations can force farmers to buy seed every year, rather than replanting seed left over from the previous harvest.[143] A strong patent can provide that a farmer has the right to grow a plant from a patented seed, but does not have the right to produce the patented plant again by replanting the seed harvested from the adult plants.[144] Such laws can potentially devastate poor farmers who depend upon replanting seed for their survival.[145] For example, "seventy percent of seed in India is saved or shared farmers' seed."[146] If international intellectual property systems deny access to seeds, many countries of the South may be unable to feed their people.[147] These problems (along with biopiracy) pose a serious threat to the South, which is exacerbated by the worldwide extension of these principles through the WTO and the TRIPS Agreement.

V. THE CLASH OF NORTH AND SOUTH

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138. *North/South, supra* note 5, at 121.

139. *Id.*

140. *Ex parte Hibberd*, 227 U.S.P.Q. (BNA) 443 (1985).

141. BIOPIRACY, *supra* note 109, at 55.

142. *J.E.M. Agric. Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124 (2001).

143. BIOPIRACY, *supra* note 109, at 55.

144. *Id.*

145. *See generally North/South, supra* note 5.

146. *Id.* at 119.

147. *See generally id.*

A. The World Trade Organization: Whose World?

1. Leading Up to the World Trade Organization

a. Background

As Walden Bello relates, the decolonization period during the 1950s and 1960s marks the beginning of the modern struggle between North and South.[148] Newly autonomous countries struggled to gain a foothold in the world-trading scheme, despite the obstacles posed by deficiencies in technology and infrastructure.[149] During this period, trade relations between the North and the South increasingly disadvantaged the South, "which resulted in the South needing to use more and more of its raw materials and agricultural products to purchase fewer and fewer of the North's manufactured products."[150] Furthermore, Bello notes, this discrepancy seemed likely to worsen because the North was developing substitutes for Southern agricultural products.[151]

Raul Prebisch, an Argentine economist, focused on this unbalanced trade relationship in the development of an economic theory known as "structuralism."[152] He emphasized the inherent Northern bias embodied in the international bodies governing trade and international relations at the time.[153] This theory inspired the diverse nations of the South to develop organizations to represent the South and promote the "Southern Agenda."[154] The organizations that sprang up included the Group of 77, the Organization of Petroleum Exporting Countries (OPEC), and the New International Economic Order.[155]

b. The 1960s and 1970s: From Southern Subordination to Southern Strength

One of the most important developments to emerge from the structuralist critique was the "UN Conference on Trade and Development (UNCTAD) in 1964, which became over the next decade the principle vehicle used by the Third World countries in their effort

148. Bello, *supra* note 9, at 56.
149. *See generally id.*
150. *Id.* at 56-57.
151. *Id.* at 57.
152. *Id.*
153. *Id.*
154. Bello, *supra* note 9, at 56-57.
155. *Id.* at 57.

to restructure the world economy."[156] The U.N. emerged at this time as the leading voice for countries of the South on the world stage.[157] UNCTAD began its reform efforts with a three-pronged strategy for change:

> The first was commodity price stabilization, through the negotiation of floors below which commodity prices would not be allowed to fall. The second was a scheme of preferential tariffs allowing Third World exports of manufactures, in the name of development, to enter First World markets at lower tariff rates than those applied to exports from other industrialized countries. The third was an expansion and acceleration of foreign assistance, which, in UNCTAD's view, was not charity but "compensation, a rebate to the Third World for the years of declining commodity purchasing power." UNCTAD also sought to gain legitimacy for the southern countries' use of protectionist trade policy as a mechanism for industrialization and demanded accelerated transfer of technology to the South.[158]

Prebisch's structuralist theory eventually became the view of the majority at the U.N. General Assembly.[159] The South, through the U.N., was finally making its voice heard on the world stage.[160] The United States' focus on the Cold War led to a fairly tolerant position with regard to the newly voiced Southern Agenda.[161]

However, actions taken by the United States still had a profound effect on the South.[162] For example, the International Monetary Fund (IMF) originally served to stabilize struggling countries' economies by supporting policy changes within the developing country, thereby reducing the demand for foreign exchange and somewhat liberalizing the country's trade regime.[163] However, the U.S.'s decision to take the dollar off the gold standard made the IMF's original purpose superfluous.[164] Instead, the IMF's main activity became the

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156. *Id.* Prebisch served as the first secretary general of UNCTAD. *Id.*

157. *Id.*

158. *Id.*

159. Bello, *supra* note 9, at 58.

160. Surendra J. Patel, *What the Group of 77 Wanted at UNCTAD and Why, in* CURRENT INTERNATIONAL LEGAL ASPECTS OF LICENSING AND INTELLECTUAL PROPERTY 124, 125 (Walter R. Brookhart et al. eds., 1980).

161. Bello, *supra* note 9, at 58.

162. *Id.*

163. ANNE O. KRUEGER, TRADE POLICIES AND DEVELOPING NATIONS 11 (1995).

164. Bello, *supra* note 9, at 58-59.

stabilization of Southern countries through the balancing of their payment difficulties, rather than by supporting independent policy change within the country.[165]

Despite the IMF's best efforts, foreign exchange problems continued to worsen, and the situation in the South escalated into a crisis.[166] Southern economies were nearing collapse under the unbalanced trade relationships between themselves and the industrialized nations.[167] The South wanted the U.N. to establish a special fund to help alleviate the crisis.[168] If the U.N. (in which the South had some sort of voice), rather than the North, controlled the development fund, the criterion for providing loans could be development need, which would afford the developing nations the chance to develop strong, independent economies.[169] The North, however, under the leadership of the United States, could not stomach the idea of such Southern independence.[170]

Instead, the International Development Association (IDA) was set up as an attachment to the World Bank to allow for Southern aid under Northern control.[171] Throughout the 1970s, the U.S. used the World Bank to pursue its own "Southern Agenda."[172] It could keep Southern economies from going under, while containing protectionist trade activities in the weak developing countries.[173] However, to the dismay of the United States, the rise of the Organization of Petroleum Exporting Countries (OPEC) greatly diminished many Southern countries' reliance on the Northern-controlled World Bank.[174] The South finally had control of a resource upon which the North depended heavily.[175]

This change allowed UNCTAD to focus on reforming the rules of international trade, rather than concentrating all of its energy on aid.[176] The South had some success in this area.[177] First, the South

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165. *Id.* at 59.
166. KRUEGER, *supra* note 163, at 11.
167. *Id.*
168. Bello, *supra* note 9, at 59.
169. *Id.*
170. *Id.*
171. *Id.* at 59-60.
172. *Id.* at 60-61.
173. *Id.*
174. Bello, *supra* note 9, at 61.
175. *See id.*
176. *Id.*
177. *Id.* at 61-62.

established the Integrated Program for Commodities (IPC).[178] The IPC helped stabilize prices for certain essential commodities.[179] Second, the South created a new window in the IMF, the Compensatory Financing Facility, which assisted developing countries in managing foreign exchange crises.[180] Finally, the South convinced "industrialized countries to accept preferential tariffs for developing countries," enabling the Southern countries to expand their markets.[181]

Despite the modesty of these concessions, the North (the U.S. in particular) became increasingly alarmed by the development of the South.[182] Leaders in the South seemed to be responding more to the needs of their people, rather than the pressures of the North, and the United States feared that U.S. business interests might suffer.[183] If the U.S. lost its stronghold on technology, it might have to face real competition from the South, which seemed unthinkable.[184] The oil shock of 1979 increased the U.S. apprehension about stability and control in the South.[185] The United States depended on foreign oil, and it feared that the South might unite to control other essential natural resources as a method of gaining control of the world trading system.[186] These fears led the U.S. to target the U.N. as a vehicle of the Southern Agenda and to transform the World Bank and the IMF into instruments of Northern dominance, rather than tools for Southern development.[187]

c. The Beginning of the End of Southern Power

The World Bank, along with the IMF, transformed from an enabler of independent Southern development to an administrator of Northern discipline upon the South.[188] The change took place through a new lending approach known as "structural adjustment."[189] "Unlike the traditional World Bank project loan, a structural adjustment loan

178. *Id.* at 61.
179. *Id.*
180. Bello, *supra* note 9, at 61-62.
181. *Id.* at 62.
182. *Id.*
183. *Id.*
184. *Id.*
185. *Id.* at 63.
186. Bello, *supra* note 9, at 63-64.
187. *Id.* at 64-65.
188. *Id.* at 65.
189. *Id.*

was intended to push a program of 'reform' that would cut across the whole economy or a whole sector of the economy" of the developing country.[190] By conditioning loans, the North could maintain tight control over the way in which Southern countries developed their infrastructure.[191] Through such mechanisms, the U.S. established liberal free trade as the rule in the South, and greatly reduced Southern state-assisted capitalism.[192] The U.S., which provided roughly twenty percent of U.N. funding, also effectively turned down the volume of the Southern voice in the U.N. by using the "power of the purse."[193] UNCTAD, while not destroyed, was emasculated.[194] Despite regaining power over the South, the North was not entirely satisfied.[195] Due in part to the ineffectiveness of the current controls on some Asian countries, the industrialized countries (the U.S. and Japan in particular) wanted a global institution of their own to ensure the continuance of Northern dominance.[196]

2. The WTO: Paving the Way for Northern Dominance

a. Background

As Bello relates, the World Trade Organization (WTO) did not represent the first international attempt at creating a global trade organization.[197] Ironically, the U.S. resisted such an organization during President Truman's term in office, because the U.S. Senate might not have ratified a treaty creating a strong global organization.[198] The reluctance of the United States led to the formation of a weak General Agreement on Tariffs and Trade (GATT).[199] In the 1980s, however, the U.S. and other nations began to expand the GATT and give it "teeth" so the U.S. could handle trade rivalries with Japan and Europe, control the Southern market (in which the U.S. was beginning to get more heavily involved), and

190. *Id.* at 65-66.
191. *Id.*
192. Bello, *supra* note 9, at 66.
193. *Id.* at 71.
194. *Id.* at 72.
195. *Id.*
196. BHAGIRATH LAL DAS, THE WTO AGREEMENTS: DEFICIENCIES, IMBALANCES, AND REQUIRED CHANGES 1 (1998).
197. Bello, *supra* note 9, at 73.
198. *Id.*
199. *Id.*

control new competition arising in East Asia.[200] The goal was accomplished at the Uruguay Round of the GATT with the creation of the World Trade Organization (WTO) in 1986.[201] As Bello notes, "[c]entral to the founding of the WTO were the twin drives of managing the trade rivalry among the leading industrial countries and containing the threat posed by the South to the prevailing global economic structure."[202]

b. Guiding Principles: The Essence of the WTO

To attain these goals, the WTO established the concept of free trade as the central principle underlying the global trading system.[203] This marked the final move from the guiding principles for which the South had fought so hard in UNCTAD: fair prices, trade preferences to encourage economic growth in the South, preferential treatment for local businesses, the use of trade policy to foster industrialization, and a deliberate transfer of new technology to the South.[204] These principles would have lent strength and real opportunity for growth to developing countries.[205] Free trade, on the other hand, obviously favored the industrialized countries of the North.[206] Already possessing economic and technological strength, industrialized countries were sure to thrive in a system of their own creation.[207] Due to the economic and political strength of the U.S. (amongst other countries of the North), developing countries were continually making large concessions without getting much in return.[208] Under the WTO, the cornerstones of the Paris Convention: free trade, the "most favored nation" principle, and national treatment form the basis of the world trading scheme.[209] These guiding principles allow the powerful to retain their power, while creating obstacles to the advancement of developing countries. As Martin Khor points out, "the developing and the poor countries are continuously being disadvantaged by the WTO, its rules, and its system. The system itself upholds the weak bargaining position of the South and the grave inequities in

200. *Id.*
201. *See* LAL DAS, *supra* note 196.
202. Bello, *supra* note 9, at 73.
203. *Id.*
204. *Id.* at 74.
205. *Id.*
206. *Id.*
207. *See id.*
208. LAL DAS, *supra* note 196, at ix.
209. Bello, *supra* note 9, at 74.

negotiating capacities."[210] By enforcing this system, Northern nations are denying Southern nations the very tools they used on their rise to power, thereby keeping the Southern countries subordinate.[211]

The principle of national treatment, especially, disadvantages the South.[212] This principle, established in the Paris Convention, was made a part of the General Agreement on Trade in Services (GATS) of the Uruguay round of the GATT.[213] This means that countries must provide foreign service providers with the same rights and privileges accorded to their own nationals.[214] Rather than allowing developing countries to set up protective provisions in regard to foreign service providers, the Uruguay decisions "protect" the South by giving developing countries a longer period of adjustment than the industrialized countries have.[215] They must still comply with Northern policy; they just have a longer time to fall in line.[216] Furthermore, in signing on to the GATT, developing countries have consented "to ban all quantitative restrictions on imports, to reduce tariffs on many industrial imports, and not to raise tariffs on all other imports."[217] Almost all protectionist measures the South may have implemented are unavailable as defensive weapons against the North.[218]

c. Dispute Resolution: Teeth for the North

The WTO also provides dispute resolution mechanisms, giving the agreement "teeth."[219] As Bhagirath Lal Das explains:

> [i]f a country feels that its rights under the WTO Agreements have been adversely affected by the action of another country, or if it

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210. Martin Khor, *How the South is Getting a Raw Deal at the WTO, in* VIEWS FROM THE SOUTH: THE EFFECTS OF GLOBALIZATION AND THE WTO ON THIRD WORLD COUNTRIES 7, 50 (Sarah Anderson ed., 2000) (Martin Khor is the director of the Third World Network, a coalition of public interest groups and individuals that operates throughout the developing world).

211. Vandana Shiva, *War Against Nature and the People of the South, in* VIEWS FROM THE SOUTH: THE EFFECTS OF GLOBALIZATION AND THE WTO ON THIRD WORLD COUNTRIES 91, 115-16 (Sarah Anderson ed., 2000). [hereinafter *War*].

212. Bello, *supra* note 9, at 74.

213. *See* discussion *infra* Part II.D.

214. Bello, *supra* note 9, at 74.

215. *Id.*

216. *Id.*

217. *Id.*

218. *See id.*

219. LAL DAS, *supra* note 196, at 9.

> feels that another country has not discharged its obligations under the WTO Agreements, it may take recourse to the dispute settlement process of the WTO. First it has to give opportunity to the other country for consultation with a view to resolving the problem. If the problem is not solved, it can approach the Dispute Settlement Body (DSB) of the WTO for formation of a panel which will consider the case.[220]

The panel, made up of independent experts, considers the disputants' points and delivers its findings, which have to be adopted by the DSB.[221] The country found to be at fault must act in accordance with the panel's recommendations, or the affected country can take retaliatory measures pursuant to approval by the DSB.[222] This dispute resolution system has proved an effective tool.[223] It especially works well for countries such as the United States, because retaliatory measures taken by a nation with such a large market have a real impact on the offending nation.[224]

d. The Shrouded Entity: Lack of Transparency in the WTO

According to Martin Khor, "the WTO is one of the most nontransparent of international organizations."[225] Despite recent proclaimed efforts by the WTO to increase the involvement of nongovernmental organizations (NGOs), NGOs continue to note the lack of opportunity for involvement in the WTO.[226] This lack of opportunity for NGO involvement poses a serious problem, as many serve as a voice for the disadvantaged and generally disorganized countries of the South.[227] However, a far more significant problem is the lack of opportunity for meaningful participation by member countries (especially developing member countries) themselves.[228]

While the WTO operates in principle on a "one member, one vote" theory, Khor argues, in practice this has not been the case.[229] Rather, a few powerful industrialized powers (in particular, the U.S., Canada,

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220. *Id.*
221. *Id.* at 9-10.
222. *Id.* at 10.
223. *See id.*
224. *See generally,* Bello, *supra* note 9.
225. Khor, *supra* note 210, at 13.
226. *Id.*
227. *Id.* at 14.
228. *Id.*
229. *Id.*

The European Union, and Japan) dominate the decision-making processes.[230] "Often, these powerful countries negotiate and make decisions among themselves, and then embark on an exercise of winning over (sometimes through intense pressure) a select number of the more important or influential developing countries."[231] Most developing countries may not be "invited" to these meetings, and probably know nothing of them.[232] Once such a powerful group has made a decision, the decision is relatively easy to pass through the various necessary committees.[233] Moreover, few countries, especially those of the South, can afford to oppose the stance of these powerful countries (especially the U.S.).[234]

Furthermore, Khor contends, the WTO's system of consensus is also often implemented unfairly.[235] Countries of the South make up the vast majority of the WTO membership.[236] Yet, the North's demand for more concessions to be made by the South has not lessened.[237] Even if a majority of developing countries agree on a measure, the issue will not survive if only a few developed countries disagree. Thus, the idea of "one country, one vote" does not truly reflect how the system works.[238] Furthermore, when a minority of the major Northern powers agrees on an issue, the faction often embarks on a crusade to build a consensus amongst the developing countries that oppose the measure.[239] This usually involves wearing down the resistance of the stronger countries of the South until only a few remain outside the "consensus."[240] Once this has been accomplished, reigning in any other Southern resistance usually poses little problem.[241]

Yet another obstacle to the South's effective participation in the WTO involves the difficulty of countries with few resources to attend the meetings in Geneva.[242] Many countries cannot afford to hold an

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230. *Id.*
231. Khor, *supra* note 210, at 14.
232. *Id.*
233. *Id.*
234. The United States' unique powers of persuasion will be discussed later. *See id.*
235. *Id.*
236. *Id.*
237. LAL DAS, *supra* note 196, at 7.
238. Khor, *supra* note 210, at 14.
239. *Id.* at 14-15.
240. *Id.* at 15.
241. *Id.*
242. *Id.*

office in Geneva and cannot send representatives to meetings.[243] Those who can afford to establish offices often cannot staff them adequately, and staff members are thus physically unable to attend all of the necessary meetings.[244] Moreover, the representatives at the WTO must often refer important decisions to their ministries at home.[245] These home ministries, too, often lack adequate manpower to respond to all of the issues.[246] In short, Khor argues,

> [d]eveloping countries are simply no match for the gigantic planning and negotiating machinery of the North. There is thus a gross inequity in the WTO, because negotiations and the formulation of rules (and the defense of a country's compliance or noncompliance with its obligations) is at the center of the WTO's activities. Given the gross imbalance in bargaining and negotiating capacities between North and South (as well as the manipulative devices that the major industrial countries have mastered), the rich nations normally had their way in GATT and now have it in the WTO.[247]

Thus, the South is continually disadvantaged by the world trading system as it currently exists.[248]

B. TRIPS and the Fall of the South

1. Contrasting Views of the TRIPS Agreement

In many ways, Article 27 of the TRIPS Agreement[249] epitomizes Northern dominance in the world-trading scheme.[250] However, the

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243. *Id.*

244. Khor, *supra* note 210, at 25.

245. *Id.*

246. *Id.*

247. *Id.* at 16.

248. *Id.* Despite the obvious Northern bias of the WTO, countries of the South have joined and remained members for several reasons. The Northern stronghold on technology is one factor that disables the South from extricating itself from the Northern grasp. If the South has any hope to catch up with the North, it must have access to the technological developments the North has made over the last decades (while the South was struggling to rebuild after the colonialism of the North finally came to an end). Furthermore, the South needs access to the large markets of the North so it can profit from its agricultural and natural resources. The North has made it clear that noncompliance with the WTO means no access to these markets. *Id.*

249. While the TRIPS Agreement covers many aspects of intellectual property, from geographical indications to trademarks and copyright, this paper will focus on Article 27, which addresses patentable subject matter. *See* TRIPS Agreement, *supra* note 10.

North seems to take a much rosier view of the picture.[251] In the WTO's *Guide to the Uruguay Round Agreements*, the WTO Secretariat boasts, "[t]he Agreement on Trade-Related Aspects of Intellectual Property Rights, universally known for short as the TRIPS Agreement, shares with the services agreement the distinction of being the most innovative element in the whole Uruguay Round package."[252] The Secretariat goes on to explain that "the basic objective to the agreement is to give adequate and effective protection to intellectual property rights, so that the owners of these rights receive the benefits of their creativity and inventiveness, and are thereby also encouraged to continue their efforts to create and invent."[253] These goals seem noble enough, but they are based on Western ideals of individualism and the intellectual property regime. Thus, the South has come to view them in a very different light, especially in regard to patents on plants and agricultural products.[254]

Vandana Shiva sees the TRIPS Agreement as a tool used by the WTO to threaten the South's food supplies and agricultural resources.[255] Walden Bello observes that the South perceives TRIPS as a victory for the high-tech industries of the North in their battle to dam the flow of technology from the North to the South.[256] Martin Khor notes the TRIPS Agreement's propensity to grant Northern companies more rights without burdening them with increased responsibility.[257] Obviously, these views differ greatly from the Northern controlled WTO's take on the TRIPS Agreement. The important question is: why does the South feel so disadvantaged by the TRIPS Agreement?

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250. Bello, *supra* note 9, at 75.

251. *See generally id.*

252. GUIDE TO THE URUGUAY ROUND AGREEMENTS 207 (1999). Kluwer Law International publishes the Guide for the World Trade Organization. Its self-proclaimed purpose is "to make the results of the Uruguay Round of trade negotiations easier to understand." *Id.* at v.

253. *Id.* at 207.

254. *See, e.g.*, *War*, *supra* note 211.

255. *Id.* at 114.

256. Bello, *supra* note 9, at 76.

257. Khor, *supra* note 210, at 23.

2. An Examination of Article 27[258]

a. Article 27, paragraph 1

Article 27 of the TRIPS agreement has probably been the source of the greatest controversy between North and South.[259] Article 27, paragraph 1, provides,

> Subject to the provisions of paragraphs 2 and 3, 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. Subject to paragraph 4 of Article 65,[260] paragraph 8 of Article 70[261] and paragraph 3 of this Article, 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.[262]

Several aspects of this article have been the source of controversy. The broad grant of patent rights to all inventions in all fields of technology means that patents may be granted on microorganisms and on the processes for producing plants and animals.[263] These rights potentially have serious consequences for

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258. Before specifically discussing Article 27, it is important to understand the power of the TRIPS agreement. TRIPS is annexed to the WTO, so all members of the WTO must sign the agreement. *See* TRIPS Agreement, *supra* note 10. The stronger Northern countries, the United States in particular, wrote the agreement. In effect this means that countries of the South are compelled to sign a treaty written by the North, for the North, and have had no say in its provisions. *Id.*

259. Khor, *supra* note 210, at 29-30. All nations, even great world powers like the United States, have historically depended on agriculture during their nascent years of development. As mentioned above, agriculture is particularly important in the South, where most of the world's biodiversity flourishes. BIOPIRACY, *supra* note 109, at 65. TRIPS allows the powerful corporations of the United States, amongst other industrialized nations, to rob the South of this essential resource. Companies do this by taking plants from the South that were developed by Southern countries and mapping their genes. Article 27 allows the gene map to be patented, so the Southern country cannot sell the plant in the country in which it has been patented. This opens the door to Northern countries to perpetrate "biopiracy" on the countries of the South, as will be examined later. *Id.*

260. TRIPS Agreement, *supra* note 10, art. 65 para. 4. (This paragraph allows developing countries more time to put certain provisions of TRIPS into effect.)

261. *Id.* at art. 70, para. 8. (This provision lays out requirements for countries regarding the patenting of pharmaceutical and agricultural chemical products.)

262. *Id.* at art. 27, para. 1.

263. LAL DAS, *supra* note 196, at 82.

developing countries.[264] The damage caused to developing countries by the United States' plant (and other life-forms) patent systems has potentially great ramifications, as discussed above with regard to limiting farmers' access to seed.[265] The extension of the U.S. patent system to the rest of the world through the TRIPS agreement increases the potential for damage to countries of the South.[266]

b. Article 27, paragraph 2

Article 27, paragraphs 2 and 3 allow for the exclusion of some inventions from patent law:

> 2. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.
>
> 3. Members may also exclude form patentability:
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> (a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;
>
> (b) 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. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.[267]

While at first glance this provision seems to allow developing countries much leeway regarding the protection of plants and animals, in practice this has not been the case.[268] As mentioned above, patents are allowed on gene maps or sequences. Paragraph 3 specifically provides that microbiological processes not be excluded from patent protection.[269] Even though, as Michael Blakeney points out, "there is no commonly accepted definition of 'micro-organism' either in science or in patent office practice," the United States has

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264. *North/South, supra* note 5, at 119.

265. *See infra* Part IV.A.2.

266. *See generally id.*

267. TRIPS Agreement, *supra* note 10, art. 27, paras. 2 -3 (emphasis added).

268. Bello, *supra* note 9, at 77.

269. TRIPS Agreement, *supra* note 10, art. 27, para. 3.

ruled that U.S. law allows for the patenting of gene sequencing.[270] Even if plants are shielded from patentability in a developing country, U.S. corporations need only gather a sample of the plant, take it home, map the gene, and patent it in the corporation's home country.[271] Any protection the Southern country may have provided is thus circumvented.[272] Given the power of the U.S. in the international system, the U.S. decision to allow the patenting of gene sequences is likely to be followed by other countries as they interpret the TRIPS agreement.

Furthermore, Northern countries put much pressure on developing countries to discourage patent exemption for any "invention."[273] This tactic has probably gained the most exposure in regard to the exclusion of pharmaceuticals from patentability, especially concerning the AIDS epidemic in Africa.[274] Northern drug companies have been extremely reluctant to suspend their patents, even when cheaper access to patented drugs could saves thousands of lives. As Andrew Pollack, a columnist for the New York Times, reports,

> [d]rug patents are under attack, blamed for high AIDS drug prices that deny life-saving therapy to millions of people in developing countries. And some analysts say the industry itself fueled the backlash by staunchly defending its intellectual property in the face of a pandemic that could claim more lives than the Black Death of the Middle Ages.[275]

In the spring of 2001, South Africans made a stand against the producers of AIDS drugs in an effort to protect the rights of their

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270. Michael Blakeney, *International Proposals to Regulate Intellectual Property Rights in Plant Genetic Resources*, *at* http://www.economia.uniroma2.it/conferenze/icabr/abstract/blakeney.htm (last visited Oct. 16, 2003). Michael Blakeney is at the forefront of the international discussion of the role of intellectual property's role in the international trading scheme, especially in relation to the rights of indigenous peoples. This author is especially indebted to Professor Blakeney for opening her eyes to the inequalities inherent in the current international system. Professor Blakeney is currently the chair of the Queen Mary Intellectual Property Research Institute, Queen Mary, University of London. *Id.*

271. Bello, *supra* note 9, at 77.

272. *Id.*

273. *See id.*

274. Andrew Pollack, *Defensive Drug Industry: Fueling Clash Over Patents*, N.Y. TIMES, April 20, 2001, at A6.

275. *Id.*

suffering people.[276] This crisis has led even some drug company representatives to question the ethics of such rigorous patent protection; yet powerful Northern drug companies continue to protect their intellectual property rights, despite the exceptions set forth in the TRIPS Agreement.[277] While some companies have made efforts to lower prices, even the AIDS crisis has not proved a compelling enough reason for drug companies to set aside patents on life-saving drugs.[278]

The United States has taken "persuasive" protective measures to the extreme through clause Special 301 in its trade act.[279] This clause provides that the U.S. will lay heavy trade sanctions on countries that refuse to comply with U.S. patent law.[280] Because the U.S. has the largest consumer market in the world (although the European Union appears to be rapidly catching up), developing countries cannot afford to cut trade ties with the U.S.[281] Therefore, they are forced to comply with the U.S. view of what constitutes patentable material, despite the exceptions so generously laid out in the TRIPS Agreement.[282]

In short, TRIPS poses a very real threat to agrarian communities in the South.[283] It prevents Southern countries from profiting from their agricultural developments by allowing Northern countries to engage in biopiracy, as will be discussed in the next section.[284] Thus, TRIPS has paved the way for the private ownership of products developed from the traditional knowledge of communities in the South.[285] The permissibility of patenting plants has had a particularly deep impact in the South. While plants in their natural states still cannot be patented, "if a Western[286] scientist isolates the plant's active substance in a way that does not occur in nature, it becomes patentable."[287] In this way, patents are granted "not just to

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276. *Id.*

277. *Id.*

278. *See, e.g.* Tony Smith, *Mixed View of a Pact for Generic Drugs*, N.Y. TIMES, Aug. 29, 2003, at C3.

279. *War, supra* note 218, at 115.

280. *Id.* at 115-16.

281. *See id.*

282. *See North/South, supra* note 5, at 122.

283. Bello, *supra* note 9, at 77.

284. *See North/South, supra* note 5, at 122.

285. Bello, *supra* note 9, at 77.

286. Roht-Arriaza, *supra* note 4, at 921 n.6. The term "'Western' refers to colonial or post-colonial industrial societies in their relation to indigenous, traditional, and local communities." *Id.*

287. *Id.* at 938.

genetically modified organisms . . . but to processes and products derived from biodiversity" as well.[288] Persons who wish to obtain patents for products derived in part from traditional knowledge systems need only claim that identifying the original source of the knowledge would be impractical.[289] The patents will thus be granted without any credit being given to the indigenous developers of the "inventions."[290] This opens the door to biopiracy, which will be discussed in the next section.[291] Even more devastating is the potential disaster caused by the patenting of seeds and the inability of farmers to replant seeds gleaned from their own crops.[292] These problems, discussed above in regard to the United States' patent laws, have a greater effect when entrenched in an international treaty.[293] Unless there is change in the current system, the South will find itself in a precarious position, indeed.

VI. BIOPIRACY: THE RESULT OF THE INTERNATIONAL IP SYSTEM

By forcing all countries that are members of the WTO to sign the TRIPS Agreement, the North has ensured that the biopiracy allowed under U.S. law will continue to be protected.[294] Ironically, the countries of the North have long argued that they were victims of piracy perpetrated by countries of the South.[295] Industrialized countries "claim that it is they who are the victims of piracy because their transnational corporations lose money when lesser developed countries fail to change their patent laws to conform with those of developed countries."[296] Such claims often involve the illegal copying and selling of music CDs or movies overseas, especially in Asia.

However, the WTO, through the TRIPS Agreement, allows Northern international corporations to perpetrate biological piracy against countries of the South.[297] Modern biopirates rob countries of agricultural developments and products.[298] Their weapons consist of

288. *North/South, supra* note 5, at 121.
289. *Id.*
290. *Id.*
291. Sarma, *supra* note 124, at 125.
292. BIOPIRACY, *supra* note 109, at 55.
293. *See North/South, supra* note 5, at 122.
294. *Id.* at 119.
295. *See War, supra* note 211, at 115.
296. Sarma, *supra* note 124, at 125.
297. *North/South, supra* note 5, at 122.
298. Sarma, *supra* note 124, at 125.

patents and other forms of intellectual property "protection."[299] They operate under the protection of international treaties and "agreements," the TRIPS Agreement in particular, which was forged by trade superpowers coercing weaker countries into accession.[300] This has led to the coining of the term "biopiracy."[301] As Dutfield relates,

> "Biopiracy" was coined . . . as part of a counterattack strategy on behalf of developing countries that had been accused . . . of condoning or supporting "intellectual piracy," but who felt they were hardly as piratical as corporations which acquire resources and TK from their countries, use them in their research and development . . . programs, and acquire patents and other IPRs – all without compensating the provider countries and their communities.[302]

Instances of biopiracy abound. For example,

> A U.S. firm has patented a new variety of seed produced from genetic material from jasmine rice developed in Thailand and basmati rice developed in India. Monsanto is now enforcing its proprietary rights to the use of seeds from harvests produced by "Monsanto-improved" seeds purchased by farmers. W.R. Grace has applied for and received a U.S. patent for the process extracting an active ingredient of the Neem tree, which is known for its wide variety of medical and other uses in India.[303]

Neem is a native Indian tree that has been used by indigenous peoples for many generations as a biopesticide and medicine.[304] In its natural state, the seed would be a product of nature, and therefore unpatentable.[305] However, patents have been granted for the active ingredient of the seed, azadirachtin, and for the insecticides scientists have derived from the extract.[306] Thus, W.R. Grace, a U.S.-based multinational company, has obtained a patent for an insecticide based

299. *Id.*
300. *North / South, supra* note 5, at 122.
301. Dutfield, *supra* note 80, at 237.
302. *Id.*
303. Bello, *supra* note 9, at 77-78.
304. BIOPIRACY, *supra* note 109, at 69.
305. Roht-Arriaza, *supra* note 4, at 939.
306. *Id.*

on the active ingredient of the neem tree, without compensating anyone in India for the knowledge underlying the product.[307]

Biopiracy applies to traditional knowledge unrelated to agriculture, as well. For example, Andrew Pollack reports in the New York Times about the appropriation of Amazon tribes' knowledge of a naturally occurring painkiller.[308] "For generations, tribes in the Amazon rain forest have used secretions from the skin of a frog to make poison blow darts. Now Abbott Laboratories is developing a painkiller modeled on the active chemical in the frog secretion that seems as effective as morphine but without damaging side effects."[309] The American drug company stands to make millions of dollars if the new drug is successful.[310] Still, the company does not believe that the indigenous people who discovered the toxin should share in the proceeds.[311] Under the TRIPS Agreement, the drug company's position is legitimate.[312]

These are just a few examples of the unfair appropriation of the traditional knowledge and technological developments of the South, known as biopiracy, which is sanctioned by the TRIPS Agreement.[313] Southern countries stand to lose large amounts of money when pharmaceutical and other companies appropriate the discoveries and developments of indigenous people without compensating them.[314] As Shiva notes, "[c]ollecting royalties from the poor in the Third World for resources and knowledge that came from them in the first place is considered practical."[315] Not only do these poor countries lose out on monetary benefits, their rights and their traditional way of life are being threatened.[316] Even their very lives are threatened when Northern drug companies refuse to suspend patents on life-saving drugs, in violation of Article 27 of the TRIPS agreement.[317] Thus, the potential problems raised by the United States' legalization of patents

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307. *Id.* at 922.

308. Andrew Pollack, *Patenting Life: A Special Report; Biological Products Raise Genetic Ownership Issues,* N.Y. TIMES, November 26, 1999, at A1. [hereinafter *Patenting Life*].

309. *Id.*

310. *Id.*

311. *Id.*

312. *See North/South, supra* note 5, at 122.

313. *See id.*

314. *See Patenting Life, supra* note 308.

315. *North/South, supra* note 5, at 121.

316. *Id.*

317. TRIPS Agreement, *supra* note 10, art. 27, paras. 2 -3.

on living things have even greater ramifications when carried out on a global scale.[318] These practices must be changed if the South is to have a chance to catch up to the development and power of the North, and the United States is in the best position to bring about such change.[319]

VII. SOLUTIONS: HOW TO KEEP THE SOUTH FROM FALLING OVER TRIPS

A. Walden Bello's Proposal: Overloading the System

Walden Bello argues that while some people charge the WTO with becoming responsible to the U.N. (the last institution in which the South has a voice), such a solution is an example of utopian thinking.[320] He advances instead the position that maintaining and strengthening the U.N. is only one prong of an effective strategy for change.[321] He argues that the essential element of a strategy for change "is to overload the system, to make it non-functional by constantly pushing demands that cannot be met by the system."[322] In short, he argues that the South must act as a criminal defense attorney, exploiting the ambiguities of the current system for the sake of the client.[323] He believes that this tactic will eventually bring about the collapse of the present system, and that having no system is better than having a faulty system.[324]

To support this position, he cites the growth and development of Latin American countries during the World War II era and the period immediately after the war, when no international structures oversaw global aid and development.[325] In short, Bello argues that "a fluid international system, where there are multiple zones of ambiguity that the less powerful can exploit in order to protect their interests, may be the only realistic alternative" to the current Northern-dominated system.[326]

While this solution certainly merits consideration, it may not be workable because the present international system has become so

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318. *North / South*, *supra* note 5, at 122.
319. *See generally* Bello, *supra* note 9.
320. *Id.* at 86.
321. *Id.*
322. *Id.* at 87.
323. *Id.*
324. *Id.* at 89.
325. Bello, *supra* note 9, at 89.
326. *Id.* at 90.

entrenched. The system in place prior to World War II was not nearly as strong as the system operating today. The GATT and the WTO were born in the aftermath of World War II.[327] With the pressure constantly applied by the U.S. and other developed nations, the international structure does not seem likely to collapse. Furthermore, the problems with building a consensus among Southern countries discussed above would also apply to building a unified Southern decision to overload the system. Therefore, working within the existing system may provide more viable solutions.

B. Defining "Sui Generis" in Article 27 of TRIPS

Article 27 paragraph 3(b) of TRIPS (the provision requiring countries to either allow the patenting of plants or come up with a *sui generis* system of protection) was scheduled to come up for review in 1999.[328] Unfortunately, the infamous breakdown of the WTO convention in Seattle prevented meaningful work from getting done.[329] However, the WTO convention could be the site for the development of the meaningful protection of indigenous rights. Some African countries, known as the African Group, have proposed that a footnote be added to Article 27 paragraph 3(b) defining *sui generis* in a way that incorporated farmers' and indigenous peoples' rights, as recognized in the Convention on Biological Diversity (CBD).[330] The preamble of the CBD recognizes the dependence of what it calls traditional communities on biological resources, and seeks to protect them.[331] The TRIPS Agreement itself would actually protect indigenous rights. This solution seems more workable, because it uses the existing structures, the TRIPS Agreement in particular, to address the concerns of developing countries. Furthermore, this system does not require Southern indigenous communities to conform to individualistic Northern concepts of property. Recognition of farmers' rights allows indigenous peoples to hold their rights in common, while continuing to protect them from exploitation by the more technologically advanced Northern corporations.

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327. *Id.* at 73.

328. *North/South, supra* note 5, at 123.

329. Ironically, many of the protestors professed ardent support of developing nations. *See id.*

330. *Id.*

331. United Nations Conference on Environment and Development: Convention on Biological Diversity, June 5, 1992, 31 I.L.M. 818. [hereinafter Convention on Biological Diversity].

However, the United States and Europe have refused to entertain any suggested changes to the TRIPS Agreement.[332] The North is far too invested in protecting corporate monopoly interests to consider such changes at this point.[333] As noted above, drug companies largely have not followed the exceptions set forth in Article 27, paragraphs 2 and 3, which allow nations to suspend drug patents when necessary for the protection of human health and life.[334] Where they have taken steps, the steps have been minimal, at best.[335] Political pressure to follow all of the TRIPS Agreement, including those sections not as favorable to Northern corporations, would have to be applied. Otherwise, developed countries would be likely to disregard farmers' rights provisions, just as they have disregarded the drug patent exception.

In short, if any such change is to be accomplished, it must begin with political pressure from the peoples of the U.S. and of the E.U. The people of the North must realize that change in the global system is necessary if we are to live in harmony.

VIII. CONCLUSION

The North has long relied upon formal IP systems to promote technology and safeguard trade interests.[336] Patents, in particular, have proven to be formidable weapons in pursuing those interests. However, globalization has raised awareness of the near certainty that such systems currently serve to exploit the resources of countries in the South.[337] Vandana Shiva expresses these concerns succinctly:

> Western IPR regimes have emerged as major instruments of North-South inequality. Not only do they block technology transfer but [they] also facilitate piracy of the indigenous knowledge and biodiversity of Third World countries. They could, if not revised and reviewed, make northern countries monopoly owners of knowledge including knowledge that has evolved cumulatively and collectively in indigenous cultures, selling it at high cost to already

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332. *North / South, supra* note 5, at 124.

333. *Id.*

334. TRIPS Agreement, *supra* note 10, art. 27, paras. 2 & 3.

335. *See* Smith, *supra* note 278.

336. *See generally North / South, supra* note 5.

337. *See generally id.*

impoverished and indebted countries of the South, pushing them further into poverty and debt.[338]

As evidenced by Shiva's remarks, the critics of the effects of Northern IP systems take this threat to Southern countries quite seriously. They argue that while proponents of current trade and IP systems profess that their institutions shelter poor countries from unilateral actions by stronger nations, the systems in fact serve to stifle development in the South and ensure the continued dominance of the North.[339] These critics believe that imminent change must take place within the international community, or else the "very existence of agrarian communities" will be in jeopardy.[340] Because many Southern countries possess rich biological diversity, and because many rely heavily on agriculture as they struggle to gain a foothold in the growing global market, critics have paid special attention to patent systems and plant varieties protection as tools of Northern conquest.[341] As the current system is so ingrained, and is so dominated by the U.S., it is largely up to the American people to call for change.[342] Abraham Lincoln, one of the greatest American Presidents, charged us "to do all which may achieve and cherish a just and lasting peace among ourselves and with all nations."[343] In the recent past, the American people have often failed to consider the South when constructing the global scheme.[344] After the events of September 11, 2001, many may be tempted to disregard the interests of the South altogether. However, Lincoln's charge holds even more meaning today.[345] The United States is currently embroiled in a war with Iraq, and the unrest amongst other Middle Eastern countries is deafening. If the North is to live in peace with the South, everyone's interests must be taken into account. Just as Lincoln charged the U.S. to focus on forgiveness and to look beyond out borders after the Civil War, so must we look beyond our borders to the needs of developing countries as they struggle to find their place in this world that we have created.[346]

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338. *Id.* at 113.

339. Bello, *supra* note 9, at 55.

340. *Id.* at 77.

341. *See generally id.*

342. *See generally id.*

343. BROTHER AGAINST BROTHER, *supra* note 1, 408.

344. *See* Bello, *supra* note 9.

345. *See* BROTHER AGAINST BROTHER, *supra* note 1.

346. *Id.*