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Strategic Posturing and the Political Economy of Property Rights in the Biodiversity Convention

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ABSTRACT

Certain patterns in history seem so stubbornly persistent as to resemble the laws of nature. One of these patterns with such enduring permanence is the role of scarcity in natural resources in the evolution of the political economy of the world and international law. It was scarcity in spices, silk, emeralds and other precious stones that inspired the evolution of exchange relations between Europe and the Far East through the famous Silk Routes. Interruptions to trade along the Silk Routes and the compounding effects of scarcity in other natural resources in Europe further inspired the age of discovery, imperialism and colonialism mostly at the end of the barrel of the gun. International law evolved in tandem with this outward push from Europe to provide the necessary legitimization of occupation, acquisition and subjugation of foreign territories and peoples to gain access to their natural resources for the advancement of the metropolitan powers. In the post-colonial era the grip of scarcity on various natural resources, particularly in biodiversity, has continued with its unyielding tenacity. Fortunately, the old regime of blatant forcible occupation of foreign territories is no longer an acceptable solution under international law and the United Nations Charter. Access to scarce biodiversity resources to support an unrestrained development model required yet again the instrumentality of an international normative regime based on the consent of resource-holding states. The Biodiversity Convention became the legitimizing instrument for access to biodiversity resources located mostly in states that were the victims of the old colonial and imperial systems. Given the untimely demise of the New International Economic Order (NIEO), the history of persistent unequal exchange, and the importance of biodiversity resources to the states in which they are located, significant questions relating to ownership, control, and exploitation of those resources remain unanswered. In a world of diverse human cultural, social, and political organization the concept of property is necessarily complex, ideological and deeply textured. The Biodiversity Convention did not and could not have resolved the critical question of property rights in those resources. Relying on established tools of international diplomacy such as polysemy and hyponymy, the Convention left the determination of property rights and their varying incidents to the municipal laws of signatory states. This article argues that there is no international law concept of property rights

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applicable to biodiversity resources. Neither the concept of the "commons" nor that of the "common heritage of humanity" is clearly applicable under the Convention or international law. Moreover, the concept of permanent sovereignty over natural resources including biodiversity resources rises to the level of jus cogens under international law. Thus, notwithstanding the Convention and given the protections of the United Nations Charter and various General Assembly Resolutions on sovereignty over natural resources, control over and the exploitation of biodiversity resources resides in the countries in which they are located. However, many significant global strategic issues remain. Resource-holding states must maintain active vigilance over an erosion of their property rights by subsequent international agreements and treaties. Moreover, the lessons of the dashed hopes and aspirations that perished with the demise of the NIEO should not be swept away with the dust of history. Resource holding states must develop purposeful local self-determining strategic countervailing structures to ensure that the exploitation of their biodiversity resources is directed towards addressing the fundamental needs of their societies.

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I. INTRODUCTION

Decades of vigorous debate over the implications of the Convention on Biological Diversity[1] (Biodiversity Convention) on the rights and obligations of developing countries or the Third World (South) demonstrates a few clear lessons. First, it shows clearly that commentators of all stripes and Third World countries found themselves entrapped in a well- designed maze of ambiguities constructed from a Western conventional conception of rights.[2] Notwithstanding

1. Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79 [hereinafter Biodiversity Convention].

2. The debate over several issues connected with the Biodiversity have been framed around property rights which are not specifically defined but understood to mean Western conceptions of those rights. In

the sophistication in some of the commentaries, reliance on the concept of rights as understood in developed countries (North) proved to be largely an exercise in futility.[3] Second, current attempts by Third World countries to disentangle the dominating influence of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)[4] over the Biodiversity Convention is equally trapped in another spider's web of conventional Northern conceptions of rights over

oparticular Western notions of intellectual property rights seem to be applied. The literature on intellectual property rights is voluminous. A few examples will suffice. For a discussion of the nature and origins of Western notions of property rights and in particular intellectual property rights, *see* PETER DRAHOS, PHILO OF INTELLECTUAL PROPERTY RIGHTS 13 (2002) (discussing the philosophy, nature and historical origins of intellectual property rights); Justin Hughes, *The Philosophy of Intellectual Property,* 77 GEO. L.J. 287, 330-39 (1988) (providing a detailed discussion of Hegel's philosophy, his conception of property and its application to intellectual property); Kojo Yelpaala, *Owning the Secret of Life: Biotechnology and Property Rights Revisited,* 32 MCGEORGE L. REV. 111 (2000) (examining in detail the attributes of property, Roman law classification, Western philosophical notions of property and their application to biotechnological inventions); Tom G. Palmer, *Are Patents and Copyright Morally Justified? The Philosophy of Property Rights and Ideal Objects,* 13 HARV. J.L. & PUB. POL'Y 817, 831 (1990) (discussing property rights in ideas); Michael A. Carrier *Cabining, Intellectual Property Through a Property Paradigm,* 54 DUKE L.L. 1, 4 (2004) (examining the "propertization" of intellectual property); Henry Smith, *Intellectual Property as Property: Delineating Entitlements in Information,* 116 YALE L.J. 1742, 1745 (2007) (discussing the relationship between intellectual property and property); Daniel Fitzpatrick, *Evolution and Chaos in Property Rights Systems: The Third World Tragedy of Contested Access,* 115 YALE L.J. 996, 1008 (2006) (explaining how property models often ignore what anthropologists have discovered about the role of conflict as a result and source of property rights and not entitlement driven market forces); for discussion of Western concepts of property, *see* JOHN LOCKE, TWO TREATISES OF GOVERNMENT, SECOND TREATISE ¶ 25 (Peter Laslett ed., Cambridge Univ. Press 1988) (1690); WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND (William Carey Jones ed., Bancroft-Whitney Co. 1916) (1765); GEORG WILHELM FRIEDRECK HEGEL, THE PHILOSOPHY OF RIGHT (Robert Maynard Hutchins ed., T. M. Knox trans., Encyclopaedia Britannica 1952) (1821); WESLEY NEWCOMB HOHFELD, FUNDAMENTAL LEGAL CONCEPTIONS, 72 (Walter Wheeler Cook ed. 1919); LAWRENCE C. BECKER, PROPERTY RIGHTS: PHILOSOPHIC FOUNDATIONS 2-4 (1977) (reviewing the theories of property and arguing for a new theory); Nestor M. Davidson, *Standardization and Pluralism in Property Law*, 61 VAND. L. REV 1597 (2008) (explaining the limitations of a standardized system of property rights as a closed set while discounting issues of pluralism in property).

3. The nature of this entrapment is so serious that non-western concepts have to fight to be visible even if not understood. Nowhere is this more visible than the debate over nature and treatment of indigenous or traditional knowledge within the context of the Biodiversity Convention, *supra* note 1, and Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, 1869 U.N.T.S. 299 [hereinafter TRIPS]. The literature on this topic is voluminous and growing. As few examples will suffice. *See* CHIDI OGUAMANAM, INTERNATIONAL LAW AND INDIGENOUS KNOWLEDGE, INTELLECTUAL PROPERTY, PLANT BIODIVERSITY, AND TRADITIONAL MEDICINE (2006) (explaining how in a post-colonial era, notwithstanding the gains made, indigenous knowledge continues to jostle for recognition in the modern intellectual property regime); GRAHAM DUTFIELD, INTELLECTUAL PROPERTY RIGHTS, TRADE AND BIODIVERSITY 61-62 (2000) (explaining how in a pro-patent regime local communities should not feel exploited because traditional knowledge alone would not be patentable given that they can continue to use their natural resources); Shubdha Ghosh, *Reflections on the Traditional Knowledge Debate,* 11 CARDOZO J. INT'L & COMP. L. 497, 508-09 (2003) (arguing that for access and use of traditional knowledge for addressing AIDS problem since traditional societies with the resources may, based on their perceptions, decide against the use of their resources for the development of AIDS drugs as being anathema to their cultures); Craig Allen Nard, *In Defense of Geographic Disparity,* 88 MINN L. REV. 222, 225 (2003) (explaining the profitability of exploiting traditional knowledge by countries such as the United States); Stephen Gudeman, *Sketches, Qualms & Other Thoughts on Intellectual Property Rights*, *in* VALUING LOCAL KNOWLEDGE: INDIGENOUS PEOPLE AND INTELLECTUAL PROPERTY RIGHTS 102-03 (Stephen B. Brush et al. eds., 1996);

Adapted from Zhang, Xiaorui (2000), *The Role of Intellectual Property Rights in the Context of Traditional Medicine*, Report of the Inter-Regional Workshop on Intellectual Property Rights in the Context of Traditional Medicine. Bangkok, Thailand, 6-8 December, WHO/EDM/TRM/2001.

4. TRIPS, *supra* note 3.

Southern resources and ideas.[5] The results have been equally frustrating. Third, the maze and the spider's web were part of a carefully crafted strategy, designed to control the framing of all issues in future North/South debates and negotiations relating to the Convention.[6] However, neither the maze nor the spider's web can unambiguously dictate or provide the only appropriate context for framing the debate to advance the interest of developing countries. Ambiguities in international agreements provide a powerful double-edged sword that appears to have escaped the attention of astute commentators and even the Third World.

In what might be termed as a pioneering and innovative form of non-conventional analysis, this article shifts and relocates the debate on its most appropriate terrain or if you will, on a new battlefield to empower Third World countries to reframe the debate in their own terms over rights in their biodiversity resources. It achieves this objective by relying on the ambiguities embedded in the maze to shift the focus of the analysis from Northern conceptions to the complex and diverse set of property rights forming the bedrock on which Southern societies were constructed and have sustained themselves for hundreds if not thousands of years. In doing so, it removes the absurd irony of having some foreign concepts control rights over Southern resources.[7] Furthermore, it sets the stage for developing countries to assert control over the exploitation of their biodiversity resources to address their fundamental needs. In short, it empowers

5. Several developing countries are challenging some of the provisions of the Biodiversity Convention, *supra* note 1, particularly the benefits sharing provisions, and are calling for a revision within the context of TRIPS. *See* Council for Trade-Related Aspects of Intellectual Property Rights, Submission from Brazil et al., *The Relationship Between the TRIPS Agreement and the Convention on Biological Diversity (CBD); Checklist of Issues*, at 1, IP/C/W/420 (Mar. 2, 2004); Council for Trade-Related Aspects of Intellectual Property Rights, Submission from India et al., *The Relationship Between the TRIPS Agreement and the Convention on Biological Diversity (CBD) and the Protection of Traditional Knowledge—Elements of the Obligation to Disclose Evidence of Benefit-sharing Under the Relevant National Regime*, IP/C/W/442 (Mar. 18, 2005); Council for Trade-Related Aspects of Intellectual Property Rights, Submission by Brazil et al., *The Relationship Between the TRIPS Agreement and the Convention on Biological Diversity (CBD) and the Protection of Traditional Knowledge; Technical Observations on the United States Submission, IP/C/W449*, IP/C/W/459 (Nov. 18, 2005). Similar submissions have been made by other developing countries; *e.g.* Council for Trade-Related Aspects of Intellectual Property Rights, Joint Communication from the African Group, *Taking Forward the Review of Article 27.3(b) of the TRIPS Agreement*, at 2, IP/C/W/404 (June 26, 2003); for a discussion of the attempts by developing countries to address some of the troublesome issues of TRIPS, *see* DANIEL GERVAIS, THE TRIPS AGREEMENT: DRAFTING HISTORY AND ANALYSIS 60-61 (Sweet & Maxwell 3d ed. 2008) (discussing the position of several developing countries and in particular calling for amending Article 31 of TRIPS).

6. Essentially, the framing of rights and obligations of the Biodiversity Convention, *supra* note 1, under western concepts have a substantial controlling impact on how future issues of controversy will be addressed. *See* Cynthia M. Ho, *Biopiracy and Beyond: A Consideration of Socio-Cultural Conflicts with Global Patent Policies,* 39 U. MICH. J.L. REFORM 433, 505-10 (2006) (explaining the importance of issue framing in prohibiting meaningful dialogue and agreement on the question of biopiracy). The impact of substantive provisions in an international agreement on how future issues are framed has been captured by Gervais in: GERVAIS, *supra* note 5, at 60-61 (discussing the opposition by developed countries to the call by developing countries to amend Article 31 of TRIPS as reopening the Agreement).

7. This process by which foreign concepts become instruments for the control of local resources are the stubborn remnants of the colonial legacy of legal dualism which continues to hold sway in many ex colonies. It is also part of continuing doubts in development policy circles about local resource management capacity and need for outside benevolent direction. *See* Daron Acemoglu et al., *The Colonial Origins of Comparative Development: An Empirical Investigation*, 91 AM. ECON. R. 1369, 1395 (2001) (detailing alternate strategies that European settlers used in various colonies and the modern economic effects thereof).

them to *take their destiny into their own hands* even within the context of the Biodiversity Convention. An appreciation of this new form of analysis is better understood from a brief outline of the criticisms of the Earth Summit in Rio and the Biodiversity Convention as one of its products.

Any euphoric aspirations that might have inspired the Earth Summit of 1992 in Rio[8] in search of some balance between the insatiable demands of humanity on the resources of the world and its capacity to deliver appeared doomed at the outset.[9] An undercurrent of contradictory goals espoused by powerful developed countries in combination with the recurrent mistrust and conflict characteristic of the geopolitical relations between the North and the South stood virtually as insurmountable obstacles to a meaningful agreement.[10] Thus, even though the Summit produced the Biodiversity Convention that is hardly a measure of its success. The aspirations of conservationists, environmentalists and others concerned about sustainable development proved to be merely dreams that evaporated in the waking realities of the world. Although the Biodiversity Convention was framed around three broad and laudable objectives of conservation, sustainable use and equitable distribution of the benefits of the use of biodiversity resources, the Convention failed to deliver on all three objectives.[11] Shortly after the Biodiversity Convention came into force critics mounted a wave of attacks not only on its failure to deliver on its articulated objectives but also on several other grounds. The first category of criticisms viewed the broad and vaguely stated objectives of the Convention as providing legal cover for countries disinterested in fulfilling their obligations.[12] However, vagueness and ambiguity appeared to be inevitable in the context. The Summit attracted scores of countries within the North/South divide at different levels of development and with too many conflicting goals and interests to be easily accommodated.[13] Complicating the negotiating process was the presence of

8. U.N. DEP'T OF PUB. INFO., THE WORLD CONFERENCES: DEVELOPING PRIORITIES FOR THE 21ST CENTURY, U.N. Sales No. E.97.I.5 (1997), *available at* http://www.un.org/geninfo/bp/enviro.html (describes the United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, June 3-14 1992) [hereinafter Earth Summit].

9. Chris Wold, *The Futility, Utility, and Future of the Biodiversity Convention*, 9 COLO. J. INT'L ENVTL. L. & POL'Y 1 (1998).

10. *Id.* (arguing that the North/South divisiveness led to fractured negotiations and loss opportunities.); see *Infra infra* notes 16, 27, 39 and accompanying text discussion of the North/South divided over several issues including resources.

11. Biodiversity Convention, *supra* note 1, at art. 1 ("The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, and by appropriate funding"); Wold, *supra* note 9, at 5 (arguing that a weakness in the Convention lies in its goals being too comprehensive, indicative of disagreement among the parties); Rachelle Adam, *Missing the 2010 Biodiversity Target: A Wake-up Call for the Convention on Biodiversity,* 21 COLO. J. INT'L ENVTL. L. & POL'Y 123, 139 (2010) (arguing that ambiguity in the Biodiversity Convention provides indeterminacy and some degree of legitimacy for violations)(suggesting that the comprehensive nature of the objectives of the Convention has resulted in some challenges in its implementation).

12. Adam, *supra* note 11, at 139 (arguing that the ambiguities in the Biodiversity Convention provide indeterminacy and some degree of legitimacy for violations or non-compliance).

13. There were 172 governments participating in the Earth Summit with 108 Heads of State of

various international organizations, non-governmental organizations (NGOs) and representatives of civil society concerned with protecting many interests, especially those of indigenous peoples.[14] This setting was hardly conducive to consensus on meaningful substantive obligations to advance the articulated goals and objectives. Indeed, vagueness and ambiguity are some of the most valuable tools often employed in international diplomacy to achieve false but necessary compromises.

Other critics attributed the failure of the Convention to the persistent North/South divide in geopolitical and economic matters, particularly those relating to resources.[15] One significant and unfortunate characteristic of the North/South divide is what has been characterized as a "dialogue of the deaf."[16] The history of North/South negotiations, often involving significant and sometimes existential matters, demonstrates the tendency to proceed on parallel tracks of discourse induced by different operating premises and conflicting ideologies.[17] In such a setting little is heard, understood, or processed for a meaningful rapprochement. The Earth Summit invited a return to this old and unproductive structure. Yet, other critics lay the blame at the feet of the structural and substantive defects of the Biodiversity Convention itself, which posed significant road blocks to any achievement of its stated goals. Indeed, some critics even charge the Biodiversity Convention with contributing to the unprecedented and significant biodiversity loss.[18]

Interesting as these criticisms might be, the most compelling criticisms of the Biodiversity Convention confront the underlining development economics paradigm that shaped the Convention, the hegemonic forces that pushed it and drove the negotiating process with the resulting implications on the rights of resource holders.[19] Claimed to have its roots in President Truman's quest for a

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Government in that group. *See* Earth Summit, *supra* note 8.

14. In addition to the various U.N. Organs, present at the Earth Summit were 2,400 representatives from Nongovernmental Organizations (NGOs), 17,000 people attended the parallel NGO Forum and almost 10,000 on-site journalists helped to convey the Summit's message around the world. With the involvement of about 30,000 people in total, the Earth Summit was the largest environmental conference ever held. Earth Summit, *supra* note 8; Global Forum in Action, The Rio "Earth Summit", 1992 (hereinafter, Earth Summit).

15. Notwithstanding the impressive list of participating and signatory countries, the success of the Biodiversity Convention was hampered by the western non-signatory countries, which included the United States, Iceland, and Belgium with the power to cripple the effectiveness of the Convention. *See* Amanda Hubbard, *The Convention on Biological Diversity's Fifth Anniversary: A General Overview of the Convention—Where Has it Been and Where is it Going?* 10 TUL. ENVTL. L.J. 415, 421 (1997); Ho, *supra* note 6, at 470-86 (discussing some of the failures of TRIPS); DUTFIELD, *supra* note 3, at 14 (chap.3); Ghosh, *supra* note 3, at 497.

16. WILLY BRANDT ET AL., NORTH-SOUTH: A PROGRAMME FOR SURVIVAL 26 (1980) (characterizing the North/South discussion as a "dialogue of the deaf").

17. The Earth Summit was a prototypical example of negotiations proceeding on parallel tracks with different outcomes, separate declarations and treaties. Earth Summit, *supra* note 8.

18. Hubbard, *supra* note 15, at 415 (explaining that approximately 250,000 species have become extinct in the five years following the signing of the Biodiversity Convention and that this rate of extinction is approximately 1.000-10,000 times the rate of extinction for the past 65 million years); Adam, *supra* note 11, at 126. *See, infra* notes 342-348 and accompanying text discussing Hardin's Tradegy of the Commons.

19. KARL H. SEGSCHNEIDER, 10 YEARS AFTER RIO, DEBATING DEVELOPMENT PERSPECTIVES (2001) (providing an interesting analysis and assessment of the Earth Summit including the economic paradigm used to control and determine the outcome of the Earth Summit).

"better society", later embraced and amplified in President Roosevelt's New Deal, the development paradigm at work at the Earth Summit relied on an already spreading unmistakable American ingenuity.[20] The operating American development paradigm preached that the measure of a "better society" was the attainment of higher standards of living through unrestrained and constantly increasing production and consumption.[21] This paradigm assumed that the resources of the world were inexhaustible and could sustain an aggressive model of unrestrained exploitation, production and consumption.[22] Expressing no apologies, President George H.W. Bush declared in his opening remarks at the Earth Summit that "the standard of living reached by U.S. citizens is not open for discussion."[23] With this the tone of the Earth Summit was set and the North sought to obtain access to the biodiversity resources of the South to support an ever-increasing transcendent lifestyle. The notion of exploiting valuable Southern resources to support an affluent lifestyle not concerned about life itself but fine tuning lifestyle needs appeared at best insensitive and at worst callous. This is all the more so when infectious diseases, infant mortality, malnutrition and hunger ravaged many countries in the South.[24] No amount of dressing up these motives with virtuous promises or commitments to biodiversity conservation could hide the stark realities of the resulting effects of this paradigm. It was hardly surprising that the South was unwilling to turn its natural resources into what has been described as "natural ecological museums"[25] only to be exploited to support the transcendent life style of developed countries. The conditions were therefore set for legitimizing what some critics later dubbed as biopiracy where corporations, bioprospectors and even governments of developed countries appropriate valuable biodiversity resources and traditional knowledge of developing countries as their own without compensation.[26] Developing countries,

20. *Id.* at ch. 1 (discussing the evolution of the paradigm of a "better society" by going back to President Truman's inaugural speech, Jan 20, 1950); WOLFGANG SACHS, PLANET DIALECTICS: EXPLORATIONS IN ENVIRONMENT AND DEVELOPMENT 8 (1999).

21. SEGSCHNEIDER, *supra* note 19, at 1-3.

22. Garret Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968). In addressing the stress put by population growth on limited resources of the world, Hardin traces the source of the problem to common property which will lead a tragedy with no technical solution. He proposed two solutions: private ownership or centralized government control or regulation. This problem is captured here however the solutions are of doubtful validity.

23. SEGSCHNEIDER, *supra* note 19, at ch.1.

24. WHO, PUBLIC HEALTH: INNOVATION AND INTELLECTUAL PROPERTY RIGHTS, REPORT OF THE COMMISSION ON INTELLECTUAL PROPERTY RIGHTS, INNOVATION AND PUBLIC HEALTH 2-6 (2006) [hereinafter COMMISSION ON PUBLIC HEALTH](discussing the distribution of the disease burden of the world); *see also* SEGSCHNEIDER, *supra* note 19 at 7, 11 (discussing the increase of the ratio of resources used by 20% of the world population from 70% - 80%).

25. Wold, *supra* note 9, at 6.

26. VANDANA SHIVA, BIOPIRACY THE PLUNDER OF NATURE AND KNOWLEDGE 2-5 (South End Press 1999) (explaining how the initial mandate to European explorers to discover, conquer, subdue, occupy and possess everything, every society and every culture has been extended to the interior spaces, the genetic codes of life-forms, plants and others based on the assumption that they form part of a terra nullius and their biodiversity resources including seeds, medical knowledge and medicinal plants can be expropriated from their original owners); Vandana Shiva, *Bioprospecting as Sophisticated Biopiracy*, 32 SIGNS 307, 308-09 (2007) [hereinafter Shiva, *Bioprospecting*] (describing bioprospecting as sophisticated biopiracy and offering as examples the attempt by an American citizen, Loren Miller to obtain a patent for a traditional intoxicating drink

even with their own emerging North, a significant and entrenched affluent elite in their midst, appeared unwilling to subscribe to such a scheme.[27] Whatever the achievements and weaknesses of the Biodiversity Convention might have been, several very important issues seem to have escaped the attention of the critics. The strategic posturing at the Earth Summit produced certain consequences overlooked by the critics and commentators.

First, the critics, failed to appreciate the importance of two well-known international negotiating techniques; hyponymy and polysemy, often employed in complex international negotiations of the type engaged in at the Earth Summit. Polysemy and hyponymy are commonly used instruments for false compromises to achieve results when no true agreements on some issues are achievable.[28] Unfortunately, these techniques are often wrongly criticized as meaningless ambiguities and vagueness, signifying failure.[29] Nuance, verbiage, and ambiguity are powerful instruments for preserving flexibility in agreements to be performed in the future. By relying on ambiguous terminologies such as *all rights*, *sovereign rights of States over their natural resources*, *principles of international law*[30] and others, the Biodiversity Convention positioned the North to gain access to essential biodiversity resources for its development model of unrestrained production and consumption for even higher standards of living. Within the context of the development paradigm invoked, this could hardly be deemed a failure.

Second, with a high resource intensive development philosophy driving the Northern development model, the Northern strategic posture for access to the

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manufactured for ritual healing and enlightenment from the bark of a jaguba vine (*Banisteriopsis caapi*) was challenged and defeated); Vandana Shiva, *Special Report: Golden Rice and Neem: Biopatents and the Appropriation of Women's Environmental Knowledge*, WOMEN'S STUD. Q., Spring-Summer 2001, at 12, 20-21 [hereinafter Shiva, *Golden Rice and Neem*] (discussing the successful challenge of Neem patent before the European Patent Office in 2000 because the patent was based on pirated knowledge); Biplab Dasgupta, *Patent Lies and Latent Danger: A Study of the Political Economy of Patent in India*, 34 ECON. & POL. WKLY. 979, 985-987 (1999) (discussing how a delegation from India failed to persuade the European Parliament to prohibit an acknowledged biopiracy of Third World ideas shifting the legislative burden on India and other developing countries); John Merson, *Bio-Prospecting or Bio-Piracy: Property Rights and Biodiversity in a Colonial and Postcolonial Context,* 15 OSIRIS 282, 284-87 (discussing how western medicine benefitted from biopiracy and arguing that at least 7000 of the most commonly used drugs in western medicine are derived from plants with a value of about $32 billion per year while the Third World, the origin of most of these resources, receives only $551 million); Keith Aoki, *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, 47-52 (discussing biopiracy and in particular citing the pirated patent of the Neem and the African soapberry developed by an Ethiopian scientist); Ho, *supra* note 6, at 436; OGUAMANAM, *supra* note 3, at 176-180.

27. The North/South is fast becoming a defunct distinction. The North/South divide now applies to the to both societies. The North has its own South of impoverished, politically disempowered outcast on the periphery just as the South has its own emerging North, middle class elite that wields both economic and political power which are better served by the "better society" development model. *See* SEGSCHNEIDER, *supra* note 19, at 11-12 (highlighting the rapidly growing Asian middle class as a key factor in the loss of meaning of the North-South distinction).

28. *See, e.g.*, Bridgette Nerlich & David D. Clarke, *Ambiguities We Live by*: *Toward a Pragmatics of Polysemy*, 33 J. PRAGMATICS 1, 12 (2001) (developing the notion of polysemy in a pragmatic framework).

29. *See, e.g.*, Michael Van Alstine, *Federal Common Law in an Age of Treaties*, 89 CORNELL L. REV. 892, 926-27 (2004) ("[T]reaties routinely will have ambiguities or unintended gaps in their regulatory scheme. The risk of this indeterminacy in legal standards in fact may be even greater with international treaties.").

30. Biodiversity Convention, *supra* note 1, at art. 1, 3.

valuable resources of the South had to take a consensual legal framework. The obligations of the Charter of United Nations recognized by signatories to the Biodiversity Convention outlawed old forcible forms of acquisition formerly employed through imperial and colonial domination. Besides, the United Nations General Assembly Resolution of 1962 on Permanent Sovereignty over Natural Resources, Resolution 1803 (VII),[31] arguably rising to the level of *jus cogens* under international law, presented yet another legal obstacle to those ogling the bountiful biodiversity resources of the South. They were constrained by these legal instruments and others relating to the rule of law and market driven resource allocation philosophy preached by the North. Northern governments and their policy makers viewed these as universal and indispensable imperatives for good governance. The avenues for gaining access to the resources of the South were limited to peaceful negotiations. In the face of these, another approach was legally necessary. And, the North seemed to have achieved those objectives even if at the expense of the declared objectives of the Summit. Operating under these constraints, the Biodiversity Convention constructed a transactional and consensual framework for gaining qualified access to essential biodiversity resources of the South while demanding mandatory intellectual property protection for biotechnological inventions and innovations.[32], its financial obligations and benefits sharing provisions lacked any rigorous implementing mechanisms, which was also the focus of much criticism.

Third, suspicious of the motives of the North even before the start of the Earth Summit, the South expressed misgivings about the impact of the Northern development paradigm on their resources. They announced at the Beijing Ministerial Conference of the Group of 77 their unwillingness to allow an agreement, which consigned their own development needs to the backwaters of underdevelopment.[33] An international regime that legitimized or sought to entrench the development divide was unacceptable. The recognition of *all rights, sovereign rights of States over their natural resources* and *international principles* in the Biodiversity Convention therefore seemed to leave the *status quo* of Resolution 1803 (VII) intact and with that the freedom of resource holders to exploit their biodiversity resources as they see fit. Given that Article 3 of the Biodiversity Convention also recognized the right of states to exploit their resources consistent with their own environmental policies, the ambiguities in the Convention appeared acceptable.[34] Thus, in the face of these competing interests and conflicting goals the Biodiversity Convention was necessarily constructed and burdened by ambiguity on several critical issues.

31. G.A. Res. 1803 (VII), U.N. GAOR, 17th Sess., Supp. No. 17, U.N. Doc. A/5217 (Dec. 14, 1962).

32. SEGSCHNEIDER, *supra* note 19, at 15-16. Similarly, United States biotechnology interests objected on the grounds that forced sharing of technological advances would be economically disadvantageous. June Starr & Kenneth Hardy, Note, *Not by Seeds Alone: The Biodiversity Treaty and the Role for Native Agriculture*, 12 STAN. ENVTL. L.J. 89, 118 (1993).

33. Cai Shoqiu & Mark Voights, *The Development of China's Environmental Law Policy*, 3 PAC. RIM. L. & POL'Y J. S-17, S-25-S-26 (1993).

34. Biodiversity Convention, *supra* note 1, at art. 3.

Finally, notwithstanding all of these issues, the nature and scope of the rights recognized in the Biodiversity Convention remained a significant question of interpretation.[35] For instance, sovereignty is neither determinative of ownership of property rights in natural resources nor of the ownership of naturally occurring biodiversity resources or traditional knowledge in the South. Sovereignty might merely speak to the political, jurisdictional or regulatory authority of the state over resources and no more. Unlike property rights in the North which are determined mostly by the Blackstonian power theory of exclusivity, property in the South is a very complex organic, socio-cultural, religious and legal concept separate and apart from any sovereign authority exercisable over it. The complexity of this ideological concept takes on even greater burdens of nuance when the subject matter of the property rights involve naturally occurring biodiversity resources, existential resources, and traditional knowledge which predate the evolution and emergence of the modern state by thousands of years. The question of who holds these rights, their nature and scope is answerable, if ever, only within the cultural milieu of each society. The Convention did not, and could not, have resolved these issues. Thus, ambiguities in the Convention are particularly significant and worrisome given the nature of its access provisions, which do not necessarily preclude claims of free access.[36] Moreover, Article 15 of the Convention provides for access through consensual transactional arrangements between the owners and those seeking access; particularly the private sector, based on mutual agreement and prior consent.[37] This provision opens the door for unfair transactions between unequal partners. Unsuspecting private resource-holders with fiduciary responsibilities to their communities and with no knowledge of the complex arena of international transactions may negotiate agreements without any guarantees of fair benefit sharing as demanded by the Convention. They may also fail to demand that the use of their resources address their fundamental needs or be consistent with the hundreds of ecological balances they maintained. Indeed, they might further be victims of similar complex agency costs in deals aimed at mitigating transactional inequities.

The purpose of this Article is therefore to address what appears to have been a blind spot in the countless commentaries on the Convention over the years. We seek to provide an analytical framework of the ambiguities pertaining to the property rights in the Convention to empower Third World countries to assert control over, direct, and channel their biodiversity resources towards internal exploitation, through research and development to address their fundamental needs in development, disease, malnutrition, infant mortality, hunger and basic food security. The strategy for achieving these goals is the subject of a separate research agenda. For now we focus on the necessary preconditions for the implementation of that strategy. We start from the premise that the self-interested

35. *See* infra Part III (analyzing the use polysemy and hyponymy in the Biodiversity Convention to achieve false compromises); Part IV (discuss the implications of several categories of false compromises between the North and the South in the Biodiversity Convention).

36. *See* Biodiversity Convention, *supra* note 1, at art. 15 (stating that the authority to determine claims of access to biological resources is the right of sovereign nations, but not stating which ones).

37. *Id*.

development paradigm of the North cannot, nor should be expected, to address the needs of developing countries as manifested by the long history of North/South relations. Such a paradigm is neither sustainable in the long run nor one to emulate without questions. Besides, the corporate mandate and strategic vision of Northern global seed multinational enterprises (MNEs), agro-business and pharmaceuticals do not easily permit them to take on the task of tackling these known and pressing needs of developing countries.

One of the lessons of development history is that development has multiple pathways, is self-reliant and requires a home grown strategic policy architecture.[38] Put simply, "*the South must take its fate into its own hands*" by relying on the natural resources of its diverse communities based on their own focused development modalities and consistent with their cultures, history and needs. To achieve this mission, Part II of this Article frames the context of the Biodiversity Convention within the history of the failed attempts in the 1970s to establishment a New International Economic Order (NIEO) for more equitable distribution of the benefits from the exploited resources of the world. That model which relied on the benevolence of the North to redistribute the gains equitably was ill -advised and naïve if not misguided.[39] We confront the broader history of resource scarcity, which instigated the age of exploration, colonial, and imperial domination of resource rich regions of the world. We argue the same phenomenon of resource scarcity continues to drive the current North/South relations resulting in the establishment of a New Global Economic Order (NGEO) which has brought back the spirit of Columbus in the form of new explorers disguised in lab-coats and as bio-prospectors. The NGEO frames the issues within the development paradigm that dominated the Earth Summit and the Biodiversity Convention. In Part III we tackle the complexities of the ambiguities captured in the Convention through polysemy and hyponymy to achieve false compromises on the issues of property rights essential for the development paradigm at work.

Part IV is devoted to a careful analysis of the complex ambiguities captured through polysemy and hyponymy. We explore the notion of biodiversity resources as part of the commons or common heritage of humanity, as national patrimony, sovereign rights, indigenous communal rights or private property. We argue that permanent sovereignty over natural resources *rises* to the level of *jus cogens* under international law. Part V addresses the importance of the property analysis within the framework of international law in the debate over the Biodiversity Convention. We argue that, considering the demands of the Charter of the United Nations for the maintenance of international peace and security

38. WILLIAM EASTERLY, THE WHITE MAN'S BURDEN: WHY THE WEST'S EFFORTS TO AID THE REST HAVE DONE SO MUCH ILL AND SO LITTLE GOOD (Penguin Press 2006)(hereinafter, EASTERLY, WHITEMAN'S BURDEN (devoting chapter Ten, 341, to advancing the arguments for home grown and self-reliant development); for a different perspective *see,* JEFFERY D. SACHS, THE END OF POVERTY (2005).

39. Jagdish Bhagwati, *Introduction*, *in* THE NEW INTERNATIONAL ECONOMIC ORDER: THE NORTH-SOUTH DEBATE 1, 14 (Jagdish N. Bhagwati ed., 1977); , Ali A. Mazrui, *Panel Discussion on the New International Economic Order*, *in* THE NEW INTERNATIONAL ECONOMIC ORDER: THE NORTH-SOUTH DEBATE 371 (Jagdish N. Bhagwati ed., 1977).

within framework of the legal obligations imposed by Resolution 1803(VII), support for the *jus cogens* argument is cogent. Such a position would leave a substantial portion of the biodiversity resources in the hands of developing countries. This sets up the main purpose of this study that is to establish that under any conception of property rights the Biodiversity Convention has not altered the rights in biodiversity resource held prior to the Convention. With this established the real issue is how Third world countries can exploit their biodiversity resources to address their fundamental needs. Since the ambiguities in the Convention on property rights have not altered Southern conceptions of property rights in their biodiversity resources the conditions are set for the use of new Third world cooperative development models to exploit their resources on their own terms to address their fundamental needs.

II. CONTEXTUALIZING THE BIODIVERSITY CONVENTION

Any attempt to understand and analyze the implications and impact of the Biodiversity Convention must start with the context within which it was negotiated and adopted. Like other complex international arrangements with multi-cultural and multi-dimensional characteristics, the Biodiversity Convention is necessarily multi-layered, deserving of a careful unpacking of its dimensions and a multi-faceted analysis. Nonetheless, our task is of a limited nature. We shall focus on a limited number of issues, which can provide a window through which the property issues of the Convention can be analyzed and understood. With this in mind, our analysis will be limited to the following: (1) the role of growing need for access to biodiversity raw materials in the Convention; (2) the emergence of a new global economic order (NGEO) rooted in and driven by a philosophy of private ownership and control of global productive resources; (3) the gradual and persistent evolution of a new international regime of intellectual property rights that seeks to alter permanently the existing landscape; and (4) the demise of the New International Economic Order (NIEO) adopted by a Resolution of the Special Session of the United Nations General Assembly in 1974[40] to bring about a systemic realignment of global economic relations on a fairer and more equitable basis. We shall examine these contextual issues below.

A. Modern Day Bio-prospectors: The Return of Columbus?

Certain patterns in history tend to be stubbornly and persistently repetitive. Like the seasons in nature, they reoccur with almost predictable and monotonous regularity. These patterns have proved to be impervious to geography, empires, civilizations and cultures. From the days of the ancient civilizations of Egypt, Persia, and China to the present, these patterns have acquired certain distinctive and characteristic attributes. One of the distinctive attributes of these patterns, the focus of this study, is the persistent search for and acquisition of scarce resources

40. Declaration on the Establishment of a New International Economic Order, G.A. Res. 3201 (S-IV), U.N. Doc. A/RES/S-6/3201 (May 1, 1974) (establishing the New International Economic Order).

through exchange or by force sometimes cloaked with the thin veil of religion.[41] For instance, following the rise of Islam and its clash with the countervailing forces of the crusades and the unexpected emergence of the powerful nomadic Mongol Khans, the trade routes to eastern species and other valuable resources fell into the hands of unfriendly non-Christian powers.[42] Consequently, by the 15th and 16th centuries, European Christian nations, faced with scarcity in oriental silk, species, precious metals such as gold and silver, and other raw materials sought to address their needs by chartering dangerous explorations to "*new worlds"* by brave sailors often under the command of self-interested and daring captains.[43]

The narrative of the age of discovery is one of complexity, laced with political intrigues, alliances between Church and state, between Prince and the Papacy, and among European monarchs.[44] The central theme in all these politico-religious dynamics was the search for scarce and valuable resources in distant

41. Richard W. Schultz, *The Role of the Vatican in "The Encounter"*, THE VOICE OF THE TAINO PEOPLE ONLINE (May 2, 2004, 12:59 PM), http://uctp.blogspot.com/2004/05/role-of-vatican-in-encounter.html.

42. The history of trade in silk, spices and other precious metals between Europe and the Fareast is a complex topic which has been addressed by many historians. An example of complexity of these trade relations is captured by MICHAEL MCCORMICK, ORIGINS OF THE EUROPEAN ECONOMY 587-89, 719-25 (2001) (reporting the trade in silk, other textiles, perfumes and exotic food over land and by sea between central Asia and the Byzantine Empire in the centuries immediately preceding the crusades); MARCO POLO, THE TRAVELS OF MARCO POLO, 7-15 (Ronald Latham trans., Penguin Books 1958) (discussing how the negative impact of the conflict between the Christian nations of Europe and the Moslems on the trade between Europe and the Fareast overshadowed a third hitherto unknown and much more powerful force occasioned by the rise of the Mongol empire of central Asia with great mastery in horse–power and deadly archery that controlled the silk routes from China); JACK WEATHERFORD, GENGHIS KHAN AND THE MAKING OF THE MODERN WORLD 96-101, 104-105 (2004) [hereinafter WEATHERFORD, GENGHIS KHAN] (discussing how the defeat of the Golden Khan in Zhongdu (Beijing) Genghis Khan rerouted the all the twisting silk routes into one large stream across the Mongol steppes); JACK WEATHERFORD,THE SECRET HISTORY OF THE MONGOL QUEENS: HOW THE DAUGHTERS OF GENGHIS KHAN RESCUED HIS EMPIRE 43-48 (2010) [Hereinafter WEATHERFORD, THE MONGOL QUEENS) (discussing how the route passed through and a narrow strip of lands called the Gansu Corridor running between the Tibetan Plateau and the Mongolian Plateau, whoever controlled this passage and it was the Chinese, the Turkic and Tibetan tribes controlled the entire silk trade originating from the ancient Chinese city of Xian; chapter 4 at 67 is devoted to how Genghis Khan devised a strategy of installing his daughter as Queen in that region to control that critical trade route).

43. The following passage from Victor W. Von Hagen, captures the excitement and hysteria in Europe over access to new resources after the discovery of the new world: "Oppressed by want and starvation, all Europe had been haunted by the dream of the horn of plenty and fruits of an earthly paradise. The food on which it fed was unspeakably insipid, dull, and monotonous. Europe's stomach had led to a revolt. Man wanted something beyond the mere huddle and vacuity of society. Desires for spices, silk, damasks were the restless prelude to the vase efforts and initiatives of the explorers. And now this search for the "Spiceries" had brought about the discovery of a *mundus novus* – a new world." VICTOR W. VON HAGEN, SOUTH AMERICA CALLED 3 (1949); SAMUEL ELIOT MORISON, CHRISTOPHER COLUMBUS: ADMIRAL OF THE OCEAN SEA (1942); STEFAN ZWEIG, AMERIGO (1942);STEFAN ZWEIG, MAGELLAN (1938); BAILEY W. DIFFIE & GEORGE D. WINIUS, FOUNDATIONS OF THE PORTUGUESE EMPIRE 1415-1580 (1977) (discussing the explorations of Henry The Navigator and other Portuguese navigators along the west coast of Africa all the way to India through the Cape of Good Hope).

44. DIFFIE & WINIUS, *supra* note 43, at 171-74 (discussing the nature of the active diplomacy between the Spain, Portugal, their representatives in Rome and the Papacy; the genesis of the Papal Bulls dividing newly discovered territories between Spain and Portugal; HENRY HARRISSE, DISCOVERY OF NORTH AMERICA, A CRITICAL, DOCUMENTARY, AND HISTORIC INVESTIGATION 54-55 (1892))(discussing the diplomacy and alliances at work at the Papacy before and after the discovery of North America by Columbus); MORISONORISON, *supra* note 43.

lands to be discovered. The literature on this is extensive and we cannot repeat it here. Of limited relevance to our inquiry is the central role of the Holy See in this narrative as an arbiter between contending claims over discoveries of new territories.[45] To protect their investments, the princes from those nations sought and obtained Papal Bulls or grants giving them exclusive rights and dominion over non-Christian nations together with their territories and resources.[46] As God's sole voice on Earth, and based on some dubious claims of a Donation of Constantine,[47] the Vicar of Rome believed that he had the divine authority to parcel out the world and its resources for the advancement of Christianity and Christian nations of Europe;[48] never mind that the central tenet of Christ's message was hardly political, territorial, or acquisitive. But the grants through the

45. Pope Alexander VI, Inter Caetera (May 4, 1493). Apparently there were several Papal Bulls issued by Martin V, Eugene IV (1438), Nicolas V (1454), Calixtus III (1456), Pius II (1459) and Sixtus IV (1484); *see* HARRISSE, *supra* note 44, at 55-56.

46. Pope Alexander VI, *supra* note 45; DIFFIE & WINIUS, *supra* note 44,

47. HARRISSE,, *supra* note 44, at 54 (arguing that by virtue of the well known donation of Western World alleged to have been made by Constantine to St. Silvester, coupled with the apostolic plenitude powers of the Popes, no newly discovered lands could belong to any sovereign without his being first invested with sovereignty of the same by the Pontiff); However, *see* Adrian IV, *Laudibiliter*, *in* THE DOUBTFUL GRANT OF IRELAND BY POPE ADRIAN IV TO KING HENRY INVESTIGATED 14-15 (Laurence Ginnell trans., 1899) (granting England a right to invade Ireland "for the purpose of extending the limits of the Church, checking the torrent of wickedness, reforming evil manners, sowing seeds of virtue, and increasing the Christian religion"); JOHN DOS PASSOS, THE PORTUGAL STORY: THREE CENTURIES OF EXPLORATION AND DISCOVERY 21 (Doubleday & Co. 1969) (securing Portuguese claims to territories in the New World).

48. Adrian IV, *supra* note 47,(Donation by Constantine I of the western hemisphere to the Papacy . . . claimed to have been forged). By the Papal Bull of June 18, 1455, Dum Diversa, Pope Nicolas V gave the Kings of Spain and Portugal the full and free permission to invade, search out, and subjugate the Saracens and pagans and any other unbelievers and enemies of Christ wherever they may be, as well as their kingdoms, duchies, counties, principalities, and other property . . . and *to reduce their persons into perpetual slavery* (emphasis added). This was followed and reiterated by the bull *Esti Cunti* of 1456 by Pope Calixtus III and others in particular the papal bull of May 4, 1493, *Inter Caetera,* Pope Alexander VI, a citizen of Valencia, which among other things following the discoveries of Columbus gave King Ferdinand and Queen Isabella of Castille, Leon, Aragon, Sicily and Granada and their successors exclusive right to lands discovered and to be discovered under the penalty of excommunication of any violators. The bull contained very strong language against violators promising the incurring of the wrath of Almighty God and the blessed apostles Peter and Paul. For a discussion of the papal bulls *see* HARRISSE, *supra* note 44, at 55-56 (explaining the diplomatic maneuvering between Portugal and Spain that followed because of vagueness in the bull necessitating clarification in three subsequent papal bulls, *Inter Caetera*, issued by Alexander VI; the first issued on 3 May, 1493 contained the statement "no rights conferred on any Christian Prince is hereby understood as withdrawn or to be withdrawn"; the ambiguity in this statement led to the second bull, *Eximae Devotionis*, bearing the same name *Inter Caetera*, on 4 May, 1493 worded differently and made fundamental changes in the division of territory, setting the line one hundred leagues west of either the Azores or the Cape Verde Islands thus imposing limitations on Spain not in either bulls; the third bull, *Dudum Siquidem*, September 26, 1493 confirmed the *Inter Caetera* of May 4, and extended its meaning to cover lands discovered by Spain in her westward navigation, even in the East Indies excluding all other crowns and prevented Portugal from navigation, fishing, or exploring without the license of Spain; this bull also revoked earlier papal grants to Portugal. DIFFIE & WINIUS, *supra* note 43, at 173-74 (explaining that the ambiguities in bulls led to negotiations between Spain and Portugal and the Treaty of Tordesillas, June 7, 1494.); for further discussion of the role of the papal bulls and Portuguese and Spanish explorations along the West Coast of Africa, *see* DOS PASSOS, *supra* note 47, at 162 (arguing Pope Alexander VI issued three successive papal bulls each setting narrower limits to Portuguese claims to return a favor owed to the Spanish King and Queen for supporting his elevation to the papacy), and DOS PASSOS, *supra* note 47, at 172 (King John of Portugal after the Treaty of Tordesillas immediately began preparing a fleet to uphold his right to navigation and trade with the Guinea Coast while Ferdinand and Isabella started outfitting fresh ships to secure Columbus discoveries).

Papal Bulls did not come without a Christian justification: saving the souls of the savages and the spread of Christianity through the conversion of the infidels.[49] The explorations in search of resources that followed paved the way for one of the monumental human tragedies: the trans-Atlantic slave trade.[50]

Several centuries later, with the engines of industrialization of European nations in over drive, the scarcity of raw materials to sustain the pace of industrialization continued to persist. The response to that need was confronted much more directly as a political and hegemonic matter. Direct access to the much-needed raw materials and markets for the finished products was acquired through the exercise of political or military power resulting in imperial or colonial domination of many territories by metropolitan powers of Europe. Two important points need to be made about the characteristic mechanisms and distinctive processes of colonialism and imperialism. First, the colonies were assigned a definite role as suppliers of raw materials, precious metals and other commodities. Names such as the Gold Coast and the Ivory Coast given to some of the colonies only serve to emphasize the importance of extractive motivations in the calculus of the metropolitan powers.[51] It was not contemplated that one day the colonies would be transformed economically or culturally to resemble their colonizers. Second, given the extractive objectives, the metropolitan powers invested the barest minimum of the resources and the institutions necessary to achieve their goals thereby appropriating as much value as possible at the least cost.[52] The institutions that were the basis of governance and transformation of the metropolitan powers were deliberately interfered with or withheld from the colonies.[53] Deliberate or not, the consequences of these policies were the realization of the secondary and tertiary benefits from the extractive activities in the colonizing countries. What is surprising is the stubborn policy of minimal investments mostly in extractive activities appears to have persisted throughout the centuries.[54]

49. Papal Bull of June 18, 1455, *Dum Diversa*, Pope Nicolas V, *supra* note, 18; DOS PASSOS, *supra* note 47, (Note:explaining each ship fitted out on a voyage of explorations had a friar on board and the instructions to the Captain and friar were clear); JOHN HEMMING, THE CONQUEST OF THE INCAS 41-44 (1970)) (describing how the friar travelling with Pizarro, Vicente de Valverde, ordered the Spanish soldiers: (Christians, come out and attack these enemy dogs of God because the Chief, he referred to as Lucifer, has thrown the book of God on the ground; following the call to battle the Incas were annihilated and Atahualpa was captured).

50. A Papal Bull which is often cited as the reason for the transatlantic African slave trade issued on June 18, 1455, by Pope Nicolas V, the *Dum Diversas* authorized Afonso V of Portugal to conquer Saracens and pagans and consign them to indefinite slavery. Diana Hayes, *Reflections on Slavery*, *in* CHANGE IN OFFICIAL CATHOLIC MORAL TEACHING (Charles Curran ed., 1998) ("We grant . . . full and free permission to invade, search out, capture, and subjugate the Saracens and pagans and any other unbelievers and enemies of Christ wherever they may be, as well as the Kingdoms, duchies, counties, principalities, and other property [. . .] and to reduce them into perpetual slavery").

51. Acemoglu et al., *supra* note 7, at 1375; WALTER RODNEY, HOW EUROPE UNDERDEVELOPED AFRICA (Howard Univ. Press 1982); CRAWFORD YOUNG, THE AFRICAN COLONIAL STATE IN COMPARATIVE PERSPECTIVE (Yale Univ. Press 1994); EASTERLY, THE WHITE MAN'S BURDEN, *supra,* note 38.

52. Acemoglu et al., *supra* note 7, at 1375-1376.

53. *Id.*; EASTERLY, *supra* note 38.

54. Several UNCTAD reports point out the enclave character of foreign investment, World Bank studies confirm the pattern. *E.g.* U.N. CONF. TRADE & DEV., WORLD INVESTMENT REPORT, UNCTAD/WIR/2007, U.N. Sales No. E.07.II.D.9 (2007); WORLD BANK GROUP, EXTRACTIVE INDUSTRIES TRANSPARENCY

As we enter the third millennium, the scarcity of yet other raw materials has manifested itself. This time the scarcity is in biodiversity resources, ideas associated with them, and traditional knowledge. Although the current scarcity in resources does not involve precious metals such as gold and silver access to biodiversity resources presents perhaps greater opportunities for wealth and profits than did the raw materials of old. It is now well settled that the tremendous advances made in biotechnology have demonstrated that significant profits can be made by global pharmaceutical and seed companies from harvesting traditional, bio-cultural, or indigenous knowledge pertaining to biodiversity.[55] Recent advances in biotechnology also indicate that biodiversity resources and their associated traditional knowledge hold great promise for transforming the life styles of affluent societies.[56] Through genetic engineering and the eradication of stubborn diseases people can lead longer, more productive, improved, and joyous lives. Moreover, with traditional knowledge in seeds, plants and farming techniques, agricultural production in developed countries could continue to be revolutionized. However, a vast majority of the biodiversity resources are located in the countries, which, in earlier centuries, were the targets of acquisitive explorers and imperialists.[57]

With the effects of imperialism and colonialism still fresh in our minds, and the prominence given in the United Nations Charter to the maintenance of

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INITIATIVE (EITI) SCOPING STUDY FOR THE REPUBLIC OF ZAMBIA (2007) (detailing the investment climate for Zambia's copper industry); WORLD BANK GROUP, STRIKING A BETTER BALANCE (2003) (finding that the World Bank's involvement can only continue if developing nations adopt extraction policies which further human rights).

55. Many studies suggest biotechnology companies stand to make significant profits from harvesting traditional, bio-cultural, or indigenous knowledge pertaining to biodiversity. *See* Sarah E. Frew, Stephen M. Sammut, Alysha F. Shore, Joshua K. Ramjist, Sra Al-Bader, Rahim Rezaie, Abdallah S. Dar & Peter A. Singer, *Chinese Health Biotech and the Billions-Patient Market,* 2008 Nature Publishing Group, http://www.nature.com/naturebiotechnology; Marion Motari, Uyen Quach, Halla Thorsteinsdottir, Douglas K. Martin, Abdalla S. Daar & Peter A. Singer, *South Africa-Blazing a Trail for African Biotechnology,* 2004 Nature Publishing Group, http://www.nature.com/naturebiotechnology; Fangzhu Zhang, Philip Cooke and Fulong Wu, *State-Sponsored Research and Development: A Case Study of China's Biotechnology,* 45 Regional Stud. 575, 579 (2011)(billions of dollars put into the biotech R&D estimated by some to have increased by 400%); Chao-Chen Chung, *National, Sectoral and Technological Innovation Systems: The Case of Taiwanese Pharmaceutical Biotechnology and Agricultural Biotechnology Innovation Systems (1945-2000,* 39 SCIENCE PUB. POLICY 272, 275 (2012)(role of Chinese herbal medicine in biotechnology); Philip Cooke, *The Accelerating Evolution of Biotechnology Clusters,* 12 EUR. PLANNING STUD. 915 (2004) (discussing the accelerating growth of biotech companies and clusters globally); Sarah E. Frew, Hannah E. Kettler, and Peter A. Singer, *The Indian and Chinese Health Biotechnology Industries: Potential Champions of Global Health?* 27 HEALTH AFFAIRS 1029, 1033-1034 (2008) (discussing the low-cost, high-volume strategies of biotech companies for defending lucrative domestic markets and expanding into regional and global Markets).

56. Olufunmilayo B. Arewa, *Cultural Autonomy and Cultural Hierarchies: Sacred Spaces, Intellectual Property and Local Knowledge* 14-16 (Case W. Res. Univ., Working Paper No. 4-19, 2006), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=596921.

57. Yelpaala, *supra* note 2, at 111 (discussing concentration of biodiversity resources); Starr & Hardy, *supra* note 32 at 88-89 (arguing that nine diversity centers: Ethiopia, the Mediterranean are, Asia Minor, Central Asia, India, Burma, China, Siam-Malaysia-Java, Mexico-Guatamala and Peru-Ecuador-Bolivia, these and other minor centers account for most western food crops but occupy less than one fortieth of the Earth's land surface.); Rosa Giannina Alvarez Núnez, *Intellectual Property and the Protection of Traditional Knowledge, Genetics Resources and Folklore: The Peruvian Experience,* 12 MAX PLANCK Y. B. U. N. 487, 491(2008)(hereinafter Núnez, *Peruvian Experience*)(explaining the formation of Like-Minded Megadiverse Countries in 2002 concerned about the inequities in granting patents for indigenous genetic resources.)

international peace and security it should be obvious that gaining access to the needed biodiversity resources cannot be achieved through the use of raw political or hegemonic power. A subtler strategy is necessary. The solution has been found in a new form of exploration by biodiversity prospectors who come with areas of specialization ranging from science to anthropology. Posing simply as curious scientific investigators the new explorers could be very effective in their collection activities among an unsuspecting traditional people.[58] Like their predecessors, the new explorers enjoy the financial support of organized institutions and entities such as global enterprises and their host countries interested in their findings.[59] Just as the earlier explorers obtained exclusive rights for their European princes, modern bio-prospectors stand to obtain exclusive rights in the form of patents for their financial backers. The fact that such bio-prospecting activities were unregulated and resulted in abuses has led some to the condemnation of those activities as bio-piracy.[60] The Biodiversity Convention therefore appears to present a system of regulated access and a legitimization of the process. One might then appropriately say that little has changed over the years. *We are merely putting old wine into new bottles.* And, that does not transform the wine into something else.

A dominant characteristic of the brief historical pattern described above is the apparent need for some plausible justification for access to, and exploitation of, the needed raw materials located in foreign territories. In the 15th and 16th centuries the legitimacy came in the most extreme form of hierarchical authority: grants based on the exercise of divine authority from God's sole representative on earth, the Pope.[61] Who could challenge that![62] Centuries later, the conduct of the imperial powers came veiled in trading companies such as the famous East Indian Companies,[63] protective treaties with native rulers,[64] and treaties among

58. VON HAGEN, *supra* note 43, at 3-10(discussing how in the 18th and 19th centuries European naturalists such as Charles-Marie de la Condamine, Alexander Humboldt, Charles Darwin and Richard Spruce explored South America and gathered information on its valuable resources relying often on the unsuspecting natives); Maxwell Owusu, *Ethnography of Africa: The Usefulness of the Useless*, 80 AM. ANTHROPOLOGY 310, 312 (1978) (addresses the role of outsiders and insiders in anthropological investigation).

59. Like their historic counterparts, modern corporate bioprospectors often broker highly exploitative contracts with developing nations for their biological resources. Arewa, *supra* note 56, at 81.

60. Bio-piracy is a dirty word, a detestable term laden with theft, unfairness, and inequality which must be reserved for the most egregious circumstances. It is therefore not used here lightly. For a strong and uncompromising position on biopiracy, *see* SHIVAHIVA, *supra* note 26, at 1-3 (arguing piracy is done through the patent system).

61. Schultz, *supra* note 41.

62. The fruitless challenge came from King Francois of France who screamed and demanded "*to see the clause in Adam's will which entitled the Kings of Castile and Portugal to divide the earth between themselves.*" (emphasis added), VON HAGEN, *supra* note 43, at 4, 127-28 (explaining two centuries later the futile response by the chief of the Zenus in South America when informed of the reasons why his territory was occupied and colonized as a grant by the Pope of the territories to Spain responded "*Then your Pope must have been drunk and the King an idiot*." (italics added). Writing in 1753 Monsieur De Vattel leveled several charges of the abuse of Papal powers in Europe against princes and other temporal leaders of the time who disobeyed popes. *See* MONSIEUR DE VATTEL, THE LAW OF NATIONS (Chitty ed. 1853) at 66-68.

63. Although the Dutch East Indian Company and the English East India Company gained notoriety, *see* C.H. Alexandrowicz, *Freitas Versus Grotius,* 35 BRIT. Y.B. INT'L L. 162 (1959) (arguing that in protest to the papal of Alexander VI granting Spain and Portugal exclusive right to trade in newly discovered territories other European countries such as Holland, the United Kingdom, France, Prussia and Austria established their own

themselves for the orderly exploitation of the resources and markets of those territories.[65] These instruments became the basis for extensive extractive activities that drained the colonies of their valuable resources. True to form, the modern justification for access to the biodiversity resources is based on yet another legal instrument: the Biodiversity Convention. If there are doubts about the effective participation of the native rulers in the treaties signed during the period of explorations and imperialism the same cannot, nor ought to, be said of the Biodiversity Convention. The suppliers of the needed raw materials "participated" in or at least endorsed the construction of this new instrument for legitimizing access.

While the legal quality of the earlier legitimizing instruments is seriously suspect they nevertheless provided the metropolitan powers with plausible legal argumentation in support of their legitimate claims to access and exploitation. In the case of the Biodiversity Convention a stronger case for legitimacy can be made. After centuries of interaction between the developed and developing countries the channels of unequal exchange are well catalogued and understood.[66] The patterns of trade exchange discussed above are also well known. Fully apprised of the history of asymmetrical interrelationships, the developing countries participated in the preparation and drafting of the Convention. One must then start the analysis of the Convention on the basis of the belief that

East India trading companies): EDWARD RICE, CAPTAIN RICHARD SIR FRANCISBURTON: A BIOGRAPHY 37 (1990).

64. *See, e.g.*, Treaty With the Chiefs of Jakri, Eng.-Itsekiri Tribe, July 16, 1884, *in* WARRI CITY AND BRITISH COLONIAL RULE IN WESTERN NIGER DELTA 45-48 (Peter P. Ekeh ed., 2004).

65. General Act of the Berlin Conference on West Africa, Feb. 26 1885, 3 AM. J. INT'L L. (SUPP.) 7, 7-25 (1909) [hereinafter Berlin Conference].

66. Following the speech by Mr. Houari Boumedièn, President of the Republic of the Peoples's Democratic Republic of Algeria and Chair of the Non-Aligned Countries (Group of 77) at the Sixth Special Session of the United Nations General Assembly 9 April-2 May 1974, the nature of the problem of unequal exchange relating to commodities was well articulated by several speakers. *See* U.N. GAOR, 6th Spec. Sess., 2207th-2231st plen. mtgs., U.N. Doc. A/PV.2207-2231 (Apr. 9-May 2, 1974); Two academic contributions on the problems of the commodities trade which are illustrative of the debate over the unequal exchange are: CHRISTOPHER P. BROWN, THE POLITICAL AND SOCIAL ECONOMY OF COMMODITY CONTROL (1980) (tracing the history of the commodities debate to the Havana Charter following the Second World War and providing the origins and evolution of UCTAD's Integrated Program); ROBERT L. RHOSTEIN, GLOBAL BARGAINING: UNCTAD AND THE QUEST FOR A NEW INTERNATIONAL ECONOMIC ORDER (1979) (chapter 2, devoted to explaining the debate over commodity prices and the struggle over reaching an agreement on an integrated commodities prices proposed by UNCTAD); UNCTAD, *An Over-all Integrated Programme for Commodities* (Geneva: TD/B/498), August, 1974)(explaining the principles and objectives of the Integrated Program for Commodities); KWAME NKRUMAH, NEO-COLONIALISM: THE LAST STAGES OF IMPERIALISM (1965) (devoting chapter 1 to explaining how the vast natural resources of Africa are exploited for the development of other countries.); ARGHIRI EMMANUEL, UNEQUAL EXCHANGE: A STUDY OF THE IMPERIALISM OF TRADE (1972) (providing a Marxist explanation of imperialist exploitation of trade as a tool of unequal exchange; and at *vii* providing the following provocative statement of Karl Max in a speech delivered in 1848: " If the free traders cannot understand how one nation can grow rich at the expense of another, we need not wonder, since these same gentlemen also refuse to understand how within one country one class enrich itself a the expense of another."); SAMIR AMIN, ACCUMULATION ON A WORLD SCALE: A CRITIQUE OF THE THEORY OF UNDERDEVELOPMENT (Brian Pearce trans., 1974) (arguing that the Marxist perspective that Western economic penetration and monopolistic power contributed to the underdevelopment of developing countries); ANDRE GUNDER FRANK, CRISIS: IN THE WORLD ECONOMY (1980) (providing a historical account of the asymmetries in the distribution of economic power in relation to population or geographic area in the immediate post World War II to the economic crisis of the 1970s).

countries of the South are capable of learning from the history of international relations and have relied on that history to protect their interests in the Biodiversity Convention. Indeed, it is our position that developing countries seemed to have preserved their options in the Convention through various ambiguities and strategic posturing. The real issue is how to prevent the erosion of these gains by subsequent international agreements.

B. The Impact of the Emergence of a New Global Economic Order.

The history of centuries of international relations is not the only phenomenon that influenced the adoption of the Biodiversity Convention. A deeper understanding of the Convention can be gained from an inquiry into more recent geopolitical theories and the impact of the dominant political ideology of today on global business and economics. The Biodiversity Convention appears to be part of a systemic realignment of a new global economic order (NGEO) in which the role of government is substantially reduced or completely eliminated. The NGEO is anchored on a neoliberal economic philosophy with its central organizing scheme based on market principles under which the assignment of property rights in various global resources should be given to private individuals. In essence, the policy prescription of the NGEO was preserving the old order with neoliberal market based economic theories, often associated with what has been described as the Washington Consensus.[67] The adoption of the Convention should be seen from the perspective of the privatization revolution that started during the Reagan/Thatcher era in the 1980's and is continuing at full pace decades later. There has emerged a powerful intellectual and public policy notion that the transformation of human social, economic, and political organization is best achieved if the utilization of resources is left *largely* in the hands of private individuals.[68] Little wonder that many of the advocates for a regime of access to biodiversity resources prefer to frame the issues within the context of private property rights in traditional ideas and knowledge.[69] A regime of private ownership, it is urged, will ultimately encourage efficient utilization of scarce global resources for the benefit humanity at large.[70] In a free market system, open and voluntary bidding for access to, and use of, privately owned scarce resources at market determined prices would ensure that global scarce resources will fall into the hands of those capable of putting them to their best uses.[71]

Consequently, the Biodiversity Convention appears to be a systematic recalibration of the NGEO in which private property rights take center stage. The

67. John Williamson, *What Washington Means by Policy Reform*, *in* LATIN AMERICAN ADJUSTMENT: HOW MUCH HAS HAPPENED? (John Williamson ed., 1990).

68. *Id.* (prescriptions of 1980s resumed in the 1990s "ownership society").

69. Craig D. Jacoby and Charles Weiss, *Recognizing Property Rights in Traditional Biocultural Contribution*, 16 STAN. ENVTL. L.J. 74, 78 (1997).

70. Kenneth W. Dam, *Intellectual Property in an Age of Software and Biotechnology* 26 (John M. Olin Law & Econ., Working Paper No. 35, 1995), *available at* http://www.law.uchicago.edu/files/files/35.KWD_.IP_.pdf.

71. RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW, 31 (3th ed. 1986).

concern is not directly with the concept of private property rights or the need for some private ordering in areas involving global resource utilization. Rather, it is concerned with the unrestrained, ever expanding reach and depth of private property rights into new and sensitive areas of importance to the collective human social, political, and economic survival. More specifically, the application of the concept of private property to *ideas* in general and to biotechnological inventions pertaining life, new life forms, living organisms, seeds, and plants pose unique problems and risks to humanity.[72] It is not clear whether a private property regime for biotechnological inventions better serves the needs of humanity than one based on collective or other communal rights. However, the NGEO emphasizes private ownership over collective rights; it seeks to liberate global resources from the grip of the collective, the state, the village or traditional societies. That choice is based more on ideology than it is on history or the *essence* of property rights. It is part of an evolving new order that seeks to impose a *"new"* or, one might even assert, to reaffirm the *old* global ideology pertaining to the creation, ownership, and access to trans-boundary resources. Like most ideologies, the notion that private rights must dominate collective rights is driven by the vision of a robustly individualistic world as seen by powerful countries, the Washington Consensus group and global enterprises whose interest are at the core of the NGEO.[73] The Biodiversity Convention is but part of the privatization drive that manifests itself in an evolving international intellectual property regime.[74] But why must one be concerned about an evolving international intellectual property regime within the context of biodiversity? As will be demonstrated below, the answer to this question demands careful analysis.

C. Biodiversity and the Emerging International Intellectual Property Regime

Any attempt to answer the question posed above on an emerging regime of international intellectual property rights might start with a few observations. Biodiversity resources constitute one of the last frontiers of scarce resources essential for certain biotechnological inventions in highly sensitive and controversial areas of national policy domain. The nature and high concentration of these resources in developing countries as discussed above required a much more nuanced property normativity, which would facilitate easy access to these

72. *See* DRAHOS, *supra* note 2,at 210; Yelpaala, *supra* note 2, at 165-79.

73. Indeed, it would seem that Northern commentators on notions of intellectual property rights are the spiritual heirs and protectors of Lockean notions of life, liberty and property. Williamson, *supra* note 67, at 17 ("In the United States property rights are so well entrenched that their fundamental importance for the satisfactory operation of the capitalist system is easily overlooked.").

74. TRIPS, *supra* note 3; European Parliament & Council Directive 98/44/EC of 6 July 1998 on the Legal Protection of Biotechnological Inventions, 1998 O.J. (L 213) 13 (EU) [hereinafter Biotech Directive]; Peter Drahos, *BITs and BIPs*, 4 J. WORLD INTELL. PROP. L. 791, 792-807 (2001) (describing "TRIPs-plus" bilateral agreements negotiated by the United States and the EC with individual developing country governments); Convention Establishing the World Intellectual Property Organization, July 14, 1967, 21 U.S.T. 1749, 828 U.N.T.S. 3 (as amended Sept. 28, 1979), *available at* http://www.wipo.int/treaties/en/convention (last visited August 1, 2010) [hereinafter WIPO treaty].

resources by bio-prospectors, scientists and MNEs. But access would not answer the question of ownership rights over inventions or discoveries derived from biodiversity resources. As if *to intercept any future disputes* over these rights, a much more concrete and universal concept of property appeared essential. The evolving international intellectual property regime is a response to this need. It is driven by the exaltation of a property construct that is unitary, static, linear, non-textured, and characteristically unresponsive to the wealth of global multi-layered conceptions of property rights. Such a narrowly defined and less responsive conception of property rights carries with it certain inherent risks and dangers to suppliers of biodiversity resources and traditional knowledge. However, like most concepts used in the ordering of human social and economic relations, the concept of property is largely an ideological concept, lacking the universality and aridity of an imperial edict, employed by different cultures to achieve various social objectives including norms of distributive equities in the allocation and utilization of scarce resources. Given the cultural distinctiveness and heterogeneous belief and value systems in the world, the apparent internationalization of a monolithic conception of property rights as applied to ideas, however expressed, might invite significant cultural misunderstanding, resistance and transnational conflict.

The case for a uniform international intellectual property system has been made by Robert Sherwood and others.[75] Although the system suggested by Sherwood is sensitive to cultural differences, it nevertheless demands some uniformity, congruence, and the stimulation of confidence in creative people across countries.[76] The question presented, however, is what is being harmonized, why, how and for whose benefit? Besides, there are legitimate concerns over the degree to which interactive sovereign autonomy should be determinative of the subject matter of intellectual property rights and whether such a system would restrain and constrain the *use* and *abuse* of hegemonic bargaining power against weaker regimes with different social values.

Although an international regime of private property rights in ideas presents certain general concerns, the expansion of the protective veil of property to biotechnological inventions or discoveries derived from biodiversity pose unique concerns.[77] Internationalization suggests and involves some universalism and convergence of views on the nature, scope, and duration of property rights in ideas. It is unclear how global universalism and convergence are achieved. Even in an ever shrinking global community, universalism might not be based on a careful global debate over, and a resulting "mélange" of differing cultural conceptions and the role of property in ideas. Or, universalism may manifest a mere continuation of the "*ancient regime"* in which universalism in concepts is but the imposition of dominant cultural hegemony. However, the question of

75. Robert M. Sherwood, *Why a Uniform Intellectual Property System Makes Sense for the World*, *in* GLOBAL DIMENSIONS OF INTELLECTUAL PROPERTY RIGHTS IN SCIENCE AND TECHNOLOGY 68-71 (Mitchel B. Wallerstein et al. eds., 1993)

76. *Id*.

77. Yelpaala, *supra* note 2, at 161-165.

ownership and access to resources critical to human needs should not be dictated by hegemonic conceptions of the right to exclude others from ideas in the form of inventions or discoveries based on inaccessible technical requirements.[78] Universalism based on a coercive unification of such an important ideologically driven concept as property would be seriously at odds with the central tenets of a Convention with a declared and uncompromising goal of *diversity*.

Besides, to the extent the evolving international regime of intellectual property is not the result of a careful open international debate that benefits from contributions of diverse cultures and societies, the new international intellectual property regime would lack the moral content required of global ordered systems that demand internalization to be effective. The efficacy of any system of coercive rules is often greatly enhanced by the internalization of its rationalized and undergirding system of values. Internalization is particularly important in the case of international law which relies less on the Austinian model of law delivered by some higher authoritative power, or coercive orders backed by sanctions and more on certain fundamental inherent rights of states, acceptance, reasonableness, and voluntary compliance.[79]

It is important to note that an international regime for intellectual property is not new to the world. Such a regime dates back to and even predates the Paris Union in the 1880's.[80] What is new however is its systematic growth and expansion into new areas of ever- growing importance to human existence. The old international intellectual property regime did not seek to impose the concept of property on sovereign states.[81] It left the choice of what is proprietary and the

78. 35 U.S.C. § 101 (2006 & Supp. V 2011); Convention on the Grant of European Patents art. 52, Oct. 5, 1973, 1065 U.N.T.S. (as amended by Revision Act of Nov. 29, 2000) [hereinafter European Patent Convention], *available at* http://www.epo.org/patents/law/legal-texts/epc.html (last visited August 1, 2010); Biotech Directive, *supra* note 74, at Article 1 (requiring member states to protect biotechnological inventions under national patent laws).

79. J.L. BRIERLY, THE LAW OF NATIONS 46-51 (Humphery Waldock ed., 6th ed. 1963) (arguing that under natural law theories, states are endowed with inherent natural rights with independence, equality, respect and intercourse; thus international law is between but not above the several states). Two positivist legal philosophers disagree over the role of sanctions and coercion as essential elements in the definition of international law. HANS KELSEN, PURE THEORY OF LAW 320 (Max Knight trans., 1967) (arguing that the decisive question is whether international law establishes coercive acts as sanctions and asserting that the specific sanctions of international law are reprisals and war); H.L.A. HART, THE CONCEPT OF LAW, 211-212(1961) (arguing that international law as a system does not fit into the notion of law as orders backed by threats, rather obligation or duty such as that found in international law does not require sanction or punishment); WILLIAM W. BISHOP, JR., INTERNATIONAL LAW: CASES AND MATERIALS 4-6 (3d ed. 1971) (discussing the nature of international law).

80. Paris Convention for the Protection of Industrial Property, Mar. 20, 1883, 21 U.S.T. 1583, 828 U.N.T.S. 305[hereinafter Paris Convention]; EDITH T. PENROSE, THE ECONOMICS OF THE INTERNATIONAL PATENT SYSTEM 64-66 (1951) (providing a historical account of the Paris Convention); Fritz Machlup & Edith Penrose, *The Patent Controversy in the Nineteenth Century,* 10 J. ECON. HIST. 1 (1950) (describing the history of the controversy over patents across Europe in the late nineteenth century); BRAD SHERMAN AND LIONEL BENTLY, THE MAKING OF MODERN INTELLECTUAL PROPERTY: THE BRITISH EXPERIENCE, 1760-1911 (1999) (tracing the origins of intellectual property debates to various Parliamentary enactments in the 1600s and decided cases on copyright claims in the middle of 1700s); JEFFREY H. MATSUURA, JEFFERSON VS. THE PATENT TROLLS (2008) (discussing Jefferson's views in the early years of the United States on intellectual property and the role of the diffusion of ideas for the advancement of humanity).

81. Madrid Agreement Concerning the International Registration of Marks, Apr. 14, 1891, as revised at Stockholm, July 14, 1967, 828 U.N.T.S. 389 [hereinafter Madrid Agreement]; Machlup & Penrose, *supra* note

protection of ideas to sovereign states.[82] The new and evolving regime has diminished sovereign choices with respect to what is proprietary by forging a coercive link between sovereign protections of private property rights in ideas to the right of states to engage in global exchange through trade.[83] The coercive system is best manifested in the adoption of TRIPS in the Uruguay Rounds of negotiations, which established the World Trade Organization (WTO).[84] Furthermore, the emergent notion in WTO and TRIPS that an idea and its derivative intellectual property rights necessarily have a national *situs* or origin, a national or territorial identity and affiliation, in an ever- globalizing environment, is not only of suspect validity but also invites transnational conflict.[85] Take the case of the evolution of grammar and language. The leading scholars in linguistics point to some universal grammar that is innate permitting the evolution of language.[86] Could one with any degree of certainty assign a national marker to the faculty and development of language or speech? The evidence also tends to show the simultaneous creation of similar ideas in geographically remote regions of the world.[87] A system of private rights that assigns national identity and origin to highly diffused and diffusible ideas simultaneously generated in different cultures and countries invites misappropriation of national origin and conflicting transnational claims. The potential for conflict is further magnified

80, at 2-5 (detailing the early resistance to patent laws); Treaty Establishing the European Economic Community arts. 36 & 222, Mar. 25, 1957, 298 U.N.T.S. 11.

82. Paris Convention, *supra* note 80, Article 4; Penrose, *supra* note 80, at 72-73 (explaining that Article 4 restricted the spatial scope of the patent to the laws of the granting state).

83. In Article 64 of TRIPS disputes over compliance with TRIPS obligations are to be settled under the provisions of Articles XXII and XXIII of GATT 1994. For discussion of the trade implications of this reliance on the GATT dispute settlement, *see* GERVAIS, *supra* note 5, at 508-15.

84. Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 3 [hereinafter Agreement Establishing the World Trade Organization]; GERVAIS, *supra* note 5, at 14-19 (explaining the opposition of various developing countries to TRIPS over many issues showing a clear North/South divide).

85. Kojo Yelpaala, *Quo Vadis WTO? The Threat of TRIPS and the Biodiversity Convention to Human Health and Food Security*, 30 B.U. INT'L L.J. 55, 108 (2012) (raising the question whether an idea has a national origin such that a state might claim ownership of it).

86. Much recent criticism and analysis in this area is the direct result of Chomsky's minimalist theory which builds a framework around a theory of a universal grammar. NOAM CHOMSKY, THE MINIMALIST PROGRAM (1995); NOAM CHOMSKY, ON NATURE AND LANGUAGE 7-9 (Adriana Belletti & Luigi Rizzi eds., 2002) (ascribing the origins of the faculty of language and universal grammar to biology and Darwinian evolutionary biology, and cognitive theories); NOAM CHOMSKY, KNOWLEDGE OF LANGUAGE: ITS NATURE, ORIGIN, AND USE 1-5, Ch. 2 (1986) (discussing the concept of universal language).

87. There is increasing curiosity about the nature, origins and cultural history of human creativity. It is becoming clear that some human inventions across cultures were independent. In the case of the invention of writing, Jared Diamond argues that there are at least two indisputably independent inventions of writing achieved by the Sumerians of Mesopotamia around 3000 BC and Mexican Indian (Mesoamerica) before 600 BC. Other more questionable independent inventions include Egypt 3000 BC and China by 1300 BC. Assuming that other writing systems were influenced earlier inventions from other societies, their variety clearly demonstrates the universality of human creativity. *See* JARED M. DIAMOND, GUNS, GERMS, AND STEEL: THE FATES OF HUMAN SOCIETIES 218-24 (1999); For earlier literature on independent inventiveness, *see* JAMES LEGGE, THE CHINESE CLASSICS 57-87 (Hong Kong University Press 1949) (1892) (giving a brief account of the life of Confucius) and at 16 (discussing Mencius and comparing him to the Greek Philosophers); MIRCEA ELIADE, THE FORGE AND THE CRUCIBLE (Stephen Corrin trans., Harper 1962)(discussing the complex interrelationship between human spirituality, the supernatural and the creativity connected with shrinking time in collaboration with nature giving rise to the development of alchemy dating back to the days of Babylon and beyond into China and India).

when national identity or origin of ideas is the basis for the imposition and enforcement of collective international trade sanctions against a sovereign state for the alleged infringement of those rights.

A coercive system of collective penalties was not contemplated by the Paris Union and similar international regimes.[88] Nonetheless, we are reminded of TRIPS and the super 301 provisions of the U.S. domestic trade legislation. TRIPS links the rights of nations to trade with intellectual property protection.[89] At the municipal legislation level, the U.S. Congress has authorized significant trade sanctions against any nation state that fails to protect U.S. origin intellectual property rights.[90] Seen within this context, it is obvious that the Biodiversity Convention, which seeks not only to create access to biodiversity resources but also insists on the protection of intellectual property in ideas derived or developed from biodiversity resources,[91] carries with it the not too subtle threat of trade-related coercion against those countries that supply the biodiversity raw materials, resources or traditional knowledge for inventions.

The emergence of a global intellectual property regime that seeks the entrenchment of a delivered universal system poses other significant dangers for a vast majority of nation states that have always been recipients, and seldom-effective participants in the development, of new international universal normative systems.[92] A system that systematically excludes a whole range of ideas and knowledge in biodiversity resources from the intellectual property regime is likely to produce global inequalities between the suppliers and users of those resources. Unfortunately, unequal new international systems which come with rationalized acceptance and some legitimacy are likely to be embraced by global institutions and non-governmental organizations (NGOs) concerned with the welfare of humanity in general and that of poorer countries specifically.[93] Rationalized acceptance may ignore or overlook the underlining conceptual or normative pitfalls in the new systems. In particular, international institutions devoted to the management of the global resources in ideas for human progress might unwittingly become instruments for the entrenchment of newer forms of global inequality.[94] This may come about because the politics of institutional

88. Paris Convention, *supra* note 80; Penrose *supra* note 80 (arguing that the central thrust of the protection under the Paris Convention was a national issue); Madrid Agreement, *supra* note 81; Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, 1161 U.N.T.S. 3 (1986).

89. Yelpaala, *supra* note 85, at 104-05.

90. 35 U.S.C. § 101 (2006 & Supp. V 2011).

91. Biodiversity Convention, *supra* note 1, Article 16 (5).

92. MAHBUB UL HAQ, THE POVERTY CURTAIN, at ix-xiii (1976); Julius K. Nyerere, *Unity for a New Order*, *in* DIALOGUE FOR A NEW ORDER 3 (Khadija Haq ed., 1980); BRANDT ET AL., *supra* note 16, at 23-25.

93. Joseph E. Stiglitz, Winner of the 2001 Nobel Prize in Economics has adequately and convincing demonstrated how many developing countries have been misled or given the wrong prescriptions of economic policies by international institutions such as the World Bank and the International Monetary Fund, *see* JOSEPH E. STIGLITZ, GLOBALIZATION AND ITS DISCONTENTS (2002).

94. *See, e.g.*, *What Is the Real Relationship Between the CBD Working Group on Access and Benefit Sharing and WIPO and the WTO?*, INTELL. PROP. Q. UPDATE (Ctr. for Int'l Envtl. Law, Geneva, Switz.), Fourth Quarter 2007, at 2 (discussing a usurpation by the WTO and WIPO of authority over matters within the scope of the working group on Access and Benefit Sharing of the Convention on Biological Biodiversity and noting a concern that the WTO and WIPO are ill equipped to deal with matters relating to biodiversity).

neutrality may discourage questioning the Washington Consensus presumptions or the significant role of private property rights in ideas as an instrument of human progress.[95] To the extent that global institutions accept the property regime as controlling the issues of biotechnological inventions derived from biodiversity resources, the response of these institutions would likely be limited to managing the received system even if such a system maintains entrenched inequities.[96] These concerns might be the motivating elements in the role of WIPO in creating a forum for discussing the conceptual and policy issues relating to traditional knowledge and their protection.[97]

Although one could challenge the received theoretical justifications for intellectual property rights, the mission of this endeavor is different. Certainly, the issue is not whether a rational case could be made for the protection of intellectual property particularly in an increasingly acquisitive world. Rather, the concern is that the train of global intellectual property rights is not only moving at an ever accelerating speed but also seems to be sucking up everything within its reach. The implications of the emerging global intellectual property regime are particularly serious in the biotechnology arena. Whatever general justifications there might be for according property rights to ideas there is a need to revisit the issue in the case of biotechnology. The case for such a review has been extensively explored elsewhere.[98] We can only note the basic argument here.

95. A testament to the exaltation of property rights in products of the intellect as manifested in TRIPS and its underlining rationalization of the private property regime is demonstrated by the response of the WTO to the crisis of lack of access to affordable drugs following the implementation of TRIPS. *See* World Trade Organization, Ministerial Declaration on the TRIPS Agreement and Public Health of 14 November 2001, WT/MIN(01)/DEC/W/2, 41 I.L.M. 755 (2002) [hereinafter Doha Declaration] (providing a minimalist interpretative response to the needs of developing countries without even confronting the root causes or the source of the problem); JOSEPH E. STIGLITZ, MAKING GLOBALIZATION WORK (2006) (chap. 4 devoted to the issue of intellectual property and the fight over TRIPS, differential cost of generic drugs and multinational which he describes as a fight over values and the winners are the multinationals).

96. *See,* Katherine J. Strandburg, *Accomodating User Innovation in the International Intellectual Property Regime: A Global Administrative Law Approach, 2009 ACTA JURIDICAL* 283, 287 (2009)(stating that WIPO has been criticized for pushing intellectual property protection under an orthodox and myopic format and noting that the WTO/TRIPS regime locks the system into a rigid format in a fast evolving field); R. L. Okediji, *WIPO-WTO Relations and the Future of Global Intellectual Property Norms,* 39 Netherlands Yearbook of Int'l L. 69 (2008); Note: *Protecting Architectural Forms as Traditional Cultural Expression? Why WIPO should Go Back to the Drafting Table,* 51 COLUM. J. TRANST'L L. 506 526-530 (discussing the conflicting positions taken by UNESCO favoring treating indigenous knowledge as World Heritage in the public domain and WIPO providing an infinitely backward looking protection).

97. World Intellectual Property Organization [WIPO], Protection of Traditional Knowledge: A Global Intellectual Property Issue, at 2-4, WIPO/IPTK/RT/99/2 (October 22, 1999), available at http://www.wipo.int/edocs/mdocs/tk/en/wipo_iptk_rt_99/wipo_iptk_rt_99_2.pdf; Report on Third Session of the WIPO Intergovernmental Committee on Genetic, June 13th -21st , 2002, 2002, Geneva, http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_7/wipo_grtkf_ic_7_3.pdf; intergovernmental committee on intellectual property and genetic resources, traditional knowledge and folklore Seventh Session, Geneva, November 1 to 5, 2004, WIPO/GRTKF/IC/7/3; Protection of Traditional Culture in China, WIPO Magazine No. 2 Geneva, February 2002, at 8. WIPO, Integrating Intellectual Property Rights and Development Policy, Report of the Commission on Intellectual Property Rights, London, September 2002.

98. Yelpaala, *supra* note 2, at 161-165.

Biotechnological inventions have much more serious implications than ordinary inventions for the manufacture of mechanical devices, tools, and similar items. Some biotechnological inventions, which might be described as platform inventions, go to existence itself. They seek to unravel the mysteries of life at the cellular level.[99] Other inventions focus on the application of platform ideas to consumer needs. Many inventors are interested not so much in the products as they are in controlling the pathways to products. The goal in acquiring property rights in biotechnological inventions is to become gatekeepers for controlling admission to the exploitation of new product ideas for the manufacture of drugs, seeds, food and other items critical to human existence[100] The widening of the property canvas to cover biotechnological inventions without discrimination and careful screening could therefore pose serious difficulties for developing countries with respect to access to important new ideas about life, living and the control of disease or hunger. These concerns are magnified when the biotechnological inventions are derived from traditional knowledge on biodiversity resources and the suppliers are kept outside the gates.

In short, notwithstanding the noble and benevolent objectives of global institutions concerned with the plight of weaker impoverished countries, the new global intellectual property regime that is increasingly expansive in scope and coercive in implementation might lead to entrenched detrimental inequalities between the "haves" and "have-nots." Eliminating global inequality was the concern of the Group of 77 in the 1970's and for good reason. Inequality in opportunity and lack of access to, knowledge and ideas often explains to some extent the difference between rich and poor countries.[101] Historically, the technology gap explained and distinguished empire builders from vassal states and rich from poor countries.[102] It facilitated colonial domination by a few countries over vast areas of the world. The technology gap, maintained through exclusive intellectual property rights, is also now being exploited by powerful countries to dominate the world trading systems.[103] Accepting an unqualified applicability of the property concept to all forms of inventions and particularly

99. *Id.*

100. *Id.*

101. HAQ, *supra* note 92, at 142-45.

102. *See* PAUL KENNEDY, THE RISE AND FALL OF THE GREAT 150 (1987)(hereinafter, KENNEDY, RISE AND FALL)(arguing that advancements in transportation, industrial and military technology gave European powers decisive advantage in economic and military firepower to pursue their imperial objectives with little effective resistance); Celso Cintra Mori, *Informatics in Brazil*, *in* LICENSING AGREEMENTS: PATENTS, KNOW-HOW, TRADE SECRETS AND SOFTWARE 350, 350-55 (Yelpaala et al. eds., 1988)(hereinafter, Yelpaala, Licensing Agreements)(providing the background to the Brazilian policies and law on informatics, argued that technological development such new navigation techniques, know-how and the technological innovation behind the industrial revolution played and continues to play a role in differences in level of development and global competitiveness); HEMMING, , *supra* note 49, at 36-43. (providing a vivid account of how Francisco Pizzaro with 150 Spaniards ambushed Atahualpa in Cajamarca, surprised him and his men with gunfire and trumpets, captured him and slaughtered his governors, advisors and thousands of unarmed Incas in only two hours); DIAMOND, *supra* note 87, at 218-24 (discussing how technological superiority facilitated the defeat of the Incas and the capture of their Emperor Atahuallpa by Pizzarro and a small band of Spanish conquistedores with guns and pistols).

103. Nyerere, *supra* note 92, at 4.

those derived from biodiversity resources invites the continuation of the entrenched unequal exchange in the relations among nation states. But when the unequal exchange and its coercive mechanisms involve living and the survival of a state, confrontation may be inevitable.

The incentive for conflict is evident when the basis for inequality is wholly or partially attributable to the generosity of disadvantaged countries that supply the resources exploited for the enhancement and entrenchment of inequality. As already discussed above, most of the biodiversity resources used in many genetic engineering involving seeds, plant breeding, and the development of pharmaceutical products originate from developing countries.[104] The raw minerals gap in biodiversity resources favors significantly developing countries.[105] However, the biotechnology gap favors heavily developed countries.[106] An international regime for biodiversity that creates access to biodiversity raw materials but denies equal access to the derivative inventions is not only potentially inequitable but also invites conflict.

An equally sensitive issue is that an international regime for private property rights in biotechnological inventions derived from those raw materials might consign developing countries permanently to their traditional but unacceptable trap as suppliers of raw materials. In such a role, they supply the raw material resources from which "value-added" biotechnological property rights are derived, without any guarantees of subsequent access to the derivative biotechnological inventions. Indeed, unless and until the issues of the direction of Research and Development (R&D), ownership and access to the derivative technology are adequately addressed, an international biodiversity regime that is

104. *See* C. Ford Runge & Edi Defrancesco, *Exclusion, Inclusion, and Enclosure: Historical Commons and Modern Intellectual Property*, 34 WORLD DEV. 1713, 1719 (2006) (discussing the role of farmers the development of thousands of nonproprietary fruit varieties through sharing and testing); H.B. Tuckey, *History of the American Pomological Society*, *in* HISTORY OF FRUIT GROWING AND HANDLING IN THE UNITED STATES OF AMERICA AND CANADA, 1860-1972 (William H. Upshall ed., 1976) (tracing the growth of the American fruit industry to the work of ardent fruit lovers who did all the essential work of testing, sorting and cataloguing of fruit varieties).

105. Yelpaala, *supra* note 85, at 143 (arguing that about 90% of biodiversity resources forming the basis for many biotech innovations are in the South).

106. The terms digital divide and technology gap are generally used to describe similar but not the same technological phenomena that are manifestations of the divide or gap. Here the term is used to illustrate the disparities between the holders of biodiversity resources and those who hold intellectual property rights derived from biodiversity resources); For a general discussion of the digital divide, *see* Mauro F. Guillen & Sandra L. Suarez, *Explaining the Global Digital Divide: Economic, Political and Sociological Drivers of Cross-National Internet Use,* 84 SOC. FORCES 681, 681-82 (2005) (defining digital divide within the context of cyberspace as the inequality in access to the internet which on a worldwide basis shows a yawning digital gap between OECD countries and developing countries and a further divide based on class and social structure within countries); Dasgupta, *supra* note 26, at 979, 982 (1999) (explaining how in 1972 about 80-85% of patents held in developing countries were held in foreign interest and how more recently about 95% of patents in Africa, 85% in Latin America and 70% in Asia are held by citizens of developed countries); Keith Aoki, *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, 25 (1998) (quoting a United Nations Educational Social & Cultural Organization (UNESCO) report on the digital divide in these stark terms: "While Africa had 12% of the world's population, it produced only 1.2% of its books and that percentage is declining. . .Furthermore Africa controls only about 0.4% of the world's intellectual property. By comparison, North America which has roughly five percent of the world's population, produces thirteen percent of the world's books . . . and 80% of the world's knowledge industries are based in the North.)

ultimately bound to and anchored on the massive ocean vessel of private property is of doubtful value to developing countries. For, the massive vessel of property has the characteristics of a giant octopus with long tentacles and a gargantuan acquisitive appetite. It is not unlike a colossal magnet with an ever increasing magnetic field. Unless the acquisitiveness of the octopus is tempered with some sense of distributive equities the suppliers of biodiversity raw materials may be induced to take by any means necessary including the use of force what they believe is their rightful share. Any use or even the threat of the use of force, justifiable or not, may induce a similar response from other countries.[107]

Driven by the profit motive, private owners of biotechnological inventions in developed countries logically may seek to exploit their inventions only for the benefit of affluent consumers in developed countries.[108] These consumers are not so much concerned about life itself as they are with the quality and pleasures of living. They are willing and able to pay high prices for life-enhancing products. Take the case of pharmaceutical products. It appears more profitable for pharmaceutical companies to develop drugs to reignite the sexual passions of older people in affluent societies in their declining years rather than to save the lives of yet unfulfilled children in poor countries.[109] Thus, even though developing countries provide the biodiversity raw materials for certain biotechnological inventions, they have no control or any say as to the character of the research or the ultimate uses to which successful inventions might be put. To the extent that the research agenda is not directed toward the needs of the suppliers of the biodiversity resources, developing countries might have to rethink the issue of access to those resources.

107. U.N. Charter art. 1, paras. 1-4.

108. Yelpaala, *supra* note 85, at 74, 95 (arguing that health R&D investments are skewed towards developed countries, 90/10 and that the profit making mindset of pharmaceutical MNEs explains in part that concentration).

109. For decades the focus of pharmaceutical companies has been on profits and not necessarily on tackling the most pressing health and pharmaceutical needs of people. For instance erectile dysfunction drugs such as Viagra and Cialis have big sellers in developed countries to reignite the sexual passions of otherwise healthy people. The sales and annual revenues of these are reported to be the billions of dollars. *See* Ken Silverstein, *Millions for Viagra, Pennies for Diseases of the Poor*, THE NATION, July 19, 1999, at 13, 15 (arguing that drug companies cannot seem to roll out faster enough life style drugs such as Viagra which brought in over $1 billion in its first year and others for baldness, toe-nail fungus and face wrinkle); Silverstein makes the following pungent observation: "The drug industry's calculus in apportioning its resources is cold-blooded, but there's no disputing that one old, fat, bald, fungus-ridden rich man who can't get it up counts for more than half a billion people who are vulnerable to malaria but too poor to buy the remedies they need." at 14. Consider the following list of forecasted top selling drugs for 2010 and 2014 in Factbox- World's Top Selling Drugs 2010 v. 2014, Reuters, available at http://www.reuters.com/article/idUSLDE63C0BC20100413. Consensus sales forecasts for world's top 10 drugs in 2014 none of which will address the pressing needs of diseases in developing countries. They are aimed at the needs of consumers in affluent markets: Avastin (cancer) $8.9 billion; Humira (arthritis) $8.5 billion; Enbrel (arthritis) $8.0 billion; Crestor (cholesterol) $7.7 billion; Remicade (arthritis) $7.5 billion; Rituxan (cancer) $7.4 billion; Lantus (diabetes) $7.1 billion; Advair (asthma) $6.8 billion; Herceptin (cancer) $6.4 billion; Novolog (diabetes) $5.7 billion. A similar pattern is reported in The Pharmaceutical Executive, May 2009 which listed an estimate of the top therapeutic classes of drugs by U.S. sales as follows: Anti-psychotics, $14.6 billion, Lipid Regulators (Statins Plus) $14.5 billion, Proton pump inhibitors $13.9 billion, Seizure disorders $11.3 billion, Anti-depressants $9.6 billion, Angiotensin II antagonists $7.5 billion, Antineo monoclonal antibodies $7.5 billion, Erythropoietins $7.2 billion, Anti-arthritis 6.0 billion and Anti-platelets, oral $5.3 billion.

Unless some concrete measures are taken to bridge the gap between the technology needs of the North and the South, the suppliers of biodiversity raw materials may be forced into another global confrontation over the question of equity similar to the rumpus over raw materials in the 1970's. Unlike the confrontation of the 1970's the issues at stake in the case of biodiversity do not just concern the price of raw materials; they involve life and living. It is not clear how developing countries would react to the denial of access to life saving technology or markets when the very existence of their societies is in question.

D. The Demise of the New International Economic Order

For students of international relations, the context within which the Biodiversity Convention was negotiated and adopted can best be explained is the North/South debate of the 1970's over global inequalities.[110] While the debate raised several multilayered arguments about the equities in the economic interaction among nations, human rights, political rights, and the moral underpinnings of an international system that could sustain more meaningful intercourse between nations, we cannot delve into that debate.[111] We are however, interested in one of its centerpieces, the entrenched role of developing countries as suppliers of raw materials.[112] Given this interest, we shall make a brief statement about the impact and interconnections of that debate with the evolving international biodiversity system.

At the Sixth and Seventh Special Sessions of the United National General Assembly, governments, politicians and intellectuals from, or of Third World persuasion, called for and insisted on a fundamental regime transformation that would address the normative basis for distributive equities in international

110. HAQ, *supra* note 92, at 142-51.

111. There appeared to be wide ranging consensus among many players and observers in the international community that some reform of the international economic relations between nations was necessary and question was the form it should take. *See*, BRANDT ET AL., *supra* note 16, at 13 ("Our report is based on the simplest common interest: that mankind wants to survive, and one might even add has a moral obligation to survive. This not only raises the traditional questions of peace and war, but also of how to overcome world hunger, mass misery and alarming disparities between the living conditions of rich and poor ..reduced to a simple denominator, this Report deals with peace, i.e. focuses on change from chaos to order chaos resulting from mass hunger, economic disaster, environmental catastrophe and terrorism."); ROBERT L. ROTHSTEIN, GLOBAL BARGAINING: UNCTAD AND THE QUEST FOR A NEW INTERNATIONAL ECONOMIC ORDER 15 (1979); F.V. Garcia-Amador, *The Proposed New International Economic Order: A New Approach to the Law Governing Nationalization and Compensation,* 12 LAW AM 1, 10-14 (1980)(hereinafter, Garcia-Amador, *New International Economic Order*)(discussion the wide ranging philosophical views and purposes of the NIEO); Richard A Falk, *New States and International Law Legal Order,* 118 ACADEMIE DE DROIT INTERNATIONAL, RECUEIL DE COURS 1 (1966)

112. BRANDT ET AL., *supra* note 16, at 18 (arguing that the Group of 77 believe their resources are responsible for the lion's share of the achievements of the industrialized countries); Secretary-General of UNCTAD, 1975 "An Intergrated Programme for Commodities: Specific Proposals for Decision and Action by Governments," Report TD/B?C.1/193, October 28, 1975; supporting documents, TD/B/C.1/194-197; Kojo Yelpaala, *In Search of a Model Investment Law for Africa,* 1 LAW FOR DEV. REV. 2, 14 (2006) (arguing that the suggested solution by developing countries of indexing the price of raw materials to the price of finished products during the deliberations of the New International Economic Order failed to address the structural problems of raw material suppliers and their need for industrial capacity similar to that of the developed countries).

economic relations.[113] As Rothstein and the Brandt Commission report put it, the Third World demanded more than a seat at the table.[114] They called for a new order in which the Third World would be full participants in the establishment of new and basic ground rules governing the international economic system, a fair distribution of global wealth, and the bi-directional shuttling of resources among nation states.[115] The demand for a fundamental or systemic change was indeed a powerful and vocal indictment of the *ancien régime* which was viewed as structurally defective, historically unfair, exploitative, and designed to entrench asymmetrical vulnerability dependence of third world countries.[116] As one prominent African political scientist put it, the system lacked nor seemed interested in collective distributive elements[117]

In the view of those demanding change, the power of the *ancien régime* was derived from its structural and distinctive characteristic attributes. The normative constructs, procedures, and ideology which oiled and sustained the system were seen as deliberately and craftily developed to encourage and support backward and forward entrenchment from raw materials to finished goods; thus making the old system difficult to dislodge. To critics, no meaningful or lasting changes could be made without dismantling the structure that formed the central nervous system of the old order. The system had to be purged of its inequities reflected in the fact that 70% of the world's population accounted for only 12% of global output whereas the rich industrialized countries accounted for 90% of industry and 80% of trade and investment.[118] In other words, any changes that did not address the fundamental structural problems would be deceptive and largely ineffective in narrowing the gap between the North and the South.[119]

Against the vociferous objections of developed market economies, the

113. In his address to the Plenary Meeting of the U.N. General Assembly Mr. Houari Boumediene, President of the Peoples Democratic Republic of Algeria issued a scathing indictment against developed countries, accusing them controlling both raw material and finished goods prices to the detriment of developing countries. He described the system in these terms: "In the eyes of the vast majority of humanity it is an order as unjust and outdated as the colonial order to which it owes it origins and substance . . . . In as much as it . . . continually impoverishes the poor and enriches the rich, this order constitutes a major obstacle standing in the way of any hope of development and progress for all the countries of the third world." *See* U.N. GAOR, 6th Spec. Sess., 2208th plen. mtg. at 3, U.N. Doc. A/PV.2208 (Apr. 10, 1974); ROTHSTEIN, *supra* note 111, at . . .

114. ROTHSTEIN, *supra* note 111, at 15; *See*, BRANDT ET AL., *supra* note 16, at 18 (Developing countries demanded a right to share in the decision making process).

115. BRANDT ET AL., *supra* note 16, at 23; HAQ, *supra* note 92, at 145-46.

116. HAQ, *supra* note 92, at 145-46; Nyerere, *supra* note 92, at 4 (explaining how developing countries did not shape the world's institutions of production and exchange and are confronted with dominating forces they have no control); Mazrui, *supra* note 39.

117. Mazrui, *supra* note 39, at 372.

118. *See* Michael W. Doyle, *Stalemate in the North-South Debate: Strategies and the New International Economic Order*, 35 WORLD POL. 426, 429 (1983) (attributing these descriptions to what he termed structuralist); Nyerere, *supra* note 92, at 4; KENNEDY, RISE AND FALL, *supra* note 102, at 148-149(explaining that prior to the industrial revolution the Third World as a whole accounted for about 73% of world manufacturing output, substantially ahead of Europe while China and India with 32.8% and 24.50% respectively individually outperformed the United Kingdom and other European countries).

119. World Bank, World Development Report 2006: Equity and Development xi (2006) ("[F]ocus on equity should be a central concern in the design and implementation of policy . . . because greater equity can lead to a fuller and more efficient use of a nation's resources" and encourage development of institutions more "conducive to long-term growth."); id. at 6-9 (discussing the "massive" inequities between nations).

United Nations Resolution establishing the New International Economic Order (NIEO) was passed in 1974.[120] The passage of that resolution gave developing countries a glimmer of hope that centuries of characteristically entrenched structural inequalities in the world's economic relations would be transformed. But alas, any flicker of hope for a systemic transformation of structural inequalities was soon to be a mere dream fading away in the wake. Like a *herd of angry elephants fighting bush fire*, politicians and unsympathetic intellectuals of Northern persuasion stampeded and completely extinguished the bright light of reform lit in the NIEO. This is exemplified by the number of symposia, books and articles in which an assemblage of some the most respected economists uncharacteristically expressed unsophisticated or narrow opinions against the NIEO.[121] Within a decade the idea that a new world order could be structured along the lines of the NIEO was effectively dead; or as others would put it mildly "*stalemated*".[122] Several very powerful and convergent forces spelt doom for the hope of the Third World in the NIEO. One of those forces was the ill-will the NIEO engendered in Northern circles which in turn inspired a virulent but sophisticated attack not only on its operating assumptions but also on its substantive arguments. Detractors relocated the debate and changed its operating assumptions.[123] The relentless attack on the NIEO left it substantially weakened and vulnerable to any prey.

The change in the operating assumptions by Northern intellectuals and their sympathizers was facilitated by a second force—an ill-conceived and poorly designed Third World position for transforming the NIEO.[124] The notion of changing a structurally defective and entrenched world economic system supported by an ever widening digital divide through a commodities price index and similar solutions was ill-advised. Any meaningful system had to be

120. *See* G.A. Res. 3201 (S-VI), U.N. GAOR, 6th Spec. Sess., Supp. No. 1, U.N. Doc. A/9559 (May 1, 1974).

121. In what might be described as a blistering attack, Professor Harry G. Johnson, an accomplished economist uncharaterstically described the call for a new international economic order and the commodity price indexing proposal as contrary to half a century of experience all of it a history supported by academics at Oxford a home of lost causes and based on fossilized politico-economic analysis of development. *See* Harry G. Johnson, *Commodities: Less Developed Countries' Demand and Developed Countries' Responses*, *in* THE NEW INTERNATIONAL ECONOMIC ORDER: THE NORTH-SOUTH DEBATE 240, 240-41 (Jagdish N. Bhagwati ed., 1977). Richard N. Cooper argued that the demand for foreign assistance based on distributive justice pushing for toward equally and relying on Bentham's rational utilitarianism or Rawl's social contract face serious intellectual difficulties. *See* Richard N. Cooper, *Panel Discussion on the New Economic Order*, *in* THE NEW INTERNATIONAL ECONOMIC ORDER: THE NORTH-SOUTH DEBATE 354 (Jagdish N. Bhagwati ed., 1977).

122. Doyle, *supra* note 118, at 439-44 (Doyle devoted the Article to explaining the context within which the North/South divide played out resulting in a stalemate and providing some explanation of the sources of the stalemate).

123. Robert W. Cox, *Ideologies and the New International Economic Order: Reflections on Some Recent Literature,* 33 Int'l Org. 257, 261-265 (1979)(providing an interesting discussion of the competing ideological positions on the NIEO); NEW INTERNATIONAL ECONOMIC ORDER: THE NORTH-SOUTH DEBATE (Jagdish N. Bhagwati ed., 1977) (among the many symposia aimed at challenging the demand for the New International Economic Order, the symposium edited by Bhargwarti is an excellent example) *See also* RESHAPING THE INTERNATIONAL ORDER: A REPORT TO THE CLUB OF ROME, (Jan Tinbergen et al. eds.,1976).

124. Bhagwati, *supra* note 39, at 14 (arguing that to most sensible economists the commodity price indexing scheme advanced by the Third World in the NIEO was crude, simplistic, inequitable and virtually impracticable).

addressed to the structural impediment to development and global distributive equities.[125]

Thus weakened, the NIEO was wiped out by a third set of convergent forces. These forces had to do with the global economic crisis of the 1980's the effects of which were already visible during the last stages of the negotiations for the NIEO.[126] A global recession that ravaged the world economy in the 1980's exposed the severe and deep rooted structural economic vulnerabilities of many developing countries already laboring under heavy external debt burdens.[127] Admittedly, the Third World is hardly a homogenous group. It was a trade union of countries ranging from the very weak to the most advanced with different levels of domestic and international vulnerabilities.[128] The power of the South was substantially located in its one asset-the power of unity,[129] which unraveled in the crisis. Newly industrialized states, half-industrialized states, very poor states and the least developed countries faced different choices in the crisis and the unity became a mirage and unsustainable. [130] For many countries, under recessionary pressures, the debt crisis soon became debilitating economic crisis. Once unified and committed to a single visionary idealism, developing countries found themselves quickly fragmented, isolated, and in competition with one another for scarce global financial resources. Countries, once unified behind a single vocal voice for the transformation of the world economic order found themselves entangled in a "hand-to-hand" combat for individual survival. Lofty ideals of global equality gave way to the pragmatic search for individual solutions taking many forms including debt relief, debt/equity swaps, privatization, and other related schemes.[131] The collective consciousness that once encouraged the search for a common ground on major international economic issues evaporated.

Exploiting the weaknesses of the South, the North employed the old and tried technique of "divide and conquer" by offering bilateral and multilateral, item by item trade deals supported by neo-liberal economic orthodoxy.[132]With the

125. Yelpaala, *supra* note 112, at 14.

126. Catherine B. Gwin, *The Seventh Session: Toward a New Phase of Relations Between the Developed and Developing Countries?*, *in* THE NEW INTERNATIONAL ECONOMIC ORDER: CONFRONTATION OR COOPERATION BETWEEN NORTH AND SOUTH? 97, 107-08 (Karl P. Sauvant & Hajo Hasenpflug eds., 1977) (explaining how the oil cartel induced deficit and financial crisis of many non oil producing developing countries were already a challenge to those countries which the U.S. sought to exploit to divide the Group of 77).

127. RICCARDO PARBONI, THE DOLLAR AND ITS RIVALS: RECESSION, INFLATION AND INTERNATIONAL FINANCE (1981); E. A. BRETT, THE WORLD ECONOMY SINCE THE WAR: THE POLITICS OF UNEVEN DEVELOPMENT (1985).

128. Nyerere, *supra* note 92, at 5; ROTHSTEIN, *supra* note 111, at 14-15.

129. HAQ, *supra* note 92, at 142.

130. ROTHSTEIN, *supra* note 111, at 131.

131. For a general discussion of the impact of the debt crisis in Latin American and developing countries *see* JACKIE RODDICK, THE DANCE OF THE MILLIONS LATIN AMERICA AND THE DEBT CRISIS (1988); Audrey M. Turman, *Debt-for-Equity Swaps: A Phenomenon in Transition*, 2 TRANSNAT'L LAW. 255 (1989); Derek Asiedu-Akrofi, *Sustaining Lender Commitment to Sovereign Debtors*, 30 COLUM. J. TRANSNAT'L L. 1 (1992); PARBONI, *supra* note 127; BRETT, *supra* note 127.

132. See Ricardo Grinspun & Robert Kreklewich *Consolidating Neoliberal Reforms: "Free Trade" as a*

acceptance of privatization as an important part of the solution to the economic crisis of developing countries, the NIEO soon became part of an old world order which had to perish and unceremoniously entombed with the demise of the Soviet Union.

The sudden demise of the NIEO does not mean a new order was not established. The global economic system underwent a significant transformation but in a direction opposite to that sought by the NIEO. As discussed above, a new global economic order was established. This new order, as further discussed below, was based on market principles and the assignment of property rights over scarce global resources to private individuals within a capitalist free market system. Influenced substantially by Coasean property theories, the new order sought to create a system for assigning property rights to those who, in their view, could put them to the best use while minimizing transaction cost. Normative principles such as fairness and collective distributive equities were no longer the major responsibility of the state but were now to be handled by private and voluntary market exchanges in relation to the acquisition and utilization of global resources.[133] The maximization of private wealth would, through a trickle-down distributive mechanism, benefit society at large.[134] Northern states could conveniently elude the collective responsibility to humanity at large by relying on individualism.[135] In this regard, two points are worth stressing. First, in an age of individual empowerment, the privatization of the global productive resources can easily enjoy rationalized justification. Thus, the lopsided division of industry, trade and investment remained intact. Perhaps more important to the phenomenon of individual empowerment is access to ideas and knowledge since ideas and knowledge increase the range of individual choices. Under an increasing dominant market philosophy, ideas themselves became commodities increasingly privatized as the exclusive domain of specific individuals. Consequently, the digital divide between the North and the South continued and in many cases increased. Second, even if dependency was rejected, the maximization of private wealth in an interdependent global economy required

Conditioning Framework, 43 Stud. Pol. Econ. 33, 34–36, 39 (1994) (describing the "conditioning framework" imposed by regional trade agreements as "an ideal tool . . . for imposing and locking-in neoliberal reforms"); David Held, *Globalisation: The Dangers and the Answers*, OPEN DEMOCRACY (May 27, 2004), http://timothyquigley.net/mpp/held.pdf 4–5 (discussing the negative impact of the imposition of neoliberal economic orthodoxy by the "Washington Consensus" on poor, developing countries); Yelpaala, *supra* note 85, at 97, n.163 (citing several sources discussing the imbalance of power during trade negotiations resulting in the unilateral imposition of trade terms on developing countries).

133. The idea of rationalization of individualism with respect to distributive equities is best captured in the presentation by Richard Cooper in the Panel Discussion at the conference on the NIEO. *See* Cooper, *supra* note 121, at 355-56. In an insightful critique laced with sarcasm of the tenor of the symposium particularly the contributions of Harry Johnson and Richard Cooper, Professor Ali A Mazrui explained how new orders in international relations are not a new phenomenon and questioned their limited perspectives and the selective use of philosophical thought on distributive justice by Cooper to advance a tainted view of the subject of the justification for assistance, covering more in a face pages than most did in chapters of contribution. Mazrui, *supra* note 39, at 371-74.

134. Posner, *supra* note 71.

135. Mazrui, *supra* note 39, at 372.

trade and market access not sovereign debt. But the right to trade now seems less certain with TRIPS, however.[136]

It is within this context one must view the Biodiversity Convention. Although the Convention has multiple declared objectives, aspirations and goals, described by some as vague and too broad,[137] our interest in the Convention in this study is of a limited nature. We want to examine the question whether privatizing biodiversity resources and their derivative biotechnological inventions would not undermine some of the core objectives of the Convention: preservation, conservation and protection. Can the value of biodiversity to humanity be ***best*** protected and preserved in a system of a standardized Coasean concept of private ownership?

III. PROPERTY ASPECTS OF THE BIODIVERSITY CONVENTION

Unlike other international agreements concerning the protection of intellectual property rights, the Biodiversity Convention does not have as its primary focus the protection of knowledge and ideas. It is concerned with; *inter alia*, the conservation, preservation and protection of biological diversity. Nonetheless, the structure and intended operation of the Convention has property implications which, in the long term, may be inimical to the stated goals and objectives of the Convention. Our goal is to examine only some of the aspects of the Convention that are linked to the concept of property. We are conscious of the fact that the Convention is a complex international instrument with several admirable goals and objectives.[138] We, however, question the apparent significant role assigned to private property rights in the achievement of the stated lofty biodiversity ideals. How could a system of privatized global exploitation of biodiversity resources under a Blackstonian scheme of exclusive rights ensure the preservation of biological diversity? What is the guarantee that private owners would be interested in preserving biodiversity for the benefit of humanity? The potential negative impact of private property rights are examined within the back drop of (1) the objectives, goals, aspirations, and values of the Convention and (2) the substantive provisions dealing with the rights in, and access to, biodiversity resources.

Those wedded to neo-liberal private ordering and the utilization of resources may take issue with this characterization. We shall try to explain below why reliance on unregulated market forces in the exploitation of biodiversity resources is ill-suited for resources with deep historical collectivist roots. We believe that the value attached to market principles is ideological and substantially undervalues the effectiveness of diverse alternatively evolved

136. Yelpaala, *supra* note 85, at 104-05 (arguing that TRIPS has conditioned the right to trade on the protection of foreign origin intellectual property rights).

137. Wold, *Supra supra* note 11; Adam, supra note 11. (discussing among other things, the weaknesses in the Convention including its goals, seen as too comprehensive and indicative of disagreement among the parties).

138. Biodiversity Convention, *supra* note 1. The goals and objectives of the Biodiversity Convention are laid on great detail in a long Preamble and immediately followed by Article 1.

dynamic collective resource governance regimes.

A. Goals and Objectives of the Convention

The goals, values, and aspirations of the Convention are captured in the Preamble and Article 1. The Preamble lays out the recognition, understandings, concerns, and aspirations of the Contracting Parties. It states that biodiversity has a certain intrinsic value, which is not necessarily measurable in monetary terms.[139] It also reaffirms the important and essential role of biodiversity in the evolutionary process within any biosphere.[140] The Preamble however expresses concern that whatever value biological diversity might have is threatened by a reduction in biodiversity because of human activity.[141] In view of this, one of the objectives of the Convention is to identify and prevent the causes of reduction in biodiversity.[142] The reasons for the reduction in biodiversity are multiple and complex and it is doubtful whether a system of private ordering will provide the solution.

As a reinforcement of the understandings, aspirations and goals stated in the preamble Article 1 states as follows:

> The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by *appropriate access* to genetic resources and by *appropriate transfer* of relevant technologies, taking into account *all rights* over those resources and to technologies, and by appropriate funding.[143] *(emphasis added)*

Thus stated, the goals and objectives of the Convention are both multiple and sufficiently broad to satisfy the interests and concerns of many constituencies. The Convention captures the interest of conservationists and those urging sustainable development economics. It also seeks to provide assurances of access to biodiversity resources while simultaneously guaranteeing to the holders of those resources equitable sharing of the benefits including technology transfer. Given the experience of developing countries as suppliers of raw materials over the centuries, a broad and all- inclusive statement of objectives was inevitable if the enterprise was to succeed. One of the lessons of the North/South negotiations over the commodities agreement in the 1970's was the use of meaningless verbal formulas or over inclusive terminology to disguise disagreement over the best vision of all sides.[144] Similarly, buried in Article 1 are various competing and

139. *Id.* ¶ 1 pmbl. (expressing the intrinsic value of biodiversity).

140. *Id.* ¶ 2 pmbl.

141. *Id.* ¶ 6 pmbl.

142. *Id.* ¶ 8 pmbl.

143. *Id.* at art. 1 (emphasis added).

144. ROTHSTEIN, *supra* note 111, at 9. (arguing that the commodities negotiations were never very likely

conflicting interests of the Contracting Parties swept under and resolved under a huge tent of strategic ambiguity generally referred to in international negotiations and diplomacy as false compromises.[145] False compromises that come in the form of ambiguity, nuance and multiple shades of meaning are sometimes described in linguistic theory as ***polysemy*** and ***hyponymy*** discussed below.

1. Polysemy and the Biodiversity Convention

As it is apparent from the quoted passage, the text, sub text, and terminology of Article 1 are laden with and burdened by deliberate polysemy, characteristic of the art of skillful international negotiations.[146] Words and terminology do not always convey a singular or clear meaning to all even when recognized rules of interpretation of international agreements under the Vienna Convention on the Law of Treaties are employed.[147] Linguistic theory and usage together with cultural and historical experience tend to color and shade the meaning of words and phraseology in international agreements.[148] As such, the door is therefore

to end in "victory" for either side or perhaps even in a compromise that both sides could accept; the best, or each side's vision of the "best" was the enemy of the possible solution).

145. Kjell Torbiorn, Toward a Psychology of International Negotiations 56-62 (1979) (unpublished Doctorat D'Universite thesis, University of Strasbourg) (on file with the University of Strasbourg) (discussing the different types of false compromises in international negotiations).

146. *Id.*; ROTHSTEIN, *supra* note 11, at 25; Jerrold J. Katz, *Recent Issues in Semantic Theory*, 3 FOUND. LANGUAGE 124, 173 (1967) (discussion polysemy in linguistic theory).

147. Vienna Convention on the Law of Treaties, May 23, 1969, 1155 U.N.T.S. 331 [hereinafter VCLT]; RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW § 102(1)(c) (1987) The difficulties encountered in treaty interpretation is captured in the following often quoted language of Lord McNair, " [t]here is no part of the law of treaties which the text-writer approaches with more trepidation than the question of interpretation." ARNOLD DUNCAN MCNAIR, THE LAW OF TREATIES 364 (1961). Although the VCLT provides for the interpretation of treaties treaty interpretation has been a subject of disagreement among the publicists. Sir Ian Sinclair has argued that there are three interpretational approaches: the first sees the primary and only aim of interpretation as ascertaining the intention of the parties; the second starts with a presumption that the intention of the parties reflected in the text and the third is to ascertain the object and purpose of the treaty. What is the intention of parties if a word with multiple meanings is used? The International Law Commission in its final draft Articles provided the following general rule: " A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in the context and in light of its object and purpose." The inclusion of context allows for the use of supplementary materials, subsequent state practice, and the general rules of international law to resolve ambiguities. While the basic tenure of Articles 31 and 32 is the presumption of the text being the authentic expression of the intention of the parties, Article 32 permits recourse to supplementary means of interpretation to determine the meaning when the interpretation according to Article 31 (a) leaves the meaning ambiguous or (b) leads to a result which is manifestly absurd or unreasonable. *See* IAN SINCLAIR, THE VIENNA CONVENTION ON THE LAW OF TREATIES 114-15, 141 (1973). With the growing number of multilateral treaties and conventions the issue of ambiguities is gaining more attention. *See* ULF LINDERFALK, ON THE INTERPRETATION OF TREATIES 331-32 (2007) (discussing different contexts in which the expression "ambiguous or obscure" might come in the interpretation of a treaty); Treaty interpretation problems are traced back to oracles and treaties in antiquities which were often shrouded in ambiguity, *see* TREATY INTERPRETATION AND THE VIENNA CONVENTION ON THE LAW OF TREATIES: 30 YEARS ON (Malgosia Fitzmaurice et al. eds., 2010).; for a thorough and careful analysis of treaty interpretation, *see* RICHARD GARDINER, TREATY INTERPRETATION (2008) (chapter 8, page 301).

148. JOHN LYONS, INTRODUCTION TO THEORETICAL LINGUISTICS 406 (1968); ROTHSTEIN, *supra* note 111, at 3 (arguing that the South and the North had two different views of the negotiations, for the South it was about establishing a New International Economic Order for the North it was about a New Order which meant rearranging the old order); Katz, *supra* note 146.

never shot and that is not necessarily an undesirable outcome in international negotiations. Polysemy is the strategic and deliberate use of words, phraseology or terminology with multiple meanings or even devoid of meaning to achieve what is essentially a false compromise among the parties to a negotiation.[149] A false compromise is one in which there is no real agreement on the issue although it is made to appear as if there is one. Put differently, a false compromise is an agreement to disagree or reaching *conciliation* without *reconciliation.*[150] But a false compromise is different from a stalemate where the positions of the parties are frozen in disagreement.[151] The use in the Biodiversity Convention of terminology such as *sovereignty over natural resources, principles of international law, appropriate access, relevant technologies* and *all rights* are purposefully vague. They might very well fit into Rothstein's description of "meaningless verbiage, susceptible to multiple interpretations. However, such ambiguity serves an important purpose in international diplomacy. The use of deliberate ambiguity captures conflicting positions, conceals continuing disagreements and preserves the position of the parties. Ambiguities in agreements may be resolved by the nature and circumstances of future events. Thus, the use of polysemy allows the parties to postpone the resolution of certain controversial issues until a later date. Polysemy therefore permits agreement, and real compromises on other important but less controversial matters.[152] The strategic positioning of the parties and the false compromises achieved through polysemy can best be described in the use of the term *all rights* captured in Diagram 1 below. Diagram 1 captures one type of deliberate false compromise inherent in the Biodiversity Convention with respect to the question of property rights. We shall discuss separately below each aspect of the false compromise captured in Diagram 1.

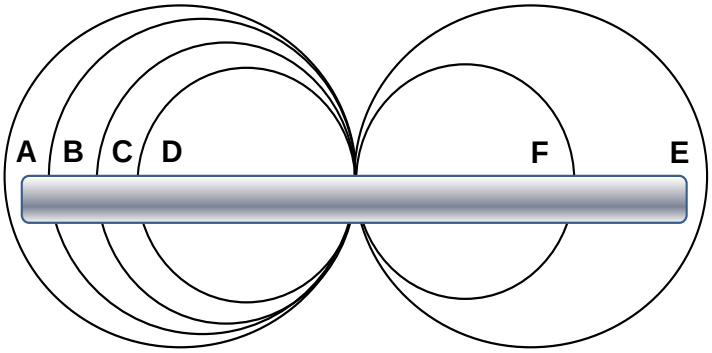
149. ROTHSTEIN, *supra* note 111, at 9. (meaningless verbal formulas to guise disagreement, commodity negotiations were unlikely to produce victory Each side's vision of the "best" was the enemy of the possible); Katz, *supra* note 146.

150. Gwin, *supra* note 126, at 114 (arguing that in the final analysis the negotiations in the Seventh Special Session of the United General Assemble ended in *conciliation* without *reconciliation* on the fundamental issues that divided the developed and the developing countries).

151. Doyle, *supra* note 118; ROTHSTEIN, *supra* note 111, at 25 (arguing that for the United States a stalemate was over principles was preferable to acceding to the demands of the Group of 77).

152. Resolution on Permanent Sovereignty Over Natural Resources, G.A. Res. 1803 (XVII), U.N. GAOR, 17th Sess., Supp. No. 17, U.N. Doc. A/5217, at 15 (Dec. 14, 1962) [hereinafter G.A. Res. 1803 (XVII)](establishing the standard for compensation in the case of expropriation as "*appropriate compensation*" thereby raising the question whether the famous Hull Rule of "*full, adequate, and immediate compensation*" is incorporated. For a discussion of this ambiguity *see,* Garcia-Amador, *New International Economic Order*, *supra* note 111, at 26, 28.

Diagram 1
Polysemous Rights



The circles represent different possible positions on the interpretation of the term *"all rights."* Circle A represents the most inclusive interpretation of *"all rights"* as common heritage of humanity; Circle B represents national patrimony and Circle C, sovereign rights. Circle D represents indigenous or community rights. Circles B, C, and D are subsets of the collective rights represented by Circle A. Circle E represents an interpretation of *"all rights"* as private property and circle F as constraints on those rights such as the usufruct. The shaded area represents the false compromise achieved since the term *"all rights"* can be interpreted to the interest of all the parties to the negotiations.

Given the issues at stake in the Convention, the use of polysemy in Article 1 appeared to be an obvious necessity. This was achieved by the recognition of "*all rights"* with respect to both biodiversity resources and their related technologies.[153] As is apparent in Diagram 1, the phrase "*all rights"* seems sufficiently ambiguous and broad enough to cover a multiplicity of interpretations consistent with different conflicting positions of the Contracting Parties on the question of property rights. Under the terms of the Convention, biodiversity resources might be characterized as *common property*, part of the general patrimony of humanity (Circle A). To some, *"all rights"* may also be viewed as *national patrimony* (Circle B) or even constitute *sovereign rights* (Circle C). Yet as to another group, biodiversity resources may be viewed as collective or communal rights owned and controlled by specific communities (Circle D). However, "*all rights"* might be understood as *private property* (Circle E) with all the attendant incidents and qualifications of private ownership (Circle F).[154] Put differently, private property rights may be burdened by the right

153. Biodiversity Convention, *supra* note 1, at art. 1. While Article 1 lays out the general concepts of rights, access and equitable distribution, Articles 15 and 16 provide much detailed provisions on access to genetic resources and access to and transfer of technology.

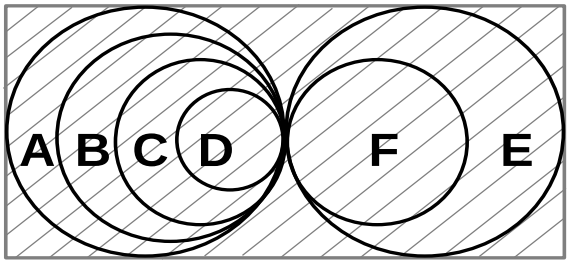
154. Elinor Ostrom, *How Types of Goods and Property Rights Jointly Affect Collective Action*, 15 J. THEORETIC POL. 239, 249 (2003) [hereinafter Ostrom, *Types of Goods*];]; Elinor *Coping with Tragedies of the*

to use such as the usufruct or easements. In the case of technologies, the recognition of *all rights* is equally interesting. Rights to technologies could be private ownership protected by patents, trademarks, copyrights or trade secrets. However, technological rights in traditional knowledge and genetic resources need not fall into any of the traditional private property rights. None of these rights are explicitly described in Article 1 but certainly are *arguably* covered,

2. Hyponymy and the Biodiversity Convention

Another type of false compromise, hyponymy, used in the Convention is captured in Diagram 2 below.

Diagram 2
Hyponymous Rights



The circles represent different possible positions on the interpretation of the term *"rights."* Circle A represents the most inclusive interpretation of *"rights"* as common heritage of humanity; Circle B represents national patrimony, Circle C, sovereign rights and Circle D represents indigenous communal rights. Circles B, C, and D are subsets of the collective rights represented by Circle A. Circle E represents the interpretation of *"rights"* as private property rights and Circle F the usufruct (the right to use another's property). The shaded area represents the false compromise achieved since the term *"rights"* is a broader and more inclusive term that covers the conflicting positions of all the parties.

Diagram 2 describes the use of hyponymy in the Biodiversity Convention. In semantic theory hyponymy is generally referred to as *inclusion* where a general term is employed to cover a range of specific ones. Thus, just as the word "*flower"* covers roses, tulips, and lilies, the word "*rights*" covers several different categories of rights.[155] The more general term *flower* or *rights* is more inclusive and ambiguous than a more specific term *tulip* or *usufruct.* Seen in this context, the false compromise is achieved with an over inclusive term that protects

Commons, 2 ANN. R. POL. SCI. 493, 494 (1999) [hereinafter Ostrom, *Coping with Tragedies*]; Elinor Ostrom, Joanna Burger, Christopher B. Field, Richard B. Norgaard, & David Policansky, *Revisiting the Commons: Local Lessons, Global Challenges*, 284 SCIENCE 278, 278 (1999) [hereinafter Ostrom et al., *Revisiting the Commons*].

155. LYONS, *supra* note 148, at 453.

different and sometimes conflicting rights. The false compromise embedded in *hyponymy* is well captured in Diagram 2.

In Diagram 2, two general and opposite conceptions of rights are depicted. On the one hand, Circle A represents a broad conception of rights as *collective* in nature with several variations to the theme of collectivity expressed as common heritage (A), national patrimony (B), sovereign rights (C), and various categories of private rights of a communal, corporate, family, clan, traditional, indigenous, private or of usufructuary nature (D). It is important to note that, as distinguished from rights of the common heritage category, collective rights in Circle D may carry with them two categories of rights: the right to exclude and the right to be included. The right to exclude involves exclusivity of a softer nature than the Blackstonian type. That is, exclusivity is burdened by the right to be included which gives rise to pervasive usufctuary rights. On the other hand, Circle E represents a Blackstonian power theory of property rights dominated by exclusivity and some limited usufructuary rights (F). As in the case of polysemy, what specific rights are to be enjoyed by each Contracting Party is left open, postponed or covered by other international or domestic legal instruments.[156] More importantly, the future enjoyment of these rights might be significantly influenced by future accretion of bargaining power and the evolving unequal hegemonic North/South relations. Such unequal bargaining relations are best exemplified in TRIPS and various TRIPS-Plus bilateral and multilateral agreements between some developing countries and the U.S and the E.U.[157]

Thus, while one may celebrate the achievements of the Biodiversity Convention the false compromises reached to procure the endorsement of Contracting Parties with conflicting agendas caution against celebrating yet.

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156. The following are examples of how the issues of rights are confronted at the international and national level: at the global level, *see,* TRIPS, *supra* note…, Articles 27 and 28 define the patentable subject matter and the patent rights conferred respectively; For regional instruments, Decision 391of the Andean Community of 2 July 1996, Common Regime on Access to Genetic Resources; Organization of African Unity (OAU), African Model Law for the Protection of the Rights of Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources, *infra,* note 376; Protocol on Patents and Industrial Designs Within the Framework of the Industrial Property Organization for English-Speaking Africa (ESARPIO) (Dec. 10, 1982) *reprinted in* 22 INDUS. PROP. MONTHLY REV. WORLD INTELL. PROP. ORG. Multilateral Treaties, text 1-008, page 001); African Intellectual Property Organization (OAPI); Paul Kuruk, *Protecting Folklore Under Modern Intellectual Property Regimes: A Reappraisal of the Tensions Between Individual and Communal Rights in Africa and Unites States,* 48 AM. U. L. REV. 769, 806 (1998-1999)(hereinafter Kuruk, *Protecting Folklore*)(describing various regional attempts in Africa to confront the issues of protection); Núnez, *Peruvian Experience, supra* note 57, at 536-538 (discussing the legislation for protecting indigenous knowledge, *Law 27811of 10 August 2002, Regime for Protection of the Collective Knowledge of Indigenous Peoples relating to Biological Resources*)

157. Yelpala, *Quo Vadis WTO?, supra* note 85, at 70, 119; Chutima Alkaleephan, et al., *Extension of Market Exclusivity and Its Impact on the Accessibility to Essential Medicines, and Drug Expense in Thailand: Analysis of the Effect of TRIPS-Plus Proposal,* 91 HEALTH POL'Y 174, 175 (2009)(discussing 10 crucial areas in which TRIPS_PLUS agreements expand the obligations and limit the rights of states); GRAIN, *"TRIPS-plus" Through The Back Door* (July 2001), http:// www.grain.org/briefings_files/trips-plus-en.pdf; GRAIN, *FTAS: Trading Away Traditional Knowledge* (March 2006), http://www.grain.org/briefings_files/fta-tk-03-2006 en.pdf; David Vivas-Eugui, *Regional and Bilateral Agreements and a TRIPS-plus World: the Free Trade Area of the America (FTAA),* TRIPS ISSUES PAPER 1, 4 (2003) *available at* http://www.quno.org/geneva/pdf/economic/Issues/FTAs-TRIPS-plus-English.pdf..

Although Robert Rothstein has described the terminology generally employed to achieve false compromises as meaningless verbal formulas[158] one should not underestimate the importance of false compromises in international relations. False compromises are essential in difficult international negotiations burdened by imperfect information, bargaining power and information asymmetries, cultural differences, uncertainty about the future, distrust and bounded rationality.[159] With false compromises, major international agreements can be constructed even in the dark belly of deep-seated distrust and existential contestation. By preserving the *status quo*, false compromises often lead to a reexamination of positions and an eventual rapprochement. Thus, the emphasis is on the process and the journey towards rapprochement. That process provides opportunities for a deeper understanding of the issues, closer relationships, and a fuller appreciation of the reality of the misconceptions, fears, and anxieties of the parties leading to sound compromises. The process must be seen as an invitation to dance. Once on the dance floor, the step, the pace and the intimacy of the parties is not determined totally by them, but in part by the music. Similarly, what rights the countries that supply the raw material resources for genetic engineering or biotechnological inventions enjoy are going to be controlled by post-Convention events and future negotiations of unresolved issues. In the meantime, vigilance and deliberate proactive steps on the part of developing countries would be essential to ensure that the ambiguities are not exploited to impede access to biotechnological inventions derived from biodiversity materials. Ensuring access to biotechnological inventions might require additional steps to guarantee an interpretation of rights which, at least, includes the right of access and use such as the usufruct: a property concept, perhaps most favorable to the Third World position on the issue of access to technology[160]

IV. POLYSEMY AND HYPONYMY AN ANALYTICAL FRAMEWORK

In the immediately preceding discussion we provided a general outline of the use of polysemy and hyponymy as instruments for compromise in the Biodiversity Convention. In this section we shall provide a deeper and much more detailed analysis of polysemy captured in Diagram 1 as an illustration of the importance of ambiguities and nuance in the strategic posturing between the North and the South in the Biodiversity Convention.

Represented in Diagram 1 above are two polar and non-intersecting interpretations of *"all right."* One interpretation represented by Circle A makes all biodiversity resources part of the common heritage or patrimony of humanity. Put differently, biodiversity resources are part of the grant by God to humanity in common for its enjoyment and support and therefore are not owned by anyone. In this sense, the common heritage concept is the most inclusive term which

158. ROTHSTEIN, *supra* note 111, at 9.

159. For a general discussion of bounded rationality *see* OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM (1998).

160. Yelpaala, *supra* note 2, at 212-15.

embraces various categories of highly nuanced and differentiated conceptions of common property including *res nullius*, *res communis* and the *commons* as generally used in the literature today. On the other hand, an opposite interpretation of *"all rights"* captured by Circle E makes all biodiversity resources private property with all the implications attendant on that concept. It is significant to note that since the terms, *common property* and *private property* are self-opposing, Circles A and E merely touch but do not intersect. The one connotes the existence of no right to exclude others and the right to be included but the other only involves the right to exclude. However, the concept of common property is itself burdened by multiple meanings. For instance, Circle B presents the view that biodiversity resources may be seen as national patrimony or common property of a sovereign state within which they are found. National patrimony differs significantly from the common heritage concept since it neither asserts nor recognizes those resources as a grant to humanity at large although the resources may be the common property of the citizens of a particular state. On the other hand, biodiversity resources may also be seen as strictly state or sovereign rights held against all others including foreign states and that is denoted by Circle C. It might even be argued that the term would cover traditional or indigenous communal property including traditional knowledge developed and held within specific indigenous communities as indicated by Circle D. In this context, traditional knowledge may neither be sovereign, national, nor the common heritage of humanity. Indeed, although the label common property might be put on indigenous rights they are better understood as communal property. However, biodiversity resources may be captured by Circle E and be seen as constituting private property with all the incidents of property generally associated with private ownership, although burdened by various encumbrances for the welfare of society and the right to use such as the usufruct (Circle F).

The false compromise is indicated by the shaded area cutting across circles A and E. The hyponymy in the use of the term "*rights*" is also sufficiently ambiguous to cover the six categories of property rights (captured by the shaded area covering both circles) since it neither assigns attributes nor designates the locus of those rights. Because various property theories derive private property from the commons, the recognition of *"rights"* in biodiversity resources arguably includes private property rights or at least the potential for them. We shall discuss the implications of each of these categories of false compromises below.

A. Biodiversity Resources as Common Heritage of Humanity

The concept of common heritage of mankind gained international notoriety from an inspiring, bold and visionary speech delivered by Arvid Pardo, the Ambassador of Malta, to the United Nations General Assembly in 1967 at its Twenty-Second Session on the question of the treatment of the sea-bed, the ocean floor and its subsoil.[161] In that speech, Pardo urged the international

; 161. U.N. GAOR, 1st Comm., 22d Sess., 1515th mtg. at 1-15, U.N. Doc. A/C.1/PV.1515 (Nov. 1, 1967)

community to adopt an international legal regime, which treats the sea-bed and the ocean floor, including all its resources not within the national jurisdiction of states, as the common heritage of mankind.[162] By this he meant that the seabed, the ocean floor and all their vast resources should be treated as beyond the jurisdiction, control, occupation, ownership and appropriation by any state or person.[163] Those resources belong to humanity as a whole[164] Although the physical characteristics of the resources of the sea-bed and ocean floor permit control and appropriation they acquired, as it were, the characteristics of the prototypical commons or public good, such as the air and sunlight not the subject of property rights The concept of the common heritage of mankind as proposed by Pardo was endorsed in a set of principles by U.N. General Assembly Resolution 2749 of 1970[165] and finally incorporated in the Law of the Sea Convention.[166] The common heritage concept was also adopted in other

(considering Agenda Item 92: "Examination of the Question of the Reservation Exclusively for Peaceful Purposes of the Seabed and the Ocean Floor and the subsoil thereof, underlying the High Seas Beyond the Limits of Present National Jurisdiction, and Use of their Resources in the Interest of Mankind") [hereinafter U.N. GAOR 1515th mtg.]; U.N. GAOR, 1st Comm., 22d Sess., 1516th mtg. at 1-3, U.N. Doc. A/C.1/PV.1516 (Nov. 1, 1967) [hereinafter U.N. GAOR 1516th mtg.]; The nature of the Pardo's speech was best captured in a tribute to Arvid Pardo by Dr. Ugo Mifsud Bonnicci, the former President of Malta who described Pardo as a man of vision, inspiration, prophetic, determination and patience; a citizen of the world; United Nations, Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, *His Excellency Dr. Ugo Mifsud Bonnici, Former President of Malta, Paying Tribute to Ambassador Arvid Pardo (1914-1999)*, *in* PROCEEDINGS OF THE TWENTIETH ANNIVERSARY COMMEMORATION OF THE OPENING FOR SIGNATURE OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 6, 6-9 (2003).

162. In a long and substantive speech stretched into the afternoon session Pardo outline the following principles which should be incorporated in a treaty: "(a) The sea-bed and the ocean floor, underlying the seas beyond the limits of national jurisdiction . . . are not subject to national appropriation in any manner whatsoever . . . . (b) shall be reserved exclusively for peaceful purposes . . . . (d) the resources of the sea-bed and the ocean floor. . .shall be exploited primarily in the interest of mankind, with particular regards to the needs of poor countries . . . ." U.N. GAOR 1515th mtg., at 2 ¶ 10. Then Pardo urged the General Assembly to adopt a resolution embodying the following concepts: "First, the sea-bed and the ocean floor are a common heritage of mankind and should be exploited for peaceful purposes and for the exclusive benefit of mankind as a whole. . Second, claims to sovereignty over the sea-bed and ocean floor beyond present national jurisdiction, as presently claimed, should be frozen until a clear definition of the continental shelf is formulated." U.N. GAOR 1515th mtg. at 2 ¶¶ 13-14. *See* also, David S. Browning, *The United Nations and Marine Resources*, 10 WM. & MARY L. REV. 690, 693-96 (1969) (tracing the history of the common heritage of mankind concept from the early days of the deliberations of the U.N. General Assembly in 1966, locating some the impetus in concerns over colonial type grab expressed by developing countries and emergence of substantial agreement on principles); Bradley Larschan & Bonnie C. Brennan, *The Common Heritage of Mankind Principle in International Law* 21 COLUM. J. TRANSNAT'L L. 305, 316-18 (1983) (after exploring the meaning of common heritage of mankind from two Roman Law concepts, *res nullius* and *res communis,* found the motivation for the common heritage concept to be an expression of the fears of developing countries of another type of colonial acquisition of resources of the sea-bed and the ocean floor).

163. U.N. GAOR 1515th mtg., at 2-3, ¶¶ 10-14 (outlining the principles to be incorporated in a treaty achieving the goals of excluding sovereign jurisdiction, control and ownership of the resources of the sea-bed). In paragraph 7 of UN GA A/C.1/PV.1515,, Pardo explained noted the importance of sea-bed to life in the following words: " The dark oceans were the wombs of life.: from the protecting oceans life emerged. We still bear in our bodies,- —in our blood, in the salty bitterness of our tears—-this remote past." Id. at 2, ¶ 7. .

164. *Id.* at 2, ¶ 13

165. G.A. Res. 2749 (XXV), 25 U.N. GAOR, 25th Sess., Supp. No. 28, U.N. Doc. A/8028, at 24 (Dec. 17, 1970) (*solemnly declaring* that "(1) The Sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction . . . as well as the resources of the area, are the common heritage of mankind.")

166. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter CLOS] (article 136 states that the resources of the sea-bed and the ocean floor are the common heritage of

international instruments dealing with jurisdiction over the outer space, the moon and the Antarctic.[167] The implications of applying the common heritage concept to biodiversity resources are serious enough to warrant special analytical attention. The accuracy, validity and expansiveness of the concept deserve scrutiny to ensure that it does not become a trap for biodiversity resource holders. It therefore appears that exploring the origins and scope of the concept in history and under international law might shed some light on the extent of its applicability to biodiversity resources.

The recent use of the common heritage concept within the context of limiting sovereign jurisdiction and ownership of the sea-bed, outer space and the Antarctic might mislead some into thinking that the concept is of recent vintage. However, the concept has deeper historical roots in the Judeo-Christian political philosophy and jurisprudence where it did not suffer from the constraints imposed on it by Pardo or the Law of Sea Convention.[168] In the sections that follow, we shall try to unpack the concept in its original broader context and explore its implications for jurisdiction, ownership and access to biodiversity resources. In doing so, it would be important to keep in mind that the concept of the common heritage of mankind as used by Pardo and in the Law of Sea Convention was prospectively preemptive in character. It was designed to prevent the future exercise of jurisdiction, occupation, colonization and exploitation of the vast resources of the seabed by states with the technological capabilities.[169] As such, the context, purpose and operation of the common heritage concept as used by Pardo and in the Law of the Sea Convention are seriously dissimilar to those of its original historical use and to the context of biodiversity resources that are already within the sovereign and territorial jurisdiction of states.

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mankind); Christopher C. Joyner, *Legal Implications of the Concept of the Common Heritage of Mankind,* 35 INT'L & COMP. L.Q. 190, 191-92, 197-99 (1986) (discussing the general characteristics of the concept of the common heritage of mankind and its legal status under the CLOS); John Van Dyke & Christopher Yuen, *"Common Heritage" v. "Freedom of the High Seas": Which Governs the Seabed?*, 19 SAN DIEGO L. REV. 493, 522 (1982) (following an extensive discussion of the history of the deliberations concerning the seabed concluded that the common heritage of mankind was the language used in discussion of the seabed.)

167. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter, Space Treaty]; D. Goedhuis, *Some Recent Trends in the Interpretation and the Implementation of the Rules of International Space Law,* 19 COLUM. J. TRANSNAT'L L. 213 (1981) (arguing that based on Article 1 (1) of the Space Treaty, many believed that the treaty established the whole of outer space as the common heritage of mankind); any doubts seemed settled in the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, G.A. Res. 34/68, U.N. GAOR, 34th Sess., Supp. No. 46, U.N. Doc. A/RES/34/68 (Dec. 5, 1979) (article XI(1), para. 5 provided that the moon and its natural resources have been proclaimed as the common heritage of mankind); Antarctic Treaty, U.N. Doc. A/C. 1/38/L.80 (1983). For some discussion of these treaties, *see* Ernst Fasan, *The Meaning of the Term "Mankind" in Space Legal Language*, 2 J. SPACE L. 125 (1974); Aldo Armando Cocca, *The Advances in International Law Through the Law of Outer Space*, 9 J. SPACE L. 13, 15 (1981); Carl C. Christol, *The Legal Common Heritage of Mankind: Capturing an Illusive Concept and Applying It to World Needs*, 18 PROC. COLLOQUIUM L. OUTER SPACE 42 (1976)

168. See supra notes 161-166. (discussing Pardo's limitations on owner, occupation and jurisdiction, and the, Law of the sea convention articles).

169. U.N. GAOR 1515th mtg., at 1, ¶¶ 5-8 (Suggesting implementation of an international regime designed to prevent technologically advanced countries from occupying or using the sea-bed and the ocean floor non- peaceful purposes).

The notion that biodiversity resources *might* constitute part of the commons granted by God to all humanity is not free from ambiguity and controversy. The concept seems anchored on two colossal pillars without which it may collapse. The first of these pillars is the Judeo-Christian political, jurisprudential and philosophical thought which attributed to God the creator a purposeful act of granting the world and all its resources to humanity in *common* for its benefit and use to serve God's purposes. The term "*common"* was used broadly to embody the common heritage concept. However, as discussed below, it is doubtful whether the Judeo-Christian creation narrative speaks for all humanity or all religions on this issue. The second pillar relates to the concept of the commons. From its history, the commons was not a unitary concept that enjoyed a universal meaning among European political theorists, philosophers and jurists speculating about the origins of private property. In an illuminating article, John Cahir has amply demonstrated the complexities and contextual meanings of the concept of the commons from the antiquities to modern times.[170] According to Cahir, the commons was a flexible concept that took its meaning depending on whether it was used within the context of the speculations about the original state of nature, or about utopian or social contract theories of society.[171] In this work, we are mostly interested in exploring the relationship between the commons and the origins of the common heritage concept so that we can better understand its impact on the debate over ownership and access to biodiversity resources.

1. Common Heritage Concept Under Judeo-Christian Philosophy

The concept of the common heritage of mankind seems to have its origins deep in the roots of Judeo-Christian theological and philosophical thought given currency and fuller expatiation by European philosophers in the seventeenth century.[172] Writing in the 13th century, Thomas Aquinas, one of the leading Christian theologians, argued that God granted the earth and all the inferior animals to man as common property only for his use and benefit but God retained ownership in the true sense of the term.[173] Viewed in this light, common property was similar to *res communis* susceptible to use but not private ownership. Centuries later, some European jurists and political philosophers speculating

170. John Cahir, *The Withering Away of Property: The Rise of the Internet Information Commons*, 24 OXFORD J. LEGAL STUD. 619 (2004) (amply demonstrates the complexities and contextual meanings of the concept of the commons from the antiquities to modern times).

171. *Id,* at 620-621.

172. *See generally*, LOCKE, *supra* note 2; BLACKSTONE, *supra* note 2; JEREMY BENTHAM, AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION (Hafner Pub. Co. 1970) (1789); THOMAS HOBBES, LEVIATHAN (1651) (C. B. Macpherson ed., Penguin Books 1968) (1651); 2 HUGO GROTIUS, H. GROTIUS OF THE RIGHTS OF WAR AND PEACE 241-60 (Gaunt 2001) (1715); SAMUEL PUFENDORF, DE JURE NATURAE ET GENTIUM LIBRI OCTO (C.H. Oldfather & W.A. Oldfather trans., Wildy & Sons 1964) (1688); Yelpaala, *supra* note 2, at 138 (discussing the Judeo-Christian concept of the common grant and its influence on the concept of property).

173. JAMES TULLY, A DISCOURSE ON PROPERTY 64-65 (1980) (discussing the interpretation of Genesis by Thomas Aquinas in his famous work—: Summa Theologica—, on the nature of the grant of the world to humanity).

about the origins of private property, tried to construct the original conditions in nature that could have produced private property rights.[174] They imagined an original state of nature in its primeval, pre-social contract and pre-state conditions. In that state of nature, some found humanity in a condition of innocence, virtue and purity.[175] Others found no organized society with government, no state, no law and consequently no positively identifiable property rights.[176] In the state of nature, all resources were in the commons held by all to the exclusion of none as one patrimony.[177]

The position of humanity in this original state of nature was a question of disagreement. Those who viewed humanity more positively argued that human beings in the state of nature were equipped with natural reason to deal with God's gifts of the commons in such a manner as to serve God's purposes.[178] However, those who had a less positive or unflattering view of humanity saw nothing but chaos in the state of nature. A well-known example of those in this group was Thomas Hobbes whose views of humanity in the state of nature were perhaps the most negative and uninspiring.[179] According to Hobbes, in a state of nature with no laws, no government or authoritative force to maintain order, there was anything but warfare, everyman against every other man.[180] Under such circumstances, there could be no property rights.[181] As he put it, there was no mine or thine; at best, possession was possible and, even at that, only transitory.[182] So, to Hobbes, the commons was a source of perpetual strife over the acquisition and retention of resources since one could only hold on to what

174. *See generally*, LOCKE, *supra* note 2; BLACKSTONE, *supra* note 2; BENTHAM, *supra* note 172; HOBBES, *supra* note 172; GROTIUS, *supra* note 172; PUFENDORF, *supra* note 172; Yelpaala, *supra* note 2, at 138 (discussing the Judeo-Christian concept of the common grant and its influence on the concept of property).

175. GROTIUS, *supra* note 172, at 28-29.

176. HOBBES, *supra* note 172, at 85; Cahir, *supra* note 170, at 622 (discussing Locke's and Hobbes' imagined state of nature); Adam Mossoff, *What is Property? Putting the Pieces Back Together*, 45 ARIZ. L. REV. 371, 380-82 (2003) (discussing Grotius view of the origins of private property; Yelpaala, *supra* note 2, at 144-46 (discussing Locke's views of the origins of private property).

177. GROTIUS, *supra* note 172, at 26.

178. For those with a more positive view of humanity in the creation of property rights *see* GROTIUS, *supra* note 172, at 28-29 (constructing the path to private property rights from a grant by God to humanity in an initial state of innocence, purity and virtue which changed when men became affected by corruption, cunning and ambition); PUFENDORF, *supra* note 172, at 476-78 (ascribing the existence of property to the ability of communities to agree to its existence); LOCKE, *supra* note 2, ¶ 25(agreeing with Aquinas, suggested that the grant of the commons was premised on the ability of humans to use reason to appropriate property rights); TULLY, *supra* note 173, at 65, 81; 2 BLACKSTONE, *supra* note 2, at 2-3 (tracing the origins of property to Biblical sources of the grant by God of all things to humanity in common); DRAHOS, *supra* note 2, at 42-47 (outlining and discussing Locke's arguments for private property being rooted in serving God's purposes); TULLY, *supra* note 173, at 95 (discussing Locke's views of property rights derived from the Bible and natural as designed to serve some purposes).

179. Pufendorf offered a detailed and analysis and criticism of Hobbes in 2 PUFENDORF, *supra* note 172, at 105 (Book II, chapter II is devoted to a discussion "On the Natural State of Man").

180. HOBBES, *supra* note 172, at 188 (describing the consequences of the state of war and no society concluding that the life of man is solitary, poor, nasty, brutish and short); Cahir, *supra* note 170.

181. HOBBES, *supra* note 172, at 188 (explaining that in the state of war and no law there will be no property, no mine and thine).

182. *Id.*

was acquired for only as long as one was able to ward off others.[183] In Hobbesian terms, it was the law of the jungle or claw and fang that governed until some authoritative law and order force emerged.[184]

However, Hobbes did not have the last word on the origins and the conditions of the commons in that original state of nature. The anchor and inspiration for the imagined state of nature of other European jurists and philosophers was the Biblical account of creation which they took seriously.[185] Relying on that account, jurists such as Pufendorf,[186], Grotius,[187] and Blackstone[188] constructed the path to private property rights from the commons granted by God to all humanity. European moral philosophers also drew inspiration from the Bible as they speculated about the original state of nature and the origins of private property. Notably, John Locke, whose work on property has had an immense impact on western thought on that subject relied heavily on the Biblical account of creation.[189] From it, Locke concluded that God gave the world and all in it to humanity in common for its support and comfort.[190] From this notion of the common grant Locke developed a "rationalized" purposive and conditional theory of private property that could be acquired from the commons through individual toil and labor, labor theory of property,[191] discussed below. It appears from this discussion that the common heritage concept seems to have had earlier origins in the commons than is generally recognized. This earlier version of the common heritage concept permits individual acquisition and ownership precluded in the formulation by Pardo and in the Law of Sea Convention.

The power and limitations of the common heritage theory has been the subject of careful analysis elsewhere and the interested reader may pursue the points raised there.[192] In this study, we are mainly interested in the implications of the common heritage concept on the issue of access to, and exploitation of, the world's biodiversity resources. One might ask whether the common heritage

183. *Id.*

184. HOBBES, *supra* note 172, at 185 (arguing that when men live without common power to keep them in awe they are in a condition called war in which every man is against every man).

185. *Genesis* 1:28-30 ("God blessed them and said to them, "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish in the sea and the birds in the sky and over every living creature that moves on the ground." 29: Then God said, "I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food; 30:.And to all the beasts of the earth and all the birds in the sky and all the creatures that move along the ground—everything that has the breath of life in it—I give every green plant for food." And it was so.).

186. PUFENDORF, *supra* note 172; DRAHOS, *supra* note 2.

187. 2 GROTIUS, *supra* note 172, at 25 (where Grotius stated "God gave to mankind in general, dominion overall the creatures of the earth, from the first creation of the world; a grant which was renewed upon the restoration of the world after the deluge. All things, as Justin says, formed a common stock for all mankind, as the inheritors of one general patrimony."); Morris R. Cohen & Felix S. Cohen, *Grotius, War and Peace*, *in* READINGS IN JURISPRUDENCE AND LEGAL PHILOSOPHY 55, 55-58 (1951).

188. *See* 1 BLACKSTONE, *supra* note 2, bk. II, at 2-3.

189. LOCKE, *supra* note 2, at ¶ 25.

190. *Id.*

191. *Id.;* Tully argues that Locke was influenced by Aquinas and 16th century neo-Thomist philosophers who assigned God's purposes for creation and some responsibility to humanity; Tully *supra* note…at…

192. *See* Yelpaala, *supra* note 2, at 138-44.

concept has any validity within and outside its Judeo-Christian origins. This question has serious implications for the Third World. Inherent in the common heritage concept is the notion that biodiversity resources might constitute appropriable *res nullius* or common property not owned by any person or by the states within which they are found. Such a notion is fraught with dangers for the Third World. If the concept is accepted as a valid system for organizing the exploitation of biodiversity resources, Third World countries will find it difficult if not impossible to protect their valuable resources against inequities and in the words of Mahbub Haq unequal opportunities.[193] The issues surrounding the common heritage debate are better informed within this contextual framework.

Fortunately, the concept as framed is not impervious to attack. Indeed, it is susceptible to corrosive criticism on its own terms and as a universal account of the creation myth applicable to humanity at large. First, assuming the accuracy of Aquinas interpretation of the grant of the commons in the Book of Genesis, all the resources of the world would be immune from any human property regime since the grant was limited to the right to use.[194] However, that interpretation of the grant would subject the commons to a perpetual regime of the usufruct for all humanity. Ownership in its true sense of complete and despotic dominion over the world and its material resources resides only in God as the creator.[195] Thus, the commons would have the characteristics of perpetual *res communis*. Second, on its own terms, the concept of the commons as subsequently developed by European political philosophers was not meant to state reality. As stated above, the commons described an *imagined state of nature* and as such was at best speculative even if inspired by Biblical sources. How does speculation about the original state of nature gain traction in the real multicultural and multidimensional world of biodiversity resources? This question gains greater pertinence when the application of such a concept derived merely from supposition is likely to result in deprivation or inequity.

An inherent danger of the common heritage concept is that the biodiversity resources of the world are available for appropriation by any one as private property. This fear is made clearer within the context of Locke's labor theory of property. Taking the supposition of the state of nature as true, Locke argued that a part of the commons might be converted into private property through individual toil and effort.[196] However, even if we accept the commons as part of the common heritage of humanity Locke's labor theory does not guarantee the acquisition of private property rights. According to Locke, labor will produce private property subject to the following conditions: (1) if private property serves God's purposes, (2) if and only if enough of the commons is left for humanity and (3) if property is not wasted or subjected to spoilage.[197] Apparently, although God recognized and authorized private property, He did not do so at the expense

193. HAQ, *supra* note 92, at 165-66.

194. TULLY, *supra* note 173, at 62.

195. *Id.* at 65.

196. LOCKE, *supra* note 2, ¶ 27.

197. *Id.* ¶ 35.

of humanity and His general purposes. Thus, neither the quantity, nor quality of the individual labor nor the significance of the product of such labor would necessarily justify property rights. Locke's labor theory is therefore permanently pregnant with the restriction that access to, and exploitation of, biodiversity resources must not produce scarcity in those resources and must, at least, make enough of those assets freely available to humanity to avoid waste or hoarding.

What then is the implication of Locke's labor theory? A series of intriguing questions and issues are raised by it. For instance, would Locke's labor theory be applied to things which cannot be seized, depleted and without which existence is difficult if not impossible? Given that inventions cannot be depleted from multiple or simultaneous use and do not suffer from contagion a requirement that biodiversity prospectors make their inventions and derivative products freely available to humanity would be consistent with Locke's labor theory. Creating access would arguably advance God's purposes since multiple and simultaneous exploitation does not lead to depletion, subtraction, or deprivation of the owner but might advance the interest of humanity.[198] Given these attributes of ideas and their expression, would significant and extraordinary inventions such as platform inventions derived from biodiversity resources fall into the category of indispensable resources that cannot be the subject of private property rights? Paradoxically, shouldn't the concept of the commons and the labor theory handcuff global seed and pharmaceutical companies from obtaining patents for inventions derived from biodiversity resources? One may question the consistency of the patent system with Locke's labor theory when it systematically excludes traditional farmers from the benefits of patent protection but protects the synthesizers of thousands of years of seed breeding techniques by those farmers. If Locke's limitations on private property are taken seriously, the answer to these questions should be obvious.

However, Peter Drahos has argued that a strong case of Locke's labor theory of property might be made from the very attributes of ideas discussed above. Unlike a fruit which can spoil or cease to exist once eaten, abstract ideas are neither consumed in use nor ever leave the commons. There is an infinite set of equivalent forms of such ideas, which can be the basis of other synthesis.[199] Creating property rights in ideas does not seem to pose any difficulties.[200] Notwithstanding these arguments, Drahos rejects the notion of Locke's strong labor theory as not sustainable[201] because of the underlining assumptions necessary to support it.[202]

198. Tully in his interpretation of Locke presented Locke's two fundamental natural law principles, which would support the view that greater access to biodiversity resources would advance God's purposes. Locke's first fundamental law of nature is the preservation of mankind. The second fundamental law of nature is self-preservation. TULLY, *supra* note 173, at 62.

199. DRAHOS, *supra* note 2, at 48-50.

200. *Id.* at 51.

201. *Id.* at 54; Peter Drahos, *Biotechnology Patents, Markets and Morality*, 21 EUR. INTELL. PROP. REV. 441 (1999).

202. DRAHOS, *supra* note 2, at 50 (posits the following conditions: ideas must be the product of labor, do not have an external source like God, spirits or platonic heaven, individual not passive recipient).

In short, Locke's labor theory *appears* to be inapplicable to ideas and their expression. Some of the most important inventions protectable under the patent regime were not the product of labor but pure historical accidents.[203] Some ideas involved significant labor and personal effort but are denied appropriability under the patent system.[204] The contradiction of allowing appropriation or protection for the first category and denying it for the second is too obvious to deserve any further comment. Moreover, ideas and inventions have the characteristic attributes of a public good in that they are diffusible, susceptible to multiple and simultaneous use without a depletion of the corpus. With these characteristics, inventions are perpetually in the prototypical commons and do not satisfy Locke's conditions for appropriability. Dealing with the physical world, Locke assumed a condition of fixed and depletable resources. Ideas and inventions, whether of the platform or derivative type, are non-depletable and totally diffusible. If these hold true, the common heritage concept would work against private property rights in inventions. Taken on its own terms, the common heritage concept does not seem to authorize the recognition of unrestricted property rights and as such might not present some of the dangers associated with it.

This conclusion has some support in the literature on Locke's labor theory. According to Drahos, one argument is that Locke's labor theory only justifies private property if God's purposes are thereby realized.[205]. Based on this interpretation, private property rights cannot undermine God's purposes for humanity. Such an argument is however not free from controversy as no clarity exists as to what constitutes God's purposes. For others interpreting the same conditions concluded that God authorized unrestricted and uninhibited acquisition of property rights.[206] The dangers presented to those who hold biodiversity resources lies in the uncertainty as to which interpretation of Locke's conditions might be asserted as valid.

It is obvious from our discussion so far that the common heritage concept does not provide such a smooth path to the acquisition of private property rights. Indeed, the sanctity of property rights is not guaranteed by other philosophical speculations on the subject. This is borne out by the role assigned to an original community in the creation of property rights. Grotius, Pufendorf and Locke all, in varying degrees of specificity, assign positive and negative attributes to community.[207] Negative community is defined as the commons belonging to no

203. JOE JACKSON, THIEF AT THE END OF THE WORLD 24-25 (2008) (describing how in 1839 Charles Goodyear discovered the vulcanization of rubber by accidently dropping a concoction of rubber, sulfur, and white lead on a hot stove and transformed forever the role of rubber in human history).

204. 35 U.S.C. § 101 (2006 & Supp. V 2011) (outlining the statutory requirements of patentability).

205. TULLY, *supra* note 173, at 46.

206. DRAHOS, *supra* note 2, at 53; ROBERT NOZICK, ANARCHY, STATE, AND UTOPIA, 10-11, 174-175 (1974)(arguing that Locke's grounds for property rights are rooted in the original natural state and the freedom to acquire).

207.Drahos, *Id.* at 57-60; Locke, *supra* note…at ¶ 46-48)(discussing mutual consent); Pufendorf, *supra* note 172, at 362 (stating " The term *communium* is taken either negatively, or positively. In the case of the former manner things are said to common, as consider'd before any human act or Agreement had declared them to belong to one rather than to another. In the same sense things thus consider'd are said to be No Body's, rather

one although parts of it may be appropriated as private property. Positive community, on the other hand, sees the commons as belonging to all in the sense that all have the right to be included in its use.[208] Whether viewed positively or negatively, community is seen by Grotius and Pufendorf as essential for the creation of property rights. According to them, property rights in physical objects require some community agreement or convention.[209] Relying on the negative conception of community, Pufendorf argued that when man leaves this original negative community of things they by a pact between them establish separate dominion over things.[210] Similarly, to Grotius, the rise of private property from the commons requires some agreement among the commoners.[211] Locke , on the other hand, saw property rights as naturally occurring and therefore required no consent on the part of the commoners.[212] At bottom, according to these philosophers, labor does not provide enough basis for property since Grotius and Pufendorf require some community consensual act and Locke imposed the condition that there must be enough of the commons left for humanity.[213]

If therefore some community pact or agreement is required for biodiversity resources in the commons to be privately appropriated which community consent is thereby demanded? Would that be the global community of all humanity or the particular community in which the resources are located? If historically social compact theories were concerned with the development of specific societies into organized systems of government, it is more likely than not that Grotius and Pufendorf would not have meant the global community at large. Consensus at that level would be hard to achieve even with today's technological advancements and the development of global governance institutions. Consensus at a much more discrete and circumscribed level might have been intended. This would place control over biodiversity resources in the hands of the communities in which they are found. An argument that the Biodiversity Convention itself manifests the necessary community consensus would be attributing meaning and conclusion to Grotius and Pufendorf they never intended. Their world was a much more circumscribed and localized European geographic environment.

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negatively, than positively, i.e. they are not yet assign'd to any particular person, not that they are incapable of being so assign'd."); GROTIUS, *supra* note 172, at 25-30 (discussion property in the commons from which no one could be excluded).

208. DRAHOS, *supra* note 2, at 46; TULLY, *supra* note 173.

209. PUFENDORF, *supra* note 172, at 362; DRAHOS, *supra* note 2, at 48..

210. PUFENDORF, *supra* note 172, at 365 (arguing that property was not created by the express command of God, nor by Nature but the act of men; property of things flowed immediately from the compact of men, whether *implicit* or *express,* that is through some mutual agreement).

211. After setting out the original conditions of common property Grotius proceeded to describe the origins of private property as necessitated by convenience and avoidance of disagreement; thus private property resulted from a certain compact and agreement, either expressly by division, or else tacitly by seizure and possession. He went on to state that it was universally agreed that what every man possessed should be properly his own. 2 GROTIUS, *supra* note 172, at 31-32. DRAHOS, *supra* note 2, at 48.

212. LOCKE, *supra* note 2, ¶ 26.

213. *Id.* ¶ 25; GROTIUS *supra* note 172; PUFENDORF *supra* note 172; Yelpaala, *supra* note 2, at 150-151; Lawrence C . Becker, *The Labor Theory of Property Acquisition: Locke's Arguments*, 73 J. PHIL. 653, 654 (1976).

The essential role assigned by Grotius and Pufendorf to community in the creation of property raises the larger question of whether property rights are subsequent or antecedent to the state. Put differently, is "*stateness*" a prerequisite to property? To Hobbes, the state or some authoritative force with enforcing powers is required.[214] As he put it, in conditions of no law, no justice, there can be no mine or thine.[215] Extolling the virtues of law, Bentham, in his famous book, An Introduction to the Principles of Morals and Legislation, argued *there is no such thing as natural property rather, property is entirely the work of law* (emphasis added)[216]. According to him, "Law and property were born together, and die together. Before laws were made there was no property; take away laws and property ceases." [217] A necessary element of this close relationship between property and law is some authority or governance structure for regulating or enforcing property rights. Such an authority or governance structure may be the State or some other form of collectivity suggested by Grotius and Pufendorf in the use of the term community. However, the Grotian community is a broader and softer concept, which may include the state and other non-state collectivities. The essential operating element is the existence of a normative system supportive of property rights.

The claimed tri-partite nexus between state, law and property, whether viewed under the harsher Hobbesian world or under the softer Grotian system, presents significant risks to biodiversity resource holding traditional or indigenous societies. Under either system, traditional societies may be viewed as *stateless* or lacking the appropriate community qualities recognized by western philosophical and political thought.[218]Either conclusion would lead to the position apparently maintained in the eighteenth century and even today by some researchers that biodiversity resources in the Third World constitute *res nullius* or part of the common heritage of humanity appropriable by outsiders.[219] Such a position is limited in scope although it gave support to centuries of colonial occupation and domination of vast areas of the world. From a broader conception of history, we know that neither European philosophical thought nor political theory holds a monopolistic dominance over the subject of what constitutes an

214. HOBBES, *supra* note 172, at 187.

215. *Id.* at 188; Cahir, *supra* note 170, at 622.

216 BENTHAM, *supra* note 172, at 111-113, MORRIS R. COHEN and FELXI S. COHEN, READINGS IN JURISPRUDENCE AND LEGL PHILOSOPLY 9 (1951)

217. BENTHAM, *supra* note 172, at 111-113, MORRIS R. COHEN and FELXI S. COHEN, READINGS IN JURISPRUDENCE AND LEGL PHILOSOPLY 9 (1951)

218. Kojo Yelpaala, *Circular Arguments and Self-Fulfilling Definitions: "Statelessness" and the Dagaaba*, 10 HIST. AFR. 349 (1983) (arguing that the anthropologist created the savage, the primitives, and the barbarians as subject of their intellectual inquiry).

219. *See* JACKSON, *supra* note 203, at 38-39 (arguing that in the 1800s the theory of "Natural Theology emerged as a new rationalization of exploitation and theft of the resources of other countries; according to that theology everything in nature existed for man's use and instruction; the earth was a treasure house to be managed: nature belonged to man to harvest and "improve" and that the natives have no right to prevent the utilization of the immense natural resources they have in charge); Stephen B. Brush, *Indigenous Knowledge of Biological Resources and Intellectual Property Rights: The Role of Anthropology*, 95 AM. ANTHROPOLOGIST 653, 657 (1993).

appropriate human social and political organization.[220] Alternatively structured societies are neither stateless nor lawless collectivities merely because they do not fit into some external norm of "*stateness*." Over time, every society evolves its own thoughts and dynamic governance structure conducive to its needs.[221] Biodiversity resources found within these societies are governed by a different system of intricate, if not sophisticated, social norms, rules and expectations that do not necessarily recognize the concept of *res nullius* or common heritage of humanity as used here.

Finally, we want to turn our attention to the Biblical narrative which forms the corner stone on which the edifice of the common heritage concept was constructed. The Biblical creation myth presents a powerful universal ethical order delivered by God to humanity.[222] As interpreted by some, the Bible presents a relationship of hierarchy, dominance, and subjugation between humanity and the universe. Occupying the top of that relational pyramid was humanity, which was required, if not commanded, to exploit, tame, or conquer the resources of the world to advance God's purposes.[223] Such a construct of the power relations between humanity and its environment tended to invite or set up the conditions for unbridled and aggressive acquisitive conduct by the dominant over the dominated.[224] This view of the world of humanity would easily justify or legitimize an overbearing if not destructive exploitation of the resources of the world even if rationalized as conservation.[225] And all that would find legitimacy under God's orders. For, a command from God must be obeyed.

2. Common Heritage and Multiculturalism

However, the Bible neither holds monopoly over belief systems nor offers an exclusive explanation of the relationship between humanity and the universe. Under other belief systems such as Buddhism, the relationship is neither one of hierarchy or dominance, "being" or "ought" nor a duality of existence but rather one of "Emptiness" or "Nothingness,", interdependence, coherence and

220.See, BAI SHOUYI, AN OUTLINE HISTORY OF CHINA, (2008)(providing an outline of the evolution of a complex system of state craft in China within and between varying regimes and emperors for thousands of years); FUNG YU-LAN, A SHORT HISTORY OF CHINESE PHILOSOPHY 1-15 (1948, ed. Derek Doddie)(describing the long, complex history of Chinese philosophy, the competing schools of thought and its methodology in contrast with western philosophical thought); VALERIE HANSEN, THE OPEN EMPIRE, A HISTORY OF CHINA TO 1600 (2000)(arguing that we know more about China's past than any other civilization because the Chinese have been writing history about themselves right from the beginning and providing an alternative explanation of that history); Gavin Menzies, 1421 The Year China Discovered America (2002)(providing an account of unparalleled level ship building technology of that era); LEGGE, *supra* note 87, at 57-87 (giving a brief account of the life of Confucius) and at 16 (discussing Mencius and the Greek Philosophers); R.P. ANAND, NEW STATES AND INTERNATIONAL LAW (1972)

221. Yelpaala, *supra* note 218.

222. TULLY, *supra* note 173; Kojo Yelpaala, *Legal Consciousness and Contractual Obligations*, 39 MCGEORGE L. REV. 193 (2008).

223.Tully, *supra* note 173, at 65 (explaining that Aquinas places God above all and humans are at the top of the pyramid of relations below God with the power and dominion over all the inferior beings).

224. S*ee supra* notes 49-50.

225. JACKSON, *supra* note 203, at 39.

congruence.[226] Contrary to the biblical scheme of hierarchy and human domination over all other beings, in Buddhism humanity is part of the universe, part of nature and the natural order which demands balance among its constituent units including humans.[227] A universal normative order constructed under this type of belief system would demand tolerance, forbearance, reciprocity and respect for, and restraint in, the exploitation of the resources of the universe.[228] The ideological canvass on which property rights in such systems are painted would be one of coherence, flexibility and less exclusionary but more permissive and usufructuary.[229] The dominant social and cultural milieu of property would tend to be one of inclusiveness, easy access, right to use, reciprocity and sustainability.[230] Thus, property rights would be operating under a thick and expansive umbrella of permissiveness. This is what Gordon L. Clark refers to as contextualizing property rights.[231] Societies that subscribe to this or similar belief systems of the universe are likely to share their biodiversity resources widely and liberally. Such a conduct should not be confused with the absence of rights over those resources as understood by those societies.

Certainly, the concept of collective property rights evolved in many cultures

226. The extensive nature of the literature on Buddhism militates against extensive citation. Work that adequately illustrates the Buddhist perspective on the relationship between humanity and the rest of world will suffice. *See* Shuichi Yamamoto, *Environmental Problems and Buddhist Ethics: From the Perspective of the Consciousness-Doctrine Only*, *in* PSYCHOLOGY AND BUDDHISM FROM INDIVIDUAL TO GLOBAL COMMUNITY 239, 241 (Kathleen H. Dockett et al. eds., 2003) (explaining that in Buddhism an entity does not exist and generate independently but that every entity exists only of its relations with or the condition of other entities. Buddhism teaches that an entity cannot exist independently because of the fundamental interdependence of all phenomena . . . In Buddhism, humans, living things, non-living things are fundamentally recognized to be equal in life levels; since ancient times, the people of India did not consider that there is a distinction between animals, and humans, there was a mutuality between humans and animals and even plants, mountains, and rivers have Buddha nature); MASAO ABE, ZEN AND WESTERN THOUGHT, at xxi-xxii (William R. LaFleur ed., 1985) (the author's note provides some fundamental ideas in Zen Buddhism: "the ultimate in Zen (and in Buddhsim) is neither "Being nor Ought" but rather "Nothingness" or "Emptiness" . . . identical with "Being" and "Fullness"); FABIO RAMBELLI, BUDDHIST MATERIALITY: A CULTURAL HISTORY OF OBJECTS IN JAPANESE BUDDHISM 19-20 (2007) (explaining Kukai's (774-835) views on that sentient and non-sentient entities share the same identity since mind and matter are not essentially different being the stuff of which the Buddha is made . . . The realm of living being is made of all sentient beings . . . and all non-sentient beings . . . Buddha in its absolute aspect is constituted by the six elements that compose the universe: earth, water, fire, air, space and consciousness).

227. RAMBELLI *, supra* note 226*;* ABE, *supra* note 226, at 30-33 (explaining the difference between the narrative in the Book of Genesis and Buddhism which draws no difference between humans and all other living beings, humans do not occupy a superior position and like all living beings face the same generation and extinction, undergoing the same transmigration, all sentient Beings are Buddha nature).

228. Yamamoto, *supra* note 226, at 241-43.

229. Shiva, *Bioprospecting*, *supra* note 26, at 308, 311 (discussing the intricate spiritual relationship plants, humans and the protection by visible and invisible forces and the expansion of knowledge through sharing); Ostrom, *Types of Goods,* supra note 154 at 252-253; John Quiggin, *Common Property, Equality, and Development*, 21 WORLD DEV. 1123, 1128-31 (1993).

230. Shiva, *Golden Rice and Neem*, *supra* note 26, at 14 (explaining how in Central India farmers at the beginning of the farming season gather before the village deity offer their rice varieties and share seeds thereby establishing a partnership among and the earth).

231. Gordon L. Clark, *Rights, Property, and Community*, 58 ECON. GEOGRAPHY 120, 126-30 (1982) (discussing the role of community in property rights and criticizing Nozick's conception of community as a summation of individuals as narrow).

and societies from the days of hunting and gathering thousands years ago.[232] The roots of such rights could hardly be found in the common heritage concept. Collective and communal property rights that are heavily burdened and conditioned by the right of access, the usufruct and sharing embody different deeply entrenched values not rooted in the common heritage concept. Many traditional cultures with collective rights share neither the Judeo-Christian religious beliefs nor the subsequent euro-centric philosophical expatiation of them.[233] Even in the case of Europe the evidence from many studies on the enclosure movement suggests that early English and European societies operated on the basis of similar common or communitarian property rights until the enclosure movement[234] More recent studies suggest further that the commons withstood the enclosure movement as efficient institutions of common property not only in England but also in Scotland and Continental Europe.[235] However, scholars have not seen it fit to link the emergence of the commons in Europe to the concept of the common heritage of humanity. Moreover, liberal usufructuary norms of access and non-exclusivity are hardly proof of the universality of the common heritage concept.

These notwithstanding, some scholarly investigations have apparently found justification for the application of the common heritage concept in non-European traditional societies. For instance, Stephen B. Brush purported to offer a nuanced but incomplete anthropological explanation and application of the common heritage concept to traditional biological resources.[236] Brush's approach is unfortunately rooted in the abandoned foggy misconceptions in the work of early anthropologists on preliterate societies including those "dubbed" as stateless. To Brush biological knowledge in such societies is of inestimable value, is public, noncommodified, esoteric, unevenly distributed and not monopolized.[237] Such knowledge is neither systematically synthesized nor scientifically isolated by any specific individual.[238] Without an Austinian or Hobbesian coercive central power

232. S.V. Ciriacy-Wantrup & Richard C. Bishop, *"Common Property" as a Concept in Natural Resources Policy,* 15 NAT.L RESOURCES J. 713, 717 (1975) (tracing common property origins to the hunting and gathering days citing MAN THE HUNTER (R. Lee & L. DeVore eds., 1968).

233. Examples of traditional cultures with a non Judeo-Christian belief structure, too numerous to count or cite here, include those in India, China, Japan and Africa. *See* for example a report of a conference in India in 1993 devoted to the validity of the "tragedy of the commons" where the issue of the relationship between humans, nature and the environment was discussed. *See* Subir Sinhar & Ronald Herring, *Common Property, Collective Action and Ecology*, 28 ECON. & POL. WKLY. 1425, 1429-30 (1993) (where pre-colonial nature in India is presented as ageless, ahistorical, in harmony between people and nature); Yamamoto, *supra* note 226 . . . The evidence suggests that early English and European societies operated on the basis of similar common or communitarian property until the enclosure movement in the UK, *see* Runge & Defrancesco, *supra* note 104 (discussing the history of the commons in the UK and in the Swiss and Italian Alps).

234. *See* Runge & Defrancesco, *supra* note 104.

235. Katrina Myrvang Brown, *New Challenges for Old Commons: The Role of Historical Common Land in Contemporary Rural Spaces,* 122 SCOTTISH GEOGRAPHICAL J. 109, 110-111 (2006); Runge & Defrancesco, *supra* note 104.

236. Brush, *supra* note 219.

237. *Id.* at 657.

238. Stephen B. Brush, *Farmers' Rights and Genetic Conservation in Traditional Farming Systems,* 20 WORLD DEV. 1617, 1618, 1621 (1992) (arguing that uncollected and uncharacterized genetic resources have not been conceived as intellectual property and constitute the common heritage of all human and the free flow of

assigning or enforcing monopoly rights for profits, traditional biological knowledge becomes the common heritage of humanity.[239] But, in the 21st century we have a much more improved knowledge and a deeper appreciation of the fundamental unity in humanity even within the necessary complexity of cultural diversity. One then wonders what weight can be assigned to the work on these societies by anthropological giants of their time such as Bronislaw Malinowsky on the Polynesians[240], Evans Pritchard on the Nuer,[241] Meyer Fortes on the Talensi[242] and Jack Goody on the Dagaaba[243] These societies, like others in South America, were not only states on their own terms but have also been for long absorbed into the modern state.

However, Brush finds further support for his argument from centuries of history of biological exchanges both within developing and developed countries. Through exchange the Mexican maize migrated to and transformed Africa in a manner similar to the way the Andean potato revolutionized Europe.[244] Moreover, to Brush the common heritage argument is grounded in the fact that American and European explorers in the 17th and 18th centuries who were generally accompanied by plant collectors brought back plants, fruit trees and many other trees.[245] The term exchange suggests some equivalent *quid pro quo* transaction. But these so-called exchanges being part of the larger colonial design carried more the burdens of forced extraction than voluntary exchanges. Studies by historians of the patterns of colonial extractive practices provide compelling evidence of abuses and exploitation of the most extreme form.[246] Authoritarian

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them in the interest of all people).

239. *Id*. at 1623 (arguing that in the case of breeders' rights rely on legislation and enforcement that permits monopoly profits to encourage but farmers have no expectations of monopoly profits nor are there formal enactments protecting them, hence the application of the common heritage concept).

240. *See* BRONISLAW MALINOWSKI, ARGONAUTS OF THE WESTERN PACIFIC (1922); BRONISLAW MALINOWSKI, CRIME AND CUSTOM IN SAVAGE SOCIETY (1926).

241. *See* E.E. EVANS-PRITCHARD, THE NUER: A DESCRIPTION OF THE MODES OF LIVELIHOOD AND POLITICAL INSTITUTIONS OF A NILOTIC PEOPLE (1940).

242. *See* MEYER FORTES, THE DYNAMICS OF CLANSHIP AMONG THE TALLENSI: BEING THE FIRST PART OF AN ANALYSIS OF THE SOCIAL STRUCTURE OF A TRANS-VOLTA TRIBE, (1945); MEYER FORTES, THE WEB OF KINSHIP AMONG THE TALLENSI: THE SECOND PART OF AN ANALYSIS OF THE SOCIAL STRUCTURE OF A TRANS-VOLTA TRIBE (1949).

243. JACK GOODY, DEATH, PROPERTY AND THE ANCESTORS (1962); Jack Goody, *Fields of Social Control Among the LoDagaba*, 87 J. ROYAL ANTHROPOLOGICAL INST. GR. BRIT. & IR. 75 (1957). For discussion of the work of these anthropologists and others, *see* Kojo Yelpaala, *Western Anthropological Concepts in Stateless Societies A Retrospective and Introspective Look at the Dagaaba*, 17 DIALECTICAL ANTHROP. 431 (1992)

244. The domestication and spread of plants, seeds, animals in human history is a complex phenomenon of birds, other animals and men, JARED M. DIAMOND, GUNS, GERMS AND STEEL (1999) (Chap 7, How to make an Almond, p.114); *Susan Keech McIntosh, The Holecene Prehistory of West Africa,* in Themes in West Africa's History (ed. Emmanuel Kwaku Akyheampong 2006) at 11-12 (arguing that the domestication of plants and animals and plants such millet and rice in West Africa was independent).

245. Brush, *supra* note 219, at 657.

246. LEWIS H. GANN & PETER DUIGNAN, WHITE SETTLERS IN TROPICAL AFRICA 30 (Greenwood Press 1977); YOUNG, *supra* note 51, at 101; PATRICK MANNING, FRANCOPHONE SUB-SAHARAN AFRICA, 1800-1985 84 (1988); For a discussion of the limitations imposed by Spain on migration to keep control over the independence of the colonists, *see* JAMES LANG, CONQUEST AND COMMERCE: SPAIN AND ENGLAND IN THE

and absolutist state institutions were put in place to support a variety of coercive practices: forced, indentured and plantation labor, violent extractions of human and natural resources and the imposition of the most oppressive tax regimes that in some cases extracted as much 60% of the GDP of the colonies.[247] In short, any proffered anthological explanation that ignores this history of oppressive colonial institutions that deprived the colonies of a voice in the management of their resources is nothing short of an apologetic gloss over history and theory. It provides perhaps an unintended endorsement of the blatant biopiracy exemplified by the *"theft"* of *cinchona* trees from Peru and Ecuador and the *Hevea* rubber seeds from Brazil to advance the imperial ambitions of Britain.[248]

It is analytically difficult to find how the evidence tended by Brush supports the common heritage concept. Farmers all over the world of different cultures, with different religious beliefs and practices, and with different historical experiences developed different habits of sharing seeds, farming techniques, biological materials, medicinal practices and other ideas.[249] The reasons for this practice could hardly be single or uniform and certainly not rooted solely, if ever, in the Eurocentric common heritage concept. One explanation could be that sharing was for survival. Cooperation and collaboration among farmers in the form of technology or biodiversity resource exchange increased the pool of knowledge that improved the chances for survival. However, community based access to, and sharing of, biodiversity resources served other social objectives. Collective societies tend to be interested in maintaining a narrow income and wealth inequality gap between people that would be advanced by a policy of easy access.[250] Since the best ideas and techniques were made available to all the income of marginal users would tend to rise even as that of the more industrious or talented members of the community increased relatively more. Now, privatizing these collective resources in the hands of the most talented and industrious would not only have denied access to marginal users but also would

AMERICAS (1975); JAMES LOCKHART & STUART B. SCHWARTZ, EARLY LATIN AMERICA (1983).

247. Acemoglu et al., *supra* note 7, at 1375-76 (discussing the literature on the extent and scope of the coercive exploitation practices by the Spanish in Latin America, the English, French and Belgium in Africa and the Dutch in Indonesia; e.g, the French and Belgium extracted taxes in the proportions of 50% and about 60% in Dahomey and The Congo respectively); MICHAEL CROWDER, WEST AFRICA UNDER COLONIAL RULE, 50 (1968)(explaining how in Nigeria, the largest British colony the flag followed trade);,ANDREW ROBERT, A HISTORY OF ZAMBIA, 193 (1976) (explaining that while Britain extracted 2,400,000 pounds in taxes in the copper belt only 136,00 pounds went to Northern Rhodesia).

248. *See* MARK HONIGSBAUM, THE FEVER TRAIL (2002); JACKSON, *supra* note 203, at 9 (describing how one determined man Henry Wickham pulled off one of the most far-reaching biological piracy in the history of world, collecting large quantities of rubber seeds for British plantation in Malaya and Ceylon; and Chapter 9 (pages 173-193) describing in great detail how this feat was pulled off); PAUL RUSSELL CUTRIGHT, THE GREAT NATURALISTS EXPLORE SOUTH AMERICA 4-7 (1940) (explaining that while the Spanish conquistadores were looking for gold the naturalists were interested in collecting various species of animals, plants and insects and had collected at least 700,000 new species and that number was expected to reach 2,000,000).

249. Shiva, *Golden Rice and Neem*, *supra* note 26, at 14 (explaining how in Central India farmers at the beginning of the farming season gather before the village deity offer their rice varieties and share seeds thereby establishing a partnership among and the earth).

250. Quiggin, *supra,* note 229, at 1123, 1128-31.John Quiggin, *Common Property, Equality, and Development*, 21 WORLD DEV. 1123, 1128-31 (1993).

have turned them into plantation, or worst still, slave labor.[251] But history has taught us that plantation economies neither cherished nor pursued the income equality goals so important to collective societies.[252] Indeed, plantation economies thrived on exploitative rent seeking and the widening of the income gap.[253] Thus, it would appear that a choice for encouraging a more egalitarian social structure cannot easily be condemned on efficiency grounds.

The sharing practices of collective societies need not be motivated by wealth or income equalization objectives. A policy of open access and sharing might have evolved as a deeply rooted cultural phenomenon not necessarily nor deliberately rationalized in the manner discussed above.[254] Besides, is it not in the nature of humans within and across cultures including capitalistic societies to be generous, share, practice reciprocity and altruism?[255] Certainly, as you go from culture to culture the reasons for sharing ideas and various technologies could be at least as diverse as the number of cultures but the practice of sharing remains as a constant. Take for example the following justification for sharing seeds, plants, knowhow, and other biological knowledge and resources given by research farmer in India: " *Like a Honey bee collects pollen or nectar from flowers and they do not complain, people whose knowledge is collected should not complain,*"[256] he explained. At least, this statement suggests an activity that is reciprocal, natural, or a cultural expectation of an obligatory nature. The relationship between bees and followers is one of interdependence and reciprocity since bees do not merely collect pollen and nectar from flowers but

251. *Id.* at 1129(discussing the use of forced or indentured labor in plantation economies in colonial Africa).

252. Acemoglu et al., *supra* note 7, at 1376.

253. *Id.*; EASTERLY, *supra* note 51.

254. Shiva, *Golden Rice and Neem*, *supra* note 26, at 14.

255. EDWARD O. WILSON, THE SOCIAL CONQUEST OF EARTH, (2012)(offering a comprehensive discussion and new Darwinian evolutionary explanation of the origins of human beings and human nature); ROBERT WRIGHT, THE MORAL ANIMAL 4-8 (1994); Robert Wright offers an interesting summary of the work of the new Darwinian biologists and psychologist. According to him, between 1963 and 1974 four biologists William Hamilton, George Willaims, Robert Trivers and John Maynard Smith set the stage for was to become a quiet revolution by refining Darwin's theory of natural selection. *See id.* at 4. For a sample of their work, *see* g*enerally* William D. Hamilton, *The Evolution of Altruistic Behavior*, 97 AM. NATURALIST 354 (1963); William D. Hamilton, *The Genetic Evolution of Social Behaviour*, 7 J. THEORETICAL BIOLOGY 1 (1964); GEORGE C. WILLIAMS, ADAPTATION AND NATURAL SELECTION: A CRITIQUE OF SOME CURRENT EVOLUTIONARY THOUGHT (1974); Robert L. Trivers, *The Evolution of Reciprocal Altruism,* 46 Q. REV. BIOLOGY 35 (1971); Robert L. Trivers, *Parent Investment and Sexual Selection*, *in* SEXUAL SELECTION AND THE DESCENT OF MAN (Bernard Campbell ed., 1972); Robert L. Trivers, *Parent-Offspring Conflict*, 14 AM. ZOOLOGY 249 (1974); Robert L. Trivers & Dan E. Willard, *Natural Selection of Parental Ability to Vary the Sex Ratio of Offspring*, SCI., Jan. 5, 1973, at 90; s*ee also* MATT RIDLEY, ORIGINS OF VIRTUE: HUMAN INSTINCTS AND THE EVOLUTION OF COOPERATION (1996); RICHARD DAWKINS, THE SELFISH GENE (1976) (arguing that human behavior is essentially programmed for the benefit of the genes.); D. Hamilton, *The Genetic Evolution of Social Behaviour,* 7 J. THEORETICAL BIOLOGY,1 (1964).

256. World Intellectual Property Organization [WIPO], *Roundtable on Intellectual Property and Traditional Knowledge*, at 6, WIPO/IPTK/RT/99/4 (Oct. 19, 1999) (paper presented by Shri Sundaram Varma, Society for Research and Initiative for Sustainable Technologies and Institutions (SRISTI), Ahmedabad, India). The author who is a village farmer and researcher in sustainable farming in arid conditions explained that visitors to his farms leave with sample seeds and a fruits and even though some of his seed varieties end up in commercial farming enterprises that sell them under different brand names he felt that he could not refuse visitors the samples they take with them, *id.* at 8.

also in return assist the followers in the pollination process. Similarly, the sharing and collection of samples and biological ideas among farmers tend to be interdependent and reciprocal. Improvements and variations of breeds of seeds, plants and other biological resources are shared with the initial suppliers and others.[257] Also, one cannot rule out the influence of religion in the sharing practices of farmers in India; and their religious basis can hardly be said to be of the Judeo-Christian variety[258]

However, innocent and reciprocal sharing practices may attract not so innocent internal and external free riding, particularly when the rules of the game in a society in transition are under stress. For, even though the explanations suggested above may be particularly interesting, the farmer whose statement is quoted above also viewed the culture of sharing as encouraging free riding by commercial farmers.[259] Rent seeking commercial farmers saw the opportunity created by the confluence of two contradictory systems as a tool for exploiting them to the detriment of the culture of sharing. Commercial farmers do not necessarily return improvements in the seeds or plants they collected to the farmers; nor might they have the desire to do so. They may appropriate such improvements as private property and therefore use the creative efforts of the farmers as triggering events for more research with appropriable results.

Without much distortion the statement by the farmer cannot easily be read to justify the common heritage claim to biodiversity resources. At most, the statement of the farmer signifies the clash of cultures: the culture of sharing and access against one of acquisitiveness and exclusivity.[260] The question presented is whether the former should yield to the latter. Naturally, this is a question faced by many societies besieged by foreign influences all of which are seldom beneficial.

Moreover, Brush makes another argument about the nature of biodiversity prospecting in the past that demands an examination. Based on his interpretation of the evidence he presented, Brush dismissed the idea that the collection practices of the European and American collectors were exploitative.[261] Certainly an argument that all collectors engaged in exploitation would be too bold and unsupportable. Also, accusations of current biopiracy and exploitation practices that might have induced Brush's position are too complex and not central to a discussion of exploitation during the period in question[262]

In response to Brush's argument, it is sufficient to note certain non-controvertible historical facts. During the period in question, the whole of Latin America, home to amazing quantities of biological and biodiversity resources,

257. Tuckey, *supra* note 104.

258. Shiva, *Golden Rice and Neem*, *supra* note 26.

259. *Id.*

260. *Id.* at 14 (Monsanto terminator seed excluding access and traditional farmers deliberately creating access through sharing).

261. Brush, *supra* note 219.

262. Aoki, *supra* note 26; CHIDI, OGUAMANAN, INTERNATIONAL LAW AND INDEGINOUS KNOLWLEDGE: INTERNATIONAL PROPERTY RIGHTS PLANT BIODIVERSITY, AND TRADITIONAL MEDICINE 176-80 (2006); *see, e.g.*, Ho, *supra* note 6, at 435 (referencing other sources on biopiracy); OGUAMANAN, *supra* note 3, at 176-80.

was under severe extractive colonial occupation.[263] With the exception of a few countries, the entire continent of Africa was arbitrarily carved out by European powers and partitioned among them in what is generally called the "Scramble for Africa" at the famous Berlin Conference of 1884-1885.[264] The process, characteristic of the behavior of the major powers of Europe, was reminiscent of a meeting of victorious powers to share, in an orderly manner, the spoils of war. Except that the Continent was, by and large, not conquered territory nor were the views of many of the well-established states and societies with visibly established political structures consulted or thought necessary. India and much of Indo-China was under colonial domination.[265] It might therefore be instructive to ask why the metropolitan powers expended so much effort and resources in acquiring, controlling and dominating the colonies. There is little dispute that the *raison d' être* of colonialism was to gain access to and exploit the natural and other resources of the colonies. Even under the common heritage approach, the territories of the colonies and their resources were neither *terra nullius* nor *res nullius.*

In spite of, or because of this fact, the metropolitan powers took various deliberate steps to facilitate the domination and exploitation of the colonies. Missionaries and anthropologists in the colonies who served as ears and eyes of the metropolitan powers provided them with crucial information about the socio-cultural and political organizations of the natives.[266] Such information facilitated the most effective exploitation of the native resources without inciting revolt. The fact that the native informers who supplied the necessary information to the anthropologists and the missionaries often did not fully appreciate the nature of their role in the entire *scheme* does not negate the exploitative nature of the entire process of colonization. In short, an argument against exploitation in the collection practices of metropolitan powers during colonialism that does not confront the colonial context rings somewhat hollow. Indeed, under a common heritage or *res nullius* systems, the elaborate schemes constructed to gain control over the colonies and their resources would have been unnecessary.[267]

263. LANG, *supra* note 246; Acemoglu et al., *supra* note 7, at 1375 (explaining the extractive policies and practices of Spain and Portugal in Latin America but note that and the period within which they were carried on supplies sufficient evidence that many countries visited by the collectors and the naturalists were subject to some colonial rule or domination); *See* VICTOR WOLFGANG VON HAGEN, SOUTH AMERICA CALLED THEM; EXPLORATIONS OF THE GREAT NATURALISTS: LA CONDAMINE, HUMBOLDT, DARWIN, SPRUCE (1945); ALICE M. COATS, THE QUEST FOR PLANTS: A HISTORY OF THE HORTICULTURAL EXPLORERS 328, 352 (1969) (indicates that the collection practices in Mexico and the Spanish Main started from about 1570 till 1938 and South America from 1637 to 1939, periods which more than cover the height of imperialism in the region).

264. Berlin Conference, *supra* note 65.

265. *See* SIR ALFRED COMYN LYALL, THE RISE AND EXPANSION OF THE BRITISH DOMINION IN INDIA, 324 (3rd ed. 1894) (declaring British domination over the whole of India by 1858); FREDRIK LOGEVALL, EMBERS OF WAR: THE FALL OF AN EMPIRE AND THE MAKING OF AMERICA'S VIETNAM 5 (2012) (discussing French colonization of Indochina); *See generally* PIERRE BROCHEUX & DANIEL HÉMERY, INDOCHINA: AN AMBIGUOUS COLONIZATION 1858-1954 (Ly Lan Dill-Klein, Eric Jennings, Nora A. Taylor trans., University of California Press 2011).

266. ANTHROPOLOGY AND THE COLONIAL ENCOUNTER (Talal Asad ed., 1973); Yelpaala, *supra* note 218; ADAM KUPER, ANTHROPOLOGY AND ANTHROPOLOGISTS 46-50 (3d ed. 1996); Owusu, *supra* note 58.

267. *See supra* notes 44-50 (discussing Papal Bulls' authorization of the occupation of non-Christian

3. Property Implications of Common Heritage under the Convention

Irrespective of the validity of the exploitation argument, the common heritage concept presents certain interesting issues. If given full force, the logic of the common heritage approach would lead to the conclusion "that which is common to all humanity is accessible to, and exploitable by all without let or hindrance." Furthermore, inextricably linked to the common heritage concept is the right to private property. As explained by Locke, once something from the commons is mixed with one's toils and labor it becomes private property.[268] The assertion of common heritage rights is necessarily a position most favorable to Northern States who suffer from significant scarcity in biodiversity resources. Uncontrolled access is also a position most favorable to scientists and bio-prospectors and one can understand why bio-prospectors would be sympathetic to the common heritage approach. To the extent that the common heritage concept is captured in the language of the Convention it might be seen as a *coup* if not the most important achievement by the Northern states. Any language suggesting the right of access to biodiversity resources in Southern States might eventually facilitate the transfer of those resources from the South to the North by bio-prospectors, researchers, and scientists as private property is consistent with the desires of the North. Little wonder then that the common heritage concept finds support in some quarters in the North. But the debate over access is not just about access to the raw materials. In a large measure, the controversy is of a systemic nature, raising serious and legitimate questions about the eventual ownership of the biotechnological inventions derived from the biodiversity raw materials. And this is no laughing matter.

In many Northern jurisdictions the patentability of biotechnological inventions has been settled by statutes and conventions. For instance, in the U.S. whether or not biotechnological inventions are appropriable as private property appeared settled by the U.S. Supreme Court in the famous case of *Diamond v Chakrabarty*[269] In its most recent decision the U.S. Supreme Court seems to have raised questions about the patentability of biotechnological inventions.[270] In *Diamond v Chakrabarty*, the Court, in construing section 110 of the U.S. patent statute, held that micro-organisms and genetically engineered bacteria were patentable as long as the requirements for patentability were satisfied.[271] According to the Court, what mattered was not so much the nature of the invention in question as it was what Congress intended by enacting section 110 of the patent statute.[272] And, there was no evidence of a legislative intent to suggest that Congress intended to exclude biotechnological inventions from patentability. Thus, whether the invention is biotechnological or mechanical in nature is not as important as whether it satisfies the conditions for patentability

societies and the declaration of their lands *res nullius*).

268. LOCKE, *supra* note 2, at ¶ 27.

269. Diamond v. Chakrabarty, 447 U.S. 303 (1980); *see also* Yelpaala, *supra* note 2, at 192-93.

270. Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107 (2013).

271. 447 U.S. 303 (1980).

272. *Id.* at 316.

set out in the statute.[273] However, in *Association For Molecular Pathology et al. v Myriad Genetics, Inc., et al.* a unanimous Court held that under section 101 of the Patent Act naturally occurring DNA segment is not patent eligible merely because it has been isolated.[274]

Similarly, based on certain criteria, biotechnological inventions are patentable in the European Union. The European Directive on the Legal Protection of Biotechnological Inventions (Biotechnology Directive) lays out the conditions under which biotechnological inventions may be patented within the European Union.[275] A priori, biotechnological inventions are patentable under a sui generis regime not inconsistent with the basic format, text, and spirit of the European Patent Convention.[276] The issue is again largely a matter of meeting the technical requirements for patentability under the Directive.

The significance of the intellectual property regime of the North lies in the nature and scope of the rights created for patentees. Generally, a patent empowers the patentee to exclude all others from making, using or selling the patented product without the consent of the patentee. Absent some agreement to the contrary, the patentee has the right to exclude suppliers of the raw materials or other contributions to the invention. Accordingly, the suppliers of biodiversity resources and traditional knowledge which form the basis of an invention may be legally excluded from practicing the invention even if the invention would have been impossible without their contribution. The exclusivity of the rights raises serious questions about fairness and equity in the system. From the perspectives of the South the common heritage concept may be nothing short of the proverbial *"Trojan Horse."*

B. Biodiversity Resources as National Patrimony Rights.

If the common heritage concept is perceived as a *Trojan Horse*, the notion that biodiversity resources may be viewed as national patrimony or common property within a single sovereign state captured by Circle B in Diagram 1 may be a check on the potential *Trojan Horse* effects. The term national patrimony or common property is used here in a limited and circumscribed manner. It refers to biodiversity resources as common property (*res nullius)* as not being specifically owned by any private individual, community, or some other collectivity. Rather, these resources are held by all citizens to the exclusion of none as common property within a State. Although such resources are seen as common property some exclusivity operates against outsiders and the rest of world. Thus, even if one were to accept the common heritage concept it would be limited in its

273. 35 U.S.C. § 101 (2006 & Supp. V 2011) states that "whoever invents or discovers any new and useful . . . composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this ti

274. 133 S. Ct. 2107, 2115-20 (the court however drew a distinction naturally occurring DNA segments and cDNA which involve some synthetic manipulation as in *Diamond v Chakrabarty*, 447 U.S. 303 (1980).

275. Directive 98/44/EC of the European Parliament and Council of 6 July 1998 on the Legal Protection of Biotechnology Inventions, 1998 O.J. (L 213) 13-21.

276. European Patent Convention, *supra* note 78, Article 52.

application to resources located in specific sovereign states. However, the common property which forms part of the national patrimony does not necessarily become the property of the State. Rather, the state holds such resources in the capacity of a trustee for the benefit of its citizens. The nature and scope of that trust may be determined by the constitution, municipal legislation, or the evolved customary law principles of the State.[277]

To the extent that the national patrimony concept places a trust obligation on sovereign States under domestic law, it is largely a national law question. Municipal law may impose various forms of fiduciary duties on the state in the management, regulation and exploitation of those resources. Municipal law would also govern issues relating to whether and how private property rights may be derived from such common property. Naturally, the issue of access to such biodiversity resources is a question of domestic law. In this context, the trust concept might impose limitations on the power of the state with respect to biodiversity resources similar to the public trust doctrine in the United States.[278] Indeed, the themes and variations in the restraints imposed by the trust doctrine on traditional political authority and leaders are old and deeply entrenched traditional concepts in many Third World communities.[279]

Generally, the resources captured within the domain of national patrimony include those not developed by any specific individuals, groups, or communities within a state. They may however include traditional knowledge, cultural know-how, or biodiversity based techniques of great antiquity and therefore not appropriately assignable to any specific person or group. For instance, Mexico is home to over 24,000 species of wild maize that are not the result of cultivation by any specific group.[280] Resources in the forest including trees, plants, herbs, roots,

277. *See* Virginia Matthews v. Stanley C. Van Ness, 471 A. 2d 355 (1984) (tracing the concept of the public trust doctrine to Roman law and describing it as imposing limits on the power of the sovereign over certain types of property rights; thereby, derivatively creating rights for the general public over private property acquired from the sovereign).

278. Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471 (1970); Joseph L. Sax, T*he Limits of Private Rights in Public Waters*, 19 ENVTL. L. 473 (1989); GREGORY S. ALEXANDER, THE GLOBAL DEBATE OVER CONSTITUTIONAL PROPERTY: LESSONS FOR AMERICAN TAKINGS JURISPRUDENCE (2006)(comparing several constitutional regimes of property protection)..

279. *See,* S.K.B. Asante, *Fiduciary Principles in Anglo-American Law and the Customary Law of Ghana—A Comparative Study,* 14 INT'L & COMP. L.Q. 1144, 1145-46, 1173 (1965) (describing and distinguishing the concept of a fiduciary under customary law from that of the common law focusing on the head of the family as a trustee and further explaining that the fiduciary under customary law has backwards and forward obligations since the fiduciary principles make the living strictly accountable to the ancestors). The significance of the trust in Ghanaian customary law extends to stool or "skin" lands where the chiefs hold title to land only as trustees, with spiritual overtones, of their communities. *See* NII AMAA OLLENNULLENU, OLLENNU'S PRINCIPLES OF CUSTOMARY LAND LAW IN GHANA 10-12 (1962); Bulun Bulun v. R & T Textiles Pty Ltd., (1998) 86 FCR 244, 263 (Austl.) (holding that under the customary law of the Ganalbingu people of Australia equity imposes fiduciary obligations on an artist not to exploit the artistic work created by him contrary to the customs and laws of Ganalbingu people); *see also* a discussion of the inadequacies of the Australian Copyright Act in protecting communal titles in traditional ritual knowledge cited in the case of *Bulun Bulun*, 86 FCR at 247; Jill McKeough & Andrew Stewart, *Intellectual Property and the Dreaming*, *in* INDIGENOUS AUSTRALIANS AND THE LAW (Elliot. Johnson et al. eds., 1996);Margaret Martin, *What's in a Painting? The Cultural Harm of Unauthorised Reproduction*, 17 SYDNEY L. REV. 591, 593 (1995); Dean A. Ellinson, *Unauthorised Reproduction of Traditional Aboriginal Art*, 17 U.N.S.W. L.J. 327 (1994).

280. For a discussion of the evolution of the wide varieties of maize in Mexico, *See,* Stephen B. Brush et

and other biological life forms with medicinal or other useful properties may belong to the people as a whole. As it will become clear in our discussion below, under basic international law theories of sovereignty, the resources within the territorial limits of a state are subject to its exclusive jurisdiction. Indeed, barring some unmistakable language in an international agreement to the contrary, the right of a sovereign state to regulate entry and access to its resources is absolute. It is significant that the Biodiversity Convention recognizes sovereignty over natural resources. How then are such resources immediately subject to exploitation by foreign nationals and for that matter by outsiders without let or hindrance?

The obligation of the state to maintain and protect biodiversity resources goes beyond those with known valuable uses. There are many biodiversity resources whose usefulness to humanity is still to be discovered. There are other biological life forms and living organisms that play a vital role in the ecological balance of any ecosystem. National patrimony therefore imposes an obligation on the state to protect these and *all* other biodiversity resources for the benefit of its citizens. That there are some positive externalities or beneficial spill-over effects on humanity at large does not deny the state the exclusive power or jurisdiction over them. National patrimony may then create legitimate obstacles to access even under the common heritage approach. Burdened by its trust obligation to protect biodiversity resources, the state *must,* at least, control and when necessary deny access.

If therefore *all rights* are construed to mean national patrimony rather than the patrimony of humanity, Third World countries will continue to hold whatever rights they had prior to the Convention. The role of the state as a trust entity is to protect those rights in the best way possible and consistent with trust principles.

C. Biodiversity Resources as Sovereign Rights

An interpretation of the *rights* recognized by the Biodiversity Convention as including sovereign rights presents a different set of considerations under international law. In contradistinction with national patrimony, sovereign rights do not speak to domestic or municipal law relating to the distribution of those rights. They do not relate to the internal rules relating to ownership, access and use. Rather, the focus here is on the rights of the state as a sovereign entity in its

al., *Agricultural Development and Maize Diversity in Mexico*, 16 HUM. ECOLOGY 307, 309 (1988) (reporting that since the domestication of maize in central Mesoamerica some 7000 years ago some 32 distinct races of maize have been developed in Mexico making Mexico an important repository of human and traditional knowledge on the evolution of maize); Henry Tricks & Andrea Mandel-Campbell, *Mexico's Farming Habits under Pressure from Transgenics*, FIN. TIMES, Oct. 12, 1999, at 8 (explaining that the 24,000 varieties of maize in the cradle of corn not the product of any particular individual might be in jeopardy because the rich diversity of corn is under threat from imported genetically modified corn); Anthony DePalma, *The 'Slippery Slope' of Patenting Farmers' Crops*, N.Y. TIMES, May 24, 2000, at A4 (discussing the risk to the about 20,000 varieties of maize in Mexico from patenting plant genes which will put the maize in the hands of private companies and universities which cannot always sort out their research priorities); *seealso* Mauricio R. Bellon, *The Ethnoecology of Maize Variety Management: A Case Study from Mexico*, 19 HUM. ECOLOGY 389 (1991); Yelpaala, *supra* note 2, at 209.

relations with other sovereign states. In other words, it addresses rights of a state under international law to exercise exclusive jurisdiction, control and management over its biodiversity resources within the family of nations. The distinction we seek to draw between national patrimony and sovereign rights lies in the fact that the one focuses on municipal law obligations of the state as a trustee and the other emphasizes the relationship between the state and its co-equal sovereign states within the community of nations. The dominance of power asymmetry in real international relations makes this inquiry even more important. The legal control of power has always presented particular difficulties to international law even as powerful states preach the rule of law but are wont to behave outside the norm.[281] Indeed, power as the source and consequence of law has always been a challenge to the legitimacy of all legal systems.[282]The enterprise of any legal system is the design of a system of norms in which power is not both the source and consequence of law but one steeped in the restraint of power, neutrality and equality before the law. Neutrality and equality before the law serve as a constraining force on the powerful and a protective shield for the weak and feeble. The enterprise is particularly important in an international legal system characterized by significant asymmetries in economic and military power, the maintenance of which requires access to huge amounts of scarce foreign natural resources from weak and feeble states. As described by Verzijl, the gravity of the struggle between *might* and *right* "increases enormously when one passes from the sphere of private law. . .to the domain of the law of nations which is constantly but in the main vainly in search of a real center of effective authority."[283] The issue of the need for some universal international law principle that governs access to natural resources including the biodiversity resources of the Third World is thereby put in sharper focus.

One of the dominant themes in the international relations of states with respect to natural resources has always been the concept of sovereignty. Constructed initially by Jean Bodin as a principle of internal order in France,[284]

281. BRIERLY, *supra* note 79, at 48.

282. J. H. W. VERZIJL, INTERNATIONAL LAW IN HISTORICAL PERSPECTIVE, 208 (1968)(describing the social phenomenon of the struggle between might and right, power and law, as common to the manifestations of all law).

283. *Id.* at 208, 212 (explaining how in the international law field power exempt from legal bounds would be worse than he absence of any instrumentality of power since such power would be catastrophic as it increased in efficiency).

284. *See* JEAN BODIN, SIX BOOKS OF THE COMMONWEALTH (M.J. Tooley ed. & trans., Oxford Basil Blackwell 1955) (1576). There is consensus among the countless commentators of Bodin's work on the impact of the circumstances of religious civil war on his thoughts on need for political stability in France. It is argued that his doctrine of absolute and indivisible sovereignty was a product of the Saint Bartholomew's Day Massacre and the Huguenot Monarchomach theories which he rejected. According to his doctrine every state must have one person who has all the powers necessary to govern the community, and who is its sovereign. To him peace was more important than religious unity. JULIAN H. FRANKLIN, JEAN BODIN AND THE RISE OF ABSOLUTIST THEORY, at vii (1973); Edward Andrew, *Jean Bodin on Sovereignty*, REPUBLICS OF LETTERS, June 1, 2011, http://arcade.stanford.edu/journals/rofl/node/90; J.P. Sommerville, *Jean Bodin and Absolutism*, U. WIS., http://faculty.history.wisc.edu/sommerville/283/283%20session04.htm (last visited Sept. 18, 2011); Wm. A. Dunning, *Jean Bodin on Sovereignty*,11 POL. SCI. Q. 82 (1896) (comparing the social and political context of Bodin's theory on sovereignty with those of Hobbes); *Introduction*, SIX BOOKS OF THE COMMONWEALTH, http:www.constitution.org/bodin/bodin_0.htm (last visited Sept. 18, 2011) (providing a biographical sketch

sovereignty has evolved into the modern international law principle which, according to Hersch Lauterpacht, "recognizes that each State is independent not only of other States but also of the totality of States acting as organs of what is termed the international community."[285] Since the emergence of the modern state there has been a keen interest in the principle of sovereignty as one of the corner stones of international norms and principles governing the control and management of natural resources within the borders of a state. Advocated in the conflict of laws as a principle for internal order among the fractious Dutch Provinces by the Dutch jurist, Ulric Huber[286] and later adopted by Justice Story of the United States,[287] the concept of sovereignty established certain empowering and restraining international law principles relating to the scope of the jurisdiction or power of states. Prominent among these was the principle that every state has exclusive sovereignty and jurisdiction over all persons, things and acts done within its territorial boundaries.[288] Equally prominent was the corollary principle that no state has jurisdiction over persons, things and acts done outside its territorial limits.[289] Thus stated, the jurisdiction of a state is *primarily* territorial. Territoriality imposes a restraining or limiting impact on the exercise of sovereign power. With only minor modifications these principles have continued to govern the jurisdiction of states under international law even today as evidenced by U.S. and foreign judicial decisions,[290] U.S. treaties, and the

describing Bodin's political connections in Paris with the Monarchy, the *Politques* whose primary concerns in the times of rising fanaticism was the maintenance of order not religious purity); BRIERLY, *supra* note 79, at 37, 45 (explaining the political context within which Bodin and Hobbes wrote).

285. 3 HERSCH LAUTERPACHT, INTERNATIONAL LAW: BEING THE COLLECTED PAPERS OF HERSCH LAUTERPACHT 7 (E. Lauterpacht ed., 1977).

286. *See* Ernest G. Lorenzen, *Huber's De Conflictu Legum,* 13 ILL L. REV. 375, 377 (1918-1919) (explaining the political context of the newly independent Dutch Provinces within which Huber work was written; *id.* at 401-18 for a parallel English translation of Huber's De Conflictum Legum).

287. JOSEPH STORY, COMMENTARIES ON THE CONFLICT OF LAWS, FOREIGN AND DOMESTIC: IN REGARD TO CONTRACTS, RIGHTS, AND REMEDIES, AND ESPECIALLY IN REGARD TO MARRIAGES, DIVORCES, WILLS, SUCCESSIONS, AND JUDGMENTS § 18 (1834).

288. *Id.*

289. *Id*. § 20.

290. A long line of U.S. Supreme Court decisions captured this principle even as the Court's position has evolved based on its interpretation of Congressional legislation. The cases go back to *American Banana Co. v United Fruit Co.*, 213 U.S. 347 (1909) (holding that the general and almost universal rule is that the Character of an act as lawful or unlawful must be determined wholly by the law of the country where the act is done); United States v. Sisal Sales Corp., 274 U.S. 268 (1927) (holding that U.S. Court had jurisdiction over alleged conspiracy between U.S. corporations and Mexican firms to monopolize the import trade of sisal without overruling the American Banana case); United States v. Aluminum Co. of Am., 148 F.2d 416 (1945) (Judge Hand sitting as the final court held that the Sherman Act applied to foreign defendants accused of violating the Sherman Act by setting up and executing an international aluminum cartel abroad; now considered to have established the modern effects doctrine in the U.S.); Hartford Fire Ins. Co. v. California, 509 U.S. 764 (1993) (reaffirming the effects doctrine test); *but see* EEOC v. Arabian Am. Oil Co., 499 U.S. 244 (1991) (Chief Justice Rehnquist captured the U.S. Supreme Court approach to the interpretation of Congressional statutes in the statement that Congressional legislation, unless a contrary intent appears is meant to have territorial application; Congress legislates against the presumption of extraterritoriality, an affirmative intention of Congress clearly expressed must be found for extraterritoriality); RE: Wood Pulp Cartel: A. Ahlström oy and Others v E. C. Commission [1985 O.J. L.85/1, [1985] 3 C.M.L.R. 474(extraterritorial reach EU competition law).

Restatement of Foreign Relations Law.[291]

1. Implications of Permanent Sovereignty over Natural Resources

Given the internal empowering scope and the corresponding external delimitations on sovereign power, it is hardly surprising that the United Nations General Assembly found it necessary to affirm and reaffirm on many different occasions the principle of sovereignty over natural resources.[292] These measures culminated in the adoption by the General Assembly of the United Nations General Assembly Resolution on Permanent Sovereignty over Natural Resources (Resolution 1803 XVII) of 1962.[293] The importance attached to this Resolution is apparent in the qualification of the term "sovereignty" by the descriptive adjective "***permanent".*** Although sovereignty is a dynamic concept it appears that the General Assembly meant to stress that sovereignty in these matters is not transitory but of an enduring and lasting character, therefore impervious to changes the concept might undergo. The Resolution thereby captures the essence of Bodin's definition of sovereignty as absolute and permanent power.[294] Moreover, although sovereignty inherently implies control over territorial natural resources, the General Assembly found it necessary to reiterate and reaffirm its belief in the principle of permanent sovereignty over natural resources in the preamble and substantive provisions of Resolution 1803 deliberately crafted to be read together.[295] For instance, the General Assembly reemphasized the status of permanent sovereignty over natural resources as a basic constituent element of the *right of self-determination*.[296] It went further and restated categorically "the inalienable right of *all* States freely to dispose of their natural wealth and resources in accordance with their national interests, and on respect for the economic independence of States."[297] In addition, the General Assembly took further steps to reinforce the principle of economic independence of states

291. RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW §§ 402, 403 (1987) (describing the bases of jurisdiction to prescribe as primarily territorial and requiring the exercise of extraterritorial jurisdiction when permissible to based on reasonableness).

292. The Preamble of the General Assembly Resolution on Permanent Sovereignty Over Natural Resources, *infra* note 293, recalled several of the previous resolutions on the subject such as G.A. Res. 523 (VI), U.N. GAOR, 6th Sess., Supp. No. 20, U.N. Doc. A/2119 (Jan. 12, 1952); G.A. Res. 1314 (XIII); U.N. GAOR, 13th Sess., Supp. No. 18, U.N. Doc. A/4090 (Dec. 12, 1958); and G.A. Res. 1515 (XV), U.N. GAOR, 15th Sess., Supp. No. 16, U.N. Doc. A/4684 (Dec. 15, 1960); Karol N. Gess, *Permanent Sovereignty Over Natural Resources*, 13 INT'L & COMP. L.Q. 398, 400-05 (1964) (discussing the antecedents to Resolution 1803 (XVII), *infra* note 293).

293. G.A. Res. 1803 (XVII), U.N. GAOR, 17th Sess., Supp. No. 17, U.N. Doc. A/5217 (Dec. 14, 1962) [hereinafter Res. 1803 (XVII)].

294. BODIN, *supra* note 284.

295. Res. 1083 (XVII), *supra* note 293, at 15-16, Article 1 recognizing the right and prescribing the beneficiaries and Article 5 restating the existence of permanent sovereignty within the context sovereign equality; Gess, *supra* note 292, at 406 (noting that the declaration—the operative part of the resolution—and the preambular paragraphs which precede it constitute an integral text).

296. Gess, *supra* note 292, at 410-11 (explaining that the right to self-determination was a contentious issue during the deliberations of Resolution 1803 (XVII), *supra* note 293, with countries such as Japan raising questions about the existence of such a right under international law).

297. Res. 1083 (XVII), *supra* note 293, at 15 (Preamble).

through strengthening the inalienable sovereignty of states over their natural resources.[298]

The underlining theme and character of the unequivocal emphasis and reiterations in the language employed by the General Assembly in Resolution 1803 is that ***permanent sovereignty*** over natural resources is indispensable for the economic and political wellbeing of states. So important are natural resources to a state that the United Nations General Assembly found it necessary to stress the point repeatedly. According to Alberto Szekely, the United Nations General Assembly has adopted not less than seven major resolutions in support of the doctrine of permanent sovereignty over natural resources.[299] Yet, as one delegate remarked, the notion that a state has sovereignty over its natural resources seemed so obvious as to warrant any elucidation.[300]This was a viewpoint shared by the United States. In an earlier objection to the formation of a Commission to study the subject, the United States observed that the United Nations did not need a resolution to state the obvious. [301] Obvious or not, events in history seemed to make it imperative to concretize in undeniable terms the right of states to exercise *permanent sovereignty* over their natural resources.[302] For, are we not reminded that it was the desire to gain control and domination over the resources of other nations that inspired European powers to sponsor some of the most aggressive if not dangerous explorations, conquest and oppressive colonial process? The combined impact of the age of discovery and colonialism was untold misery to humanity. Can we forget that the Scramble for Africa and the subsequent subjugation of the Continent to colonialism by European powers was driven substantially by the need to gain control over the abundant natural resources of the Continent? Gaining access to these natural resources resulted in unspeakable violence on people that would today constitute outright violations of

298. *Id.* (by reaffirming its previous resolutions recommending permanent sovereignty over natural resources in the preamble and in the declarations)

299. Alberto Szekely, *Modified Organisms and International Law: An Ethical Perspective*, 14 TRANSNAT'L LAW. 129, 129 n.1 (2001) (providing the following list of U.N. General Assembly Resolutions from 1952 to 1974: Right to Exploit Freely Natural Wealth and Natural Resources, G.A. Res. 626 (VII), U.N. Doc. A/PV.411 (VII) (1952); Permanent Sovereignty Over Natural Resources, G.A. Res. 1803 (XVII), U.N. GAOR, 17th Sess., Supp. No. 17 (1962), 57 A.J.I.L. 710 (1963); Permanent Sovereignty Over Natural Resources, G.A. Res. 2158 (XXI), U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc. A/6316 (1966); Permanent Sovereignty Over Natural Resources of Developing Countries, U.N. Res. 3016 (XXVII), U.N. GAOR, 27th Sess., Supp. No. 30, at 48, U.N. Doc A/8730 (1972); Co-operation in the Field of the Environment Concerning Natural Resources Shared by Two or More States, G.A. Res. 3129 (XXVIII), U.N. GAOR, Supp. No. 30A, U.N. Doc. A/9030/Add.1 (1973); Permanent Sovereignty Over Natural Resources, G.A. Res 3171 (XXVIII), 28 U.N. GAOR, Supp. No. 30,, U.N. Doc. A/9030, at 52 (1974), 13 I.L.M. 238 (1974).

300. Stephen M. Schwebel, *The Story of the U.N.'s Declaration on Permanent Sovereignty Over Natural Resources,* 49 A.B.A. J. 463, 464 (1963) (reporting the position of the delegates from Burma and the initial U.S. position on the subject); Gess, *supra* note 292, at 413 (expressing the views of Burma that the resolution was not in keeping with the nature of international law which "simply reflected accepted practice between nations and should ideally be a way of conduct and not of code").

301. Schwebel, *Id.*

302. However, the negotiating history and the actual text of Resolution 1803 (XVII), *supra* note 293, leaves open several areas of ambiguity characteristic of such agreements, *see* Gess, *supra* note 292, at 408 discussing the legal effect of the Resolution and at 424-429 discussing the ambiguities in the compensation principles and standards; Schwebel, *supra* note 300, at 465 (arguing that appropriate compensation meant *prompt, adequate and effective* compensation otherwise known as the Hull Rule).

international law including human rights and humanitarian law.

In more recent times, the importance of natural resources to the survival of the modern industrial state inspired the declaration of the Carter Doctrine which stated that the U.S. would use *any means necessary including military force* to protect access to its raw material supplies.[303] Remarkably, even after the Charter of the United Nations, doctrines embraced and rationalized around national security claims seek to override the restraining effects of territorial sovereignty. How then could any attempt by the United Nations General Assembly, during the height of the decolonization era, to put sovereign rights over natural resources on a permanent and firmer basis be redundant? How could the reaffirmation of an international law right that guards against the forcible access to natural resources of a sovereign state be superfluous?[304] Indeed, it is significant that in the General Assembly deliberations leading to the adoption of Resolution 1803 the United States delegation recognized the importance of sovereignty and assured the General Assembly that the United States: "wholly supports every country, including our own, enjoying the full benefits of its natural resources."[305]There was virtual unanimity in the General Assembly over this issue as is apparent from the votes. Resolution 1803 was adopted by a vote of 87 in favor, two opposed and 12 abstentions.[306] The only dissenters were France and South Africa. Even the Soviet bloc countries did not dissent but merely abstained.[307]

303. As originally announced by President Jimmy Carter in the state of the union address to Congress on 3 January, 1980 President Carter "informed Congress and the American people that access to the Persian Gulf's oilfields was essential to the health of US economy and so any hostile efforts to such access would be considered an assault on America's "vital interest" and so would be resisted by "any means necessary, including military force." *See* Michael T. Klare, *Oil, Iraq, and American Foreign Policy: The Continuing Salience of the Carter Doctrine*, 62 INT'L J. 31, 32-34 (2006-2007) (tracing the genesis of the Carter Doctrine to President Franklin D. Roosevelt in 1943 and his declaration after a meeting with Abdul Aziz ibn Saud, the founder of the modern Saudi dynasty that the United States would extend some sort of protective umbrella over Saudi Arabia's prolific oil fields); Joe Stork, *The Carter Doctrine and US Bases in the Middle East,* MERIP REP., Sept. 1980, at 3, 14 (tracing the inspiration behind the Carter Doctrine to President Harry Truman's Doctrine of 1947 on the Middle East which referred to the importance of the resources of the region for the perpetuation of "free enterprise in 'all nations' and ultimately for the very existence of our own economy"); Euclid A. Rose, *OPEC's Dominance of the Global Oil Market: The Rise of the World's Dependency on Oil*, 58 MIDDLE EAST J. 424, 426 (2004) (arguing that the initial catalyst for the Carter Doctrine was the Soviet Union military intervention in Afghanistan which President Carter viewed as perilously close to Middle East oil life line to the West).

304. Gess, *supra* note 292, at 411, 414-19 (discussing the different positions taken by delegates from different countries some whom unsuccessfully challenged the legal validity of the concept of permanent sovereignty over natural resources; concluding that the General Assembly intended to set forth, within the solemn vehicle of a declaration, the basic principles and modalities of the exercise of permanent sovereignty over natural resources).

305. Schwebel, *supra* note 300, at 464.

306. It appears that in addition to the Soviet Bloc of countries which abstained, countries such as Ghana abstained because they expressed concern over the loss of sovereign authority over domestic economic issues properly within the jurisdiction of each sovereign state not an international organization. *See* Gess, *supra* note 292, at 413.

307. *Id.* at 463.

2. Permanent Sovereignty over Natural Resources as Jus Cogens.

Notwithstanding dissenting voices even in more recent times,[308] it appears well established that certain international law norms are of such a character that they impose obligations not just on states *vis-à-vis* one another but rather on the international community as a whole.[309] These norms, generally referred to as *jus cogens* or peremptory norms, have certain qualities as to operate as overriding international law principles from which there can be no derogation by customary international principles and treaty provisions.[310] The concept of *jus cogens* requires that a norm that falls within its ambit be one that is foundational and fundamental to the interest of the international community.[311] As the German Federal Constitutional Court put it, principles of *jus cogens* "are firmly rooted in the legal conviction of the community of nations and are indispensable to the existence of the law of nations as an international legal order."[312] According to Herman Mosler, *jus cogens norms a*re a particularization of the minimum of existentially important principles and rules of the international community

308. For a discussion of more recent debate over *jus cogens*, *see* Dinah Shelton, *Normative Hierarchy in International Law*, 100 AM. J. INT'L L. 291 (2006); Prosper Weil, *Towards Relative Normativity in International Law*, 77 AM. J. INT'L L. 413, 422-24 (1983) (taking issue with the what is described as a phenomenon of relativization of international normativity in which ethics is taking precedence over the aridity of positive law and arguing that *jus cogens* has shattered the uniformity of the normative regime of international law and replaced it with normative differentiation, elite rules with enhanced normativity); PIERRE-MARIE DUPUY, DROIT INTERNATIONAL PUBLIC 14-16 (3d ed. 1995) (arguing that with coequality of sovereign states there should be equivalency of international law rules).

309. IAN BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 511 (7th ed. 2008).

310. Vienna Convention on the Law of Treaties, Article 53, May 23, 1969, 1155 U.N.T.S. 331 [hereinafter VCLT]; Long before the VCLT, Professor Alfred von Verdross of the University of Vienna had raised the persistent question whether under international law certain rules had the character of *jus cogens* prescribing certain positive or negative behavior unconditionally. *See* Alfred von Verdross, *Forbidden Treaties in International Law,* 31 AM. J. INT'L L. 571 (1937); BROWNLIE, *supra* note 309, at 510-11; Michael Byers, *Conceptualising the Relationship Between Jus Cogens and Erga Omnes Rules*, 66 NORDIC J. INT'L L. 211 (1997) (comparing *jus cogens* rules to constitutional law principles which limit the ability of states to change or violate international law rules to the detriment of the international legal system); Juan Antonio Carrillo Salcedo, *Reflections on the Existence of a Hierarchy of Norms in International Law*, 8 EUR. J. INT'L L. 583, 586-88 (1997) (describing *jus cogens* rules as essential for maintaining certain values or *ordre pulic* (public order); Jonathan I. Charney, *Universal International Law*, 87 AM. J. INT'L L. 529, 543 (1993) (arguing that the notion that states may be bound to international law rules they did not consent to is essential in the current evolving and complex international environment).

311. Gordon A. Christenson, *Jus Cogens: Guarding Interests Fundamental to International Society*, 28 VA. J. INT'L L. 585, 587 (1998).

312. Karen Parker & Lyn Beth Naylon, *Jus Cogens: Compelling the Law of Human Rights*, 12 HASTINGS INT'L & COMP. L. REV. 411, 416 (1988); Stefan A. Riesenfeld, Editorial Comment, *Jus Dispositum and Jus Cogens in International Law: In the Light of a Recent Decision of the German Supreme Constitutional Court,* 60 AM. J. INT'L L. 511, 513 (1966) (providing a translation of the decision of the German Supreme Constitutional Court).

With respect to the nature of *jus cogens,* the Court said:

> Only a few elementary legal mandates may be considered to be rules of customary international law which cannot be stipulated away by treaty. The quality of such peremptory norms may be attributed only to such legal rules as are firmly rooted in the legal conviction of the community of nations and are indispensable to the existence of the law of nations as an international legal order, and the observance of which can be required by all members of the international community.

captured in the broader term "public order of the international community."[313] Other authorities note that a norm of *jus congens* must be an overriding principle, of interest to the international community, relatively indelible, and of such peremptory character that it cannot be set aside except by a subsequent customary norm.[314] Put differently, it is a norm that evokes and supports a coherent world public order and guards against the erosion of the foundations of a humane, peaceful and interdependent global society.[315] The inescapable normative framework of the *jus cogens* concept is a hierarchy of norms described by Prosper Weil as elite rules with enhanced normativity steeped in ethics and moral principles.[316] As such, they have the character of constitutional normativity. Only a few well-established international peremptory norms such as crimes against humanity, genocide, racial discrimination, slavery and slave trade, and piracy enjoy this status.[317] In these, the inhumanity of humanity is condemned. In others such as the rules on the use of unlawful force and the prohibition of aggressive warfare, the inherent insecurity and destructive consequences of warfare to human social and political organization of which humanity is too familiar are also condemned.[318] Alfred von Verdross confirms this list but adds to the list of *jus cogens* norms acts through treaties contrary to the principles of United Nations Charter or criminal under international law.[319] More controversial norms are those relating to the right of self-determination and permanent sovereignty over natural resources.[320]

The question we are presented with is whether the principles of permanent sovereignty over natural resources impose a broader international law obligation

313. Hamler Mosler, *The International Society as a Legal Community,* 140 RECUEIL DE COURS 1, 33-34 (1976). Mosler offered the following justifications for an international public order and *jus cogens*:

> In any legal community there must exist a minimum of uniformity which is indispensable in maintaining the community. This uniformity may relate to legal values which are considered to be the goal of the community or it may be found in the legal principles which it is the duty of all members to realize . . . . The whole of this minimum can be called common public order . . . [which] consists of principles and rules the enforcement of which is of such vital importance to the international community as a whole that a unilateral action or any agreement which contravenes these principles can have no legal force.

314. BROWNLIE, *supra* note 309, at 510; Alfred von Verdross, *Jus Dispositivum and Jus Cogens in International Law*, 60 AM. J. INT'L L. 55, 58 (1966); Christian Tomuschat, *Obligations Arising for States Without or Against Their Will,* 241 RECUEIL DE COURS 195, 306-07 (1993).

315. Christenson, *supra* note 311, at 590.

316. Weil, *supra* note 308, at 422 (offering essentially a criticism of the evolution of international law away from cogent hard law towards relativity and moral or ethical principles).

317. BROWNLIE, *supra* note 309, at 510-11; Christenson, *supra* at note 311.

318. Hersch Lauterpacht, *The Limits of the Operations of the Law of War,* 30 BRIT. Y. B. INT'L L. 206, 224-225 (1953) (explaining that the acquisition of property through an aggressive warfare does not confer good title on the belligerent even if the property is acquired through the normal rules of war since no property can be acquired through an illegal act).

319. Verdross, *supra* note 313, at 59 (adding treaties envisaged to achieve means forbidden by *jus cogens:* restraints on the liberty of states, obligations on states to reduce their capacity to maintain public order, and agreements against the observance of humanitarian law).

320. BROWNLIE, *supra* note 309, at 513. In earlier editions Brownlie was more tentative in the attribution of the status of *jus cogens* to these international law principles. IAN BROWNLIE, PRINCIPLES OF INTERNATIONAL LAW 513, 540-541(3rd ed. 1979)(discussing various UN Resolutions leading up to Resolution 1803 (XVII) stressing the inalienable rights of sovereign states over their natural resources).

on the international community as a whole similar to those that threaten the international public order and therefore qualify as *jus cogens* principles. According Brownlie, permanent sovereignty over natural resources and self-determination have attained this special status.[321] However, Brownlie does not offer any further elucidation on this point. Certainly, he does not treat them as indisputably *jus cogens* principles thereby necessitating further analysis.

Any controversy over the scope and reach of *jus cognes to* sovereignty over natural resources must however be put in perspective. We must recall the historic role of natural resource scarcity not only in launching the age of discovery but also the violence, the wars and human misery including retrospectively the human rights violations that followed. The legitimation of such violence in the name of religion could not withstand sound theological scrutiny at that time much less so today.[322] Considering the historic role of raw material scarcity in the subjugation through violent and aggressive occupation of weak but rich nations, the ever-growing human population with limited and scarce natural resources to support its needs, raw material scarcity presents a perpetual source of threat to the peace and security of the international community. If powerful states can overrun weaker states to raid their natural resources with impunity, the very concept of the sovereign state will be seriously undermined. The very existence of the international community, as we know it, whose interest *jus cogens* serves, would be in question. The framework for maintaining international peace and security as captured in the United Nations Charter would be undermined. Moreover, the threat to global peace and security would not change if powerful states used other measures having equivalent effects as forcible acquisition of resources of other states. More recent selected use of force in the name of removing dictators in countries with abundant natural resources raises serious questions about the true motivations behind such actions. Such concerns appear warranted considering that other more compelling violations of *jus cogens* norms such as the genocide in Rwanda hardly engaged the attention of those seeking to enforce a world moral order.[323] Conflict over access to natural resources would be inevitable. Weak states with abundant natural resources would probably put up a fight to protect their resources. Indeed, the established and accepted peremptory norms or *jus cogens* discussed above, although they need not, presuppose the sovereign state within which they would have their greatest meaning and content.

A principle that preserves the permanent sovereignty of states over their natural resources must, at least, be placed at the same level as other preemptory norms that constraint the conduct of the sovereign state for the maintenance of a

321. *Id.* at 511.

322. Bodin, *supra* note 284 (condemning slavery as against the law of nature).

323. Klare, *supra* note 303, at 32, 34-37 (discussing the globalization of the Carter Doctrine to other natural resource rich regions of the world, its expansion by President Ronald Reagan and its rationalization by President George H. W. Bush in 1990 in the first Iraqi war as the liberation of Kuwait and later by President George Bush (Junior) in the second Iraqi war in 2001 as necessary to remove "weapons of mass destruction"); Stork, *supra* note 303, at 6, 14 (describing the Carter Doctrine as dangerously provocative and aimed at protecting US capital investments).

humane world public order. Without the state the goals and principles of *jus cogens* would be hard if not impossible to attain. Treating permanent sovereignty over natural resources as *jus cogens* would tend to serve the same policy objectives as those underlining crimes against humanity, racial discrimination, piracy, the prohibition of aggressive warfare and the advancement of international peace and security goals of the United Nations Charter. This conclusion is underscored by the fact that Resolution 1803 (XVII) itself declares that violations of the right of sovereignty over natural resources ***are*** contrary to the spirit and principles of the Charter of the United Nations and ***hinder*** the maintenance of peace.[324] If the rules or norms of *jus cogens* are embedded in the legal conscience of humanity as "absolutely essential to the coexistence of the international community,"[325] a principle which is essential to and preserves that peaceful coexistence qualifies as a norm of *jus cogens.* Consequently, a compelling case can be made for permanent sovereignty over natural resources as principle of *jus cogens.*

Irrespective of whether or not the *jus cogens* argument is sustainable, the frequency with which the General Assembly felt the need to reaffirm and reiterate that principle only serves to confirm its importance to the members of the United Nations.[326] Any failure by the drafters of the Biodiversity Convention to address the principle of Permanent Sovereignty over Natural Resources with respect to biodiversity resources would have been unfortunate if not irresponsible. The issues at stake in the Convention are so central to the question of sovereignty, control, and access to biodiversity resources that it is only natural that the Convention had to address them. Fortunately, the provisions of the Convention are not so directly in conflict with Resolution 1803 (XVII) as to raise the issue of conflict within Article 53 of the Vienna Convention on the Law of Treaties.[327]

Accordingly, for the purposes of the Biodiversity Convention, note should be taken of several important principles announced by Resolution 1803 (XVII) of direct relevance to our analysis. Article I of the Resolution declares: "the right of peoples and nations to *permanent sovereignty* over their natural wealth and resources *must* be exercised in the interest of their national development and of the wellbeing of the people of the State concerned."[328] With respect to the exploitation of those resources, Article II declares that "the exploration, development and disposition of such resources . . . should be in conformity with the rules and conditions which the peoples and nations freely consider to be necessary or desirable with regard to the authorization, restriction or prohibition of such activities."[329] Article V seeks to capture the principle of sovereign equality by stating that the free and beneficial exercise of sovereignty over

324. G.A. Res. 1803 (XVII), *supra* note 152 at 15.

325. Riesenfeld, *Jus Dispositum and Jus Cogens, supra* note, 312 at 513 (providing a translation of the decision of the German Constitutional Court.)

326. *See,* Brownlie, *supra* note *320; supra* note 299.

327. VCLT, *supra* note 147, art. 53.

328. G.A. Res. 1803 (XVII), *supra* note 152 at 15 (emphasis added).

329. *Id.*

natural resources must be furthered through mutual respect based on sovereign equality.[330] Finally, Article VII places the obligations on states to respect the right to sovereignty over natural resources by declaring violations of that right as "contrary to the spirit and principles of the Charter of the United Nations and hinders the development of international cooperation and the maintenance of peace." [331]

Within the context of the strategic posturing in the Convention over the concept of property rights, Resolution 1803 (XVII) constitutes a significant obstacle to any Northern designs on ownership and access. Obviously, biodiversity resources fall within the meaning of *natural wealth and resources* of a country and its people protected by in Article I. This Article mandates the exercise of those rights for specific enumerated purposes: the interest and national development of the people where the resources are located.[332] The plain meaning of Article I clearly undermines any view of biodiversity resources constituting the common heritage of all humanity and must therefore be made freely accessible to all without let or hindrance. The drafters of the Resolution clearly and deliberately controlled and limited the type of beneficiaries to the natural wealth and resources of a country by excluding the citizens of other countries or the world at large.

The importance of Resolution 1803 (XVII) goes even further. The Resolution imposes a positive legal obligation on all member states of the U.N. to recognize and respect the declared rights and a negative obligation *not* to violate them.[333] The prohibition against violation is couched in very strong terms. The Resolution states that violations of the protected rights undermine the *spirit and principles* of the United Nations Charter and constitute hindrance to the achievement of international cooperation and the maintenance of peace.[334] The consequences of violations are not framed in terms of probable outcome but rather in unambiguous consequences thereby leaving little room for any argument about the impact of violations. In view of the strong language of the Resolution, it will be difficult to see how a Convention constructed, as it were, out of the heart of ambiguity can supplant such clear and strong legal obligations manifested in Resolution 1803 (XVII). Moreover, as noted above, the principles and doctrines captured by the Resolution were reinforced and reiterated in several other major General Assembly Resolutions thereby adding to the importance attached to the legal consequences of the Resolution.

Thus, even if the Biodiversity Convention made the common heritage concept vaguely applicable, the explicit and strong text of Resolution 1803(XVII) might have weakened, if not, destroyed such an interpretation all together. Moreover, as suggested above, any language in the Biodiversity Convention suggesting the applicability of the common heritage concept was a

330. *Id.*
331. *Id.*
332. *Id.*
333. *Id.*
334. *Id.*

coup by the Northern states might be an overstatement. In view of the language of Resolution 1803 (XVII) that *coup* might have had a very short life, if not stillborn. Resolution 1803 (XVII) contradicts the common heritage approach and certainly is the strongest argument favoring the exclusive control and management by sovereign states of their biodiversity resources with respect to exploitation and access. To the extent that this argument holds, the risk of the *Trojan Horse* effects will be significantly reduced.

D. Biodiversity Resources as Indigenous or Community Rights.

From the discussion of the nature and content of Resolution 1803 (XVII) in the preceding section, it would have been surprising if the Biodiversity Convention did not contain language broad enough to capture the concept of community rights or traditional knowledge of specific groups of people. Unlike sovereign rights which may be held by the state on its own behalf or on behalf of its citizens for their benefit, community rights are vested in specific collectivities, or corporate entities, such as the clan, family, the village or some other community group. These rights although communal are nevertheless private in character but burdened by the right to be included, access and the usufruct.
Communities come in different forms. In the context of biodiversity resources, the term is restricted to traditional or indigenous groups. As organized groups, traditional communities and indigenous societies constitute dynamic collectivities or corporate entities. As such, community rights are complex, collective or corporate and held against outsiders as well the state.[335] Because of their corporate character, these rights are *private* but not necessarily individual, communal but neither public (*res publica)* nor common property understood as *res nullius*. They may be *indivisible* but usufructuary or, in Elinor Ostrom's terms, common pool resources burdened simultaneously by substractability, diffusibility, indivisibility, exclusion and inclusion.[336] In addition, the origins of community resources may not be traceable to any single individual. Such resources often emerge collectively and inter generationally over long periods of time.[337]

Notwithstanding these characteristics of communal property rights, there has been significant confusion in the literature over the attributes of traditional or communal property rights. Because the confusion might lead to a mischaracterization of those rights followed by related but wrong policy prescriptions it would beneficial to scrutinize the confusion. Affected as they naturally are by the communal interests of a public character, communal rights

335. Ostrom, *Types of Goods*, *supra* note 154, at 254 (arguing that the multiplicity of property systems has yielded different attributes of property in common pool resources including access, withdrawal, management, exclusion and alienation and some societies different property regimes are operating simultaneously for centuries);

336. Ostrom et al., *Revisiting the Commons*, *supra* note 154, at 278, 281 (describing the nature of common pool resources noting that such resources systems are independent of their governing property regime).

337. Shiva, *Bioprospecting supra* note 26, at 311.

have been wrongly associated with common property denoting *res nullius.*[338] However, communal rights as used here are to be distinguished from common property as *res nullius*, open access or open source resources, creative commons, genetic commons or similar concepts all of which seem to denote no property rights.[339] That is to say, no specific individual or entity is recognized as having the right to exclude others from access to and use of these resources.[340] Framed in such terms, common property seems to cast a wide and troublesome shadow across cultures and legal systems. It makes valuable biodiversity resources that fall within its reach free and therefore accessible to all. To the extent that this is the case, community rights fall outside its ambit.

Community rights are also distinguishable from communal rights as used and understood by Harold Demsetz to denote the situation where the community denies to the state or to individual citizens the right to interfere with any person's exercise of communally-owned rights.[341] Under that regime, communal resources have the characteristics of appropriable *res nullius.* In addition, community rights can also be distinguished from Garret Hardin's open access and unregulated common property regimes.[342] In a seminal and highly influential article, *The Tragedy of the Commons,* Hardin constructed a thought problem, a mere supposition, based on an imaginary metaphorical village commons populated by selfish commoners lacking all inherent human capacities and ingenuities for beneficial collective action.[343] Put differently, the commoners find themselves permanently and irreversibly entrapped in a perverse unresolvable situation of over exploitation of the commons to the ultimate degradation or destruction of the commons and themselves.[344] The salvation of the commoners lay in some external actor imposing a solution on them by introducing private property rights or government ''ownership or regulation.[345] Although Hardin's main thesis was about the looming crisis of population growth and the limited carrying capacity

338. Quiggin, *supra* note 229, at 1126-1127 (arguing that confusion in the treatment of communal property particularly private property theorists is to treat them open access, no property but not as a complex set of property rights).

339. Ostrom, Revisiting the Commons, supra note 154, at 279; Donald M. Nonini, The Global Idea of' 'the Commons' 50 Social Analysis 164, 165-168 (2006)(expanding the definition of the commons to include (1) natural resource commons, (2) social commons, (3) intellectual and cultural commons, and (4) species commons.) But see, Creative Commons, Vision: Universal access to research and education with full participation in culture to drive a new era of development, growth, and productivity http://creativecommons.org/

340. Cahir, *supra* note 170, at 621 (explaining the implications of common property as giving everyone the privilege to use it and likewise under no duty to anyone else including the state).

341. Harold Demsetz, *Toward a Theory of Property Rights,* 57 AM. ECON. REV. 347, 354 (1966).

342. Hardin, *supra* note 22.

343. *Id.*; David Feeney, Filkret Berkes, Bonnie J. McCay, & James M. Aceson, *The Tragedy of the Commons: Twenty-Two Years Later,* 18 HUMAN RESOURCES 1, 6-12 (1990) (discussing Hardin's reliance on a thought experiment, an imaged metaphorical village commons where there is a friction between individual and collective rationality).

344. Elinor Ostrom, *The Challenge of Self-Governance in Complex Contemporary Environments,* J. SPECULATIVE PSYCHOL. 316, 320-321 (2010) [hereinafter Ostrom, *Challenge of Self-Governance*]; Ostrom, *Coping with Tragedies*, *supra* note 154, at 494.

345. Hardin *supra* note 22; Ostrom, *Challenge of Self-Governance, supra* note 344, at 321; Elinor *Coping with Tragedies supra* note 154, at 496; Ostrom et al., *Revisiting the Commons*, *supra* note 154.

of a world of finite resources[346] his discussion of the tragedy of the commons gained such widespread acceptance that it attained the level of orthodoxy in academia and resource management policy circles.[347]

Whatever merits Hardin's tragedy of the commons may have the theory faces certain fundamental challenges. First, the assumption that atomistic individualism and selfishness are so dominant in human nature as to deprive human collectivities of the capacity for designing self-reflective governance institutions for mediating conflicting interests is contradicted by intellectual currents in the new Darwinian evolutionary biology on altruism, cooperation and reciprocity[348] and the history of human social and political organizations.[349] Second, the assumption that individual decisions in the commons are completely independent of the expected conduct of others is theoretically unsound.[350] In a theoretical study of the commons, Carlisle F. Runge argued that common resource exploitation decisions are interdependent, cooperative, affected by community expectations and assurances that evolved governance institutions will be respected.[351] Indeed, the assumptions, purposiveness and presuppositions supplying the building 'blocks of Hardin's theory are hardly applicable to all

346. Hardin, *supra* note 22, at 1243; Partha Dasgupta, *Common Property Resources: Economic Analytics,* ECON. & POL. WKLY., April 16, 2005, at 1610 (arguing that in using the term "tragedy of the commons" Hardin must have had in mind open access resources such as the open seas but unfortunately used grazing land as an illustration).

347. Feeney et al., *supra* note 343, at 2 (explaining that Hardin's thesis is widely accepted as an explanation of the over exploitation of the commons such as oceans, rivers, rivers, the air, parklands and similar resources; some argue that it should be required reading, and it has influenced policy decisions on resource use); Ostrom et al., *Revisiting the Commons supra* note 154 (explaining how scholars and policy have relied on Hardin's stark original predictions to rationalize central government control of all common pool resources).

348. RIDLEY, *supra* note 255, at 249 (explaining that human beings come equipped with social instincts); MARC D. HAUSER, MORAL MINDS 48-49, 53 (2006) (providing new evidence supporting the conclusion that human beings came biologically equipped with a universal moral grammar); WRIGHT, *supra* note 255, at 7-8, 212 (arguing that beneath the surface differences in cultures are certain infrastructural core, or defining elements of the deeper and inner elements of humanity such reciprocal altruism that span all cultures); Yelpaala, *supra* note 221, at 243 (discussing the Darwinian synthesis of human nature; that is the things that distinguish humans from other animals are our species-typical predisposition toward cooperation, reciprocal altruism, and other moral sentiments encoded in our genes); Lore M. Ruttan, *Closing the Commons: Cooperation for Gain or Restraint?* 26 HUMAN ECOLOGY 43, 45-47 (1998) (relying on evolutionary biology to explain the persistence of reciprocal altruism, asymmetrical altruism, kin selection and large group retributive morality to explain cooperation in the management of the commons in Indonesia); Dasgupta, *supra* note 346, at 1610, 1614-15 (arguing that in a theoretical context cooperation which requires elements such as trust, mutual affection and others confirmed by evolutionary biology will be necessary both in the system of privatization and open grazing).

349. Ostrom, *Challenge of Self-Governance*, *supra* note 344, at 316 (pointing out the paradox of the assumption of super rational human economic agent in the rational choice while imposing limitations on the same human nature for reflective self-governance as found in the declaration of independence of the United States and formation of a new country); Ostrom, *Coping with Tragedies of the Commons, supra* note 154 (laying out the following flaws in the foundations of *The Tragedy of the Commons,* (1) humans are norm free maximizers of immediate gains, (2) designing rules to change incentives of participants is a simple analytical task best done by objectives analysts, (3) the organization itself requires central direction).

350. Carlisle Ford Runge, *Common Property Externalities: Isolation, Assurance, and Resource Depletion in a Traditional Grazing Conext,* 63 AM. J. AGRIC. ECON. 595, 597-98 (1981) (challenging the veracity of independent action, and arguing that assumptions: strict dominance of individual strategy, the need for external enforcement, exogeneity of property rights are false).

351. *Id* at 600, 604-05.

commons and specifically to those in traditional communal societies[352] Third, neither the supposition of inevitable mismanagement nor the presumed efficacy of privatization or government ownership or control is supported by the evidence.[353] Several empirical and field studies covering a wide range of geographically dispersed regions and cultures of the world found that the commons or community resources are generally the subject of evolved, complex and dynamic governance institutions relating to access, use, conservation, and other eco-sensitive management devices.[354] These commons governance institutions have deep historical roots in developed and developing countries and in the culturally diverse traditional societies of the world.[355] Finally, the benefits

352. One of the criticisms of Hardin's thesis is that he did not draw a distinction between open access common property and common pool resources. Ostrom, *Types of Goods*, *supra* note 154; Ostrom et al., *Revisiting the Commons*, *supra* note 154. At the theoretical level, economists such as Carlisle Ford Runge and Partha Dasgupta have demonstrated how the assumptions supporting Hardin's theory are false in the context of common property as opposed to open access property. *See* Runge, *Common Property Externalities*, *supra* note 350, at 597-598; Partha Dasgupta, *supra* note 346, at 1613 (arguing that commoners would have an incentive to adopt a strategy avoiding over grazing and self-destruction.) Several studies conducted by scholars in different regions and cultures of the world have found that the commons are generally successfully governed. *See* Feeney et al., *supra* note 343 (providing a review of various empirical and field studies designed to test Hardin's theory in different regions and cultural settings of the world; Africa, North America, Asia (Japan, Nepal, India) and Europe reporting that the commons are generally successfully governed); M. A. McKean, *The Japanese Experience with Scarcity: Management of Traditional Common Lands,* 6 ENVTL. REV. 63 (1982); M.A. McKean, *Success on the Commons: A Comparative Examination of Institutions for Common Property Resource Management,* 4 J. THEORETICAL POL. 256 (1992); N.S. Jodha, *Common Property Resources and the Rural Poor*, 21 ECON. & POL. WKLY. 1169 (1986) (presenting evidence of increases in income based on well managed commons by rural poor of India); W. Cavendish, *Empirical Regularities in the Poverty-Environment Relationships of Rural Households: Evidence from Zimbabwe* 28 WORLD DEV. 1979, 1997 (2000) (estimating increase of about 35% in income of rural households from well managed commons).

353. Ostrom et al., *Revisiting the Commons*, *supra* note 154 at 278;

354. Fikret Berkes, *The Common Property Resource Problem and the Creation of Limited Property Rights*, 13 HUMAN ECOLOGY 187, 189-92, 195 (1985) (providing evidence of the effective management of fishing in the Great Lakes through licenses, type of equipment used, number of fishermen and quantitative restrictions); Marco A. Janssen & Elinor Ostrom, *Turfs in the Lab: Institutional Innovation in Real-Time Dynamic Spatial Commons,* 20 RATIONALITY AND SOC'Y 371, 373, 375 (2008) (providing a quick review of the research evidence of successful management of the commons and the results of an experimental study addressing the conditions for successful management of common pool resources); Ostrom, *Coping with Tragedy*, *supra* note 154, at 506-07 (providing evidence of human behavioral theory consistent with laboratory experiment testing the management of the commons); Ostrom, *Types of Goods*, *supra* note 154, at 254-56 (providing a review of the range of field and empirical studies with evidence of effective management of the commons); Ruttan, *supra* note 348, at 52-58 (providing evidence of the types of governance strategies including time, area, number of hunters, price of catch, division of proceeds, etc. employed by two villages on Kei Besar Island, Indonesia for the harvest of communal tenure of mother-of-pearl-shell).

355. The history of the commons is probably as old as organized society dating back to the days of hunters and gatherers. *See* S.V. Ciriacy-Wantrup & Richard C. Bishop, *"Common Property" as a Concept in Natural Resources Policy*, 15 NAT. RESOURCES J. 713, 717 (1975) (arguing that the commons are probably traceable to the days of communal hunting and gathering societies which regulated the commons based on customs, taboos, and kinship). Recent interest in the commons has produced interesting empirical studies challenging long held views that the commons were generally inefficiently managed by the commoners necessitating the enclosure movement in England and Continental Europe. These studies have also shed some light on the antiquity of the commons going back to at least 1000 years. *See* Runge & Defrancesco, *supra* note 104, at 1714, 1717-18 (tracing the origins of the commons in England to the Norman Conquest of the British Isles, with common arable land taking shape in 1066; by 1300 the commons were widespread in England; in the case of the Italian Alps the existence of successfully managed commons goes back to medieval times); Brown, *supra* note 235, at,110-11 (arguing that in pre-modern, pre-industrial era, common property was the norm in the organization of property rights in West European societies and providing a review of some of the empirical

claimed to flow from privatizing the commons have also been challenged both on efficiency and resource sustainability grounds.[356]

The weakness of the efficiency claims is best demonstrated from the evidence of the enclosure movement in England, one of the most extensive and emulated enclosure movements in history.[357] For at least two centuries conventional wisdom held that the commons in England were inefficiently exploited by the rustic commoners and that privatizing the commons through the enclosure movement removed the drag on agricultural efficiency.[358] However, two recent carefully conducted econometric studies of the English enclosure movement, one relying on contemporary data collected by Arthur Young and the other on new and more extensive data from 1500 to 1912, have questioned the validity of the long held efficiency claims.[359] According to Gregory Clark the efficiency claims took root from a chain of studies that ultimately relied on the same but few unsophisticated and unchallenged contemporary publications.[360] A more sophisticated look at the data found that contrary to the conventional wisdom the commons were indeed efficient and that the major impact of the enclosure movement was not efficiency gains but rather the redistribution of agricultural income.[361] On the other hand, various studies have found that government ownership or control of the commons tends to be inefficient; it dispossesses the commoners of access to important resources, benefits substantially the political elite, and replaces evolved and effective traditional

studies on the commons in England and Continental Europe which show that not only were the commons efficient but also that they continue to be found in many European countries).

356. Feeney et al., *supra* note 343, at 1 (arguing that privatizing certain kind of resources such as slow maturing blue whales or the redwoods which may take 2000 years to mature would lead to over exploitation and undermine the goal of conservation and sustainable use since the rate of return for replanting after exploitation would be too low to encourage replanting which makes ecological sense); Colin W. Clark, *The Economics of Overexploitation* 181, SCIENCE 630, 634 (1973 (arguing that the economics of rent seeking would encourage overexploitation of the slow maturing Antarctic blue whale under a regime of privatization or without regulation); Runge, *supra* note 350, at 598 (arguing that the time preference of society and that of the owner of privatized commons are not necessarily the same).

357. Runge & Defrancesco, *supra* note 104.

358. Gregory Clark, *Common Sense: Common Property Rights, Efficiency, and Institutional Change,* 58 J. ECON. HIST. 73, 74 (1998) (explaining the belief of eighteenth century reformers that the commons were inefficient and a drag on agricultural income); Runge & Defrancesco, *supra* note 104, at 1715-16 (reviewing recent studies that provide new evidence suggesting that the claimed efficiency benefits of enclosure movement in England were weaker than believed).

359. Robert C. Allen, *The Efficiency and Distributional Consequences of Eighteenth Century Enclosures,* 92 ECON. J. 937 (1982) (relying data from 231 farms collected by Arthur Young, Secretary of the Board of Agriculture and editor of the *Annals of Agriculture* in the late 1760s during his tour of England); Clark, *supra* note 358, at 77 (reporting on a large body of new data on market land values in England from 1500 to 1912 on Charity land.).

360. Clark, *supra* note 358, at 81-82.

361. Allen, *supra* note 359, at 950 (concluding (1) enclosure did not raise efficiency, (2) the major consequence of the enclosure movement was redistribution of agricultural income, after taking into account soil composition, fertility, rainfall and type farm produce); Clark *supra* note 358, at 98, 100 (arguing that the estimated rent gains from the enclosure movement at its peak from 1760 to 1820 were modest, with less than 7% annual gain to the landlord from enclosure, suggesting the economic problems of the common fields was founded on a myth of vast profits to be made by earlier agrarian reformers and mistakenly perpetuated by historians).

governance institutions with mismanagement.[362] Certainly, the evidence seriously undermines Hardin's assumptions of mismanagement purely by virtue of the nature of the property and the efficiency of private ownership or government regulation.[363] As appropriately pointed out by some scholars, neither privatization nor government regulation is necessarily good for the sustainable exploitation of common pool resources.[364]

The brief review of the studies of the commons reveals a few cogent and inescapable lessons for the preservation, conservation and governance of biodiversity resources. Clearly, the evidence suggests that biodiversity resources better fit into community resources and rights than Hardin's open access and unregulated commons. Governed in their natural environment, as they generally are, by diverse evolved, robust and dynamic self-governance regimes biodiversity resources are unlikely to face the predicted inevitable mismanagement, degradation and eventual demise.[365] Hardin's proposed solutions of privatization or central control either by national governments or through international instruments not only underappreciates the history of human ingenuity for effective collective action but also threatens the very goals of conservation and sustainable use articulated in the Convention.[366] The stated goals of protecting, conserving, and sustainable exploitation are best achievable

362. J.E.M. Arnold & J. Gabriel Campbell, *Collective Management of Hill Forest in Nepal: Community Forest Development Project* 7-10 (Nat'l Res. Council Nat'l Acad. Sci., Working Paper No. 0600I/0052F, 1985), *available at* http://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/8112/Collective%20Management%20of%20Hill%20 Forests.pdf?sequence=1 (discussing how the nationalization of forest in Nepal not only failed to achieve its objectives but also led to deforestation forcing the government return the forest to communal collective management); Daniel W. Bromley & Devendra P. Chapagain, *The Village Against the Center: Resource Depletion in South Asia,* 66 AM. J. AGRIC. ECON. 868, 869 (1984) (explaining how the 1957 nationalization of all forest lands in Nepal upset centuries of traditional resource control, increased the rate of forest destruction); Andrew T. Hudak, *Mismanagement in South Africa: Failure to Apply Ecological Knowledge,* 27 HUMAN ECOLOGY 55, 64-68 (1999) (providing evidence and discussion the nature of mismanagement of rangelands in South Africa); Feeney et al, *supra* note 343, at 8 (reviewing the literature on the failure of government control over resources in different countries including Niger and Thailand).

363. The findings in the field studies suggests that one cannot predetermine mismanagement by virtue of the nature of the property rights in the resource. Ostrom et al., *Revisiting the Commons, supra* note 154, at 278 (discussing the studies of the failure of governance and the degradation of private, government, and government organized collectives resources in China and Russia); Feeney et al., *supra* note 343, at 1, 6-12 (offering several examples of well managed communal resources in several countries including, Japan, the U.S. and others contrary to Hardin's assumption of lack of capacity to manage); Berkes, *Supra* note 354, at 189-95 (providing evidence of the effective management of fisheries and fishing areas in the Great Lakes region of the United States and Canada); Ruttan, *supra* note 348, at 52-58 (explaining how communities on the Kei Besar Island of Indonesia manages the collective rights in fishing effectives).

364. Ostrom et al., *Revisiting the Commons, supra* note 154, at 278; Carlisle Ford Runge, *The Fallacy of "Privatization,* 7 J. Comtemp. Stud. 89 92-95 (1984)(providing evidence challenging the validity of Libertarian theory of voluntariness in the privatization of Federal Lands under President Raegan which proved to be less efficient than publicly held lands).

365. Ostrom et al., *Revisiting the Commons*, *supra* note 154 at 281; Ostrom, *Types of Goods, supra* note 154, at 253, 256 (arguing that communal groups often devise complex systems of self-governance of their common pool resources), Ostrom, *Challenge of Self-Governance* , *supra* note 344; Feeney et al., *supra* note 343.

366. Hubbard, *supra* note 15, at 421; Ho, *supra* note 6 at 470-86 (discussing some of the failures of TRIPS); Dutfield, *supra* note 3, at 14 (Chap 3 devoted to a critical analsysis and contraditions in TRIPS); Ghosh, *supra* note 3, at 497.

by entrusting communal collectivities with that task. They have over centuries employed evolved, dynamic and effective governance regimes for achieving these same objectives. A top-down delivered governance regime with essentially two rigid solutions is contradictory to the very idea of diversity.

The preceding review supports the argument that community resources better fit into the much more sophisticated analytical framework suggested by Charlotte Hess and Elinor Ostrom than that of Hardin.[367] According to them, community resources can have simultaneously the characteristics of "public goods" and private property. In other words, as "public goods" it is difficult to exclude others from access and use and therefore they might suffer from congestion, overuse, pollution and potential destruction[368] Resource systems such as lakes, forests, irrigation systems, grazing areas may constitute common-pool resources that fall into this category.[369] However, *the public that cannot or should not be excluded* is not the world at large but the specific community in question. The open access characteristics may be the result of deliberate public policy aimed at guaranteeing access to members of the larger community,[370] in John Quiggin's view, to achieve some egalitarian policy objectives.[371] As such, some exclusivity may be aimed at outsiders even if its actualization is difficult if not impossible. The community may devise rules relating to access, use and exploitation. Private property rights may then arise from such exploitation, use and acquisition of specific resource units from the common-pool resource systems. Put differently, the exercise of usufructuary rights may translate into individual private property.[372] This conclusion is consistent with the practices of evolved usufructuary-rights based traditional communities.[373] In a seminal article, Gordon Woodman, a leading authority on African customary property law, provided an exposition of the complexity of the usufructuary characteristics of communal property in Ghana.[374] Indeed, as explained by Kwame Gyeke, traditional communities such as clans play a central role in providing an overarching values structure that holds the system together. But Gyeke notes that clans are like clusters of trees which when seen from afar, appear to be huddled together, but

367. Charlotte Hess & Elinor Ostrom, *Ideas, Artifacts, and Facilities: Information as a Common-Pool Resource*, 66 L. & CONTEMP. PROBS. 111, 120 (2003).

368. *Id*. at 120.

369. *Id.* at 121.

370. *Id.* at 122.

371. Quiggin, *supra* note 229, 1128-1131.

372. Hess & Ostrom, *supra* note 367 at 121, 124-129.

373. *See,* Gordon R. Woodman, *The Scheme of Subordinate Tenures of Land in Ghana,* 15 AM. J. COMP L. 457 (1967) (discussing the nature, scope and details of the usufruct in the land law of Ghana) [hereinafter Woodman, *Subordinate Tenures*]; GORDON R. WOODMAN, CUSTOMARY LAND LAW IN THE GHANAIAN COURTS 76-78, 209-211 (1996) (explaining the evolution the usufruct is undergoing in more recent times in Ghana) [hereinafter WOODMAN, CUSTOMARY LAND LAW]. Early European philosophical speculations of the origins of private property are rooted in the concept of the usufruct which are also traceable to the Roman concept of the *usufructus. See* Grotius *supra* note 172; Pufendorf *supra* note 172; W.W. Buckland, *The Concept of Usufruct in Classical Law,* 43 L. Q. REV. 326, 331 (1927)(explaining the usufruct as the right to appropriate the fruits of the thing but has no power over the thing itself).

374. *See* Woodman, *Subordinate Tenures*, *supra* note 373; WOODMAN, CUSTOMARY LAND LAW, *supra* note 373.

which would be seen to stand individually when closely approached.[375] Put differently, the clan and community structures provide the protective umbrella under which the individual thrives.

Community ownership of resources as discussed above appears to be a widespread phenomenon in traditional Southern societies. Indeed, the recognition of community ownership as collective private rights is best exemplified by Article 16 of the African Model Statute for the Protection of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources (hereinafter OAU Model Law)[376] Article 16 imposes an obligation on states to recognize various rights of communities including beneficial rights relating to biological resources, innovations, knowledge and practices acquired throughout generations.[377] In this regard, the role of the state *is* to promote security of interests and the sanctity of those rights to the communities against violators. If there is any doubt about the role of the state with respect to these community rights Article 17 of the OAU Model Law lays that to rest by demanding protection from the state in the following words:

> The State recognizes and protects the community rights that are specified in Article 16 as they are enshrined and protected under the norms, practices and customary law found in, and recognized by, the concerned local and indigenous communities, whether such law is written or not.[378]

The importance of Articles 16 and 17 of the OAU Model Law within the context of the false compromises in the Biodiversity Convention cannot be over emphasized. It lies in the obligation of the state to protect these community rights against any incursions and interferences. The protective responsibility and obligation imposed on the state provides it with an argument against other states and their citizens claiming access to biodiversity resources particularly in the case of a vaguely worded treaty or through the common heritage concept. Thus,

375. KWAME GYEKYE, AN ESSAY ON AFRICAN PHILOSOPHICAL THOUGHT: THE AKAN CONCEPTUAL SCHEME 32 (Revised Ed. 1995); For an extensive discussion of the interplay between communal and individual values see, KWAME GYEKYE, AFRICAN CULTURAL VALUES 35-51 (1996) (discussing various Akan maxims illustrative of the importance of the community and the role of individuals within it).

376. Council of Ministers of the Organization of African Unity [OAU], African Model Law for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources (2000), *available at* http://www.opbw.org/nat_imp/model_laws/oau-model-law.pdf [hereinafter African Model Law].

377. Article 16 of the African Model Law asserts:

The State recognizes the rights of communities over the following:

i) their biological resources;
ii) the right to collectively benefit from the use of their biological resources;
iii) their innovations, practices, knowledge and technologies acquired through generations;
iv) the right to collectively benefit from the utilisation of their innovations, practices, knowledge and technologies;
v) their rights to use their innovations, practices, knowledge and technologies in the conservation and sustainable use of biological diversity;
vi) the exercise of collective rights as legitimate custodians and users of their biological resources;

Id. at 9.

378. *Id.*

if the Convention can legitimately be interpreted to include community rights, the fear of the *Trojan Horse* would again be minimized.

1. Categories of Community Resources and Community Rights.

Community rights in biodiversity resources may come in innumerable forms. Some community rights may involve tangible biological resources, plants, materials, and other biodiversity resources that form part of the ecosystem of a community maintained and sustained by it for a very long time. As discussed above, these physical resources may be characterized as resource systems and the flow of resource units within them. Other biodiversity resources may come in the form of traditional knowledge in traditional health care techniques that employ herbs and plants for curative and preventive medicine. Some traditional knowledge may involve practices associated with nutrition and cosmetics. In agriculture, traditional knowledge includes seed breeding, plant development, and highly evolved farming technology such as the world famous rice terraces of the Ifugao in northern Philippines acknowledged as one "World Heritage Site."[379]

As is apparent from the preceding discussion, community rights in biodiversity resources fall into two broad categories: those that originate from community ownership of tangible resources such as plants and herbs; and those that arise from the community ownership of intangible assets such as ideas in general and traditional knowledge, processes and know-how in particular. Community ownership is often associated with common property which in turn is wrongly described as no property rights. In the case of biodiversity resources a clear distinction should be drawn between physical or tangible resources and intangible assets. The nature of the rights in both can vary significantly. For that reason we shall examine them separately below.

a. Tangible Community Resources

In the case of tangible biodiversity resources, community ownership, far from signifying *no property rights*, often carries with it many of the incidents associated with owning a thing. The community retains the bundle of rights exercisable by its members. This bundle of rights includes the right to exclude outsiders from those resources and the right to control and manage access and use by its members and outsiders. Members of traditional communities therefore enjoy not only the right of access and use but also that of exploitation and alienation of what is extracted. The fact that members of the community have the right to use those resources does not convert the common ownership into ***non-property***. The pool from which medicinal plants and other tangible resources of scientific value are harvested, extracted or exploited by members retains its collective proprietary elements. Moreover, the fact that community biodiversity resources are often shared with outsiders does not change their community

379. David Daoas, *Efforts at Protecting Traditional Knowledge: The Philippine Experience,* WIPO 3 (Oct. 27, 1999), http://www.wipo.int/edocs/mdocs/tk/en/wipo_iptk_rt_99/wipo_iptk_rt_99_6a.pdf.

ownership character.

This property-based interpretation of community rights in biodiversity resources places the rights in local communities and *not* in the state in which those communities are found. Accordingly, a property-based interpretation leaves little room for any contrary claims by outsiders either under the common heritage/open access common property approach or any other theory which creates an automatic or other right of access without the consent of the community.[380] Indeed, similar to the claims of permanent sovereignty over natural resources, the concept of community rights gives local communities certain powers over their biodiversity resources.

b. Intangible Community Assets

However, the analytical framework for community resources which come in the form of traditional knowledge, indigenous knowledge, folklore or a similar designation is significantly different. Traditional knowledge, like other ideas, is an intangible asset that is characteristically diffusible and not easily susceptible to control unless under an effective regime of secrecy.[381] It has the classic characteristics of a "public good" in that it is susceptible to multiple and simultaneous use by many people without ever depleting it.[382] Accumulated over countless number of years and across generations, the cost of acquisition is virtually imperceptible and minimal at best. If such costs are treated as sunk costs, the real cost associated with transactions involving traditional knowledge in biodiversity is the cost of transferring them.[383] According to neo-classical economic theory, the transaction cost of transferring them should approach zero as the number of transactions approach infinity.[384] This would pose a pricing problem for traditional communities if the price of transfer must reflect the marginal cost of transfer.

Given these characteristics, traditional knowledge valuable to modern global enterprises and information prospectors, suffers from the same general infirmities as do ideas in general; Because ideas are diffusible and non-substractable, the community may have difficulty excluding others from access and use. Indeed, the community may have significant difficulty restricting its members from exercising their right of access, exploitation and use to provide outsiders with valuable traditional knowledge to the detriment of the community. Modern sophisticated transactions involving technology and information markets suffer

380. Biodiversity Convention, *supra* note 1 Article 15(5), requiring informed consent of the Contracting Parties)

381. Paul Kuruk, *The Role of Customary Law under Sui Generis Frameworks of Intellectual Property Rights in Traditional and Indigenous Knowledge*, 17 IND. INT'L & COMP. L. REV. 67, 81-82 (2007)(hereinafter Kuruk, *Role of Customary Law*).

382. KENNETH S. ARROW, ESSAYS IN THE THEORY OF RISK BEARING 151(1976); MARK CASSON, ALTERNATIVES TO THE MULTINATIONAL ENTERPRISE, 36-38 (1979); Kojo Yelpaala, *In Search of Effective Policies for Foreign Direct Investment: Alternatives to Tax Incentive Policies,* 7 NW. J. INT'L L. & BUS. 208, 220 (1985).

383. Yelpaala, *supra* note 382 at 221.

384. *Id.*

from the famous Arrow's Paradox.[385] The seller must disclose just enough information to get the deal. Having already received enough information for an effective exploitation of a traditional idea, the prospective buyer would have no incentive to pay for it and if so at a fair price.[386] This problem is magnified in the case of traditional communities. Driven by a culture of openness, altruism and reciprocity, traditional communities are more likely to over disclose valuable information to prospective buyers. Even if they prefer not to do so they would still have the problem of not knowing what quantity and quality of information would be sufficient to strike a deal. These infirmities are further complicated by the fact that there is hardly any evidence of traditional knowledge constituting property rights in traditional societies as understood in the North. Moreover, modern intellectual property laws do not seem to protect them. Under such circumstances, community rights in traditional knowledge seem less secure than those in tangible resources. But the conclusion of the insecurity of community rights in traditional knowledge might require a much more careful analysis. Such a conclusion might be influenced by whether the traditional knowledge involves narrowly held and controlled technology such as medicinal practices and techniques that require specialization or whether it involves only common traditional knowledge relating the daily life or techniques about farming, seed breeding, and other activities of general utility.

Generally, traditional knowledge in agriculture including seed and plant breeding tend to be widely diffused within the community. Such knowledge moves vertically or inter-generationally through time and horizontally through the community within each generation. Thus, over time, the techniques are enhanced and improved upon through various forms of value-added activities generation after generation. In a system of *reciprocity*, different traditional societies trade knowledge in various areas and adapt them to their specific environmental conditions and needs. In subsequent years the traded knowledge comes back enhanced or at least changed. For this type of traditional knowledge a strong case for unimpeded access by outsiders could be made because there has been a culture of free access and sharing. The right of access by outsiders could then include bio-prospectors and scientists from the North. However, any argument for access to this type of traditional knowledge must be governed by the operating assumptions of the applicability of the reciprocity principle to all.

In the context of the Biodiversity Convention, it is unclear whether outsiders from developed countries seeking access to generally shared biodiversity resources in agriculture and other areas are willing to subscribe to the principle of reciprocity. Adherence to the principle of reciprocity would require scientists and bio-prospectors from developed markets to share any improvements they make in seeds, plants, or fruits, at least, with the traditional societies from whom they obtained the resources for their inventions. Applied in its strictest sense, the obligation to ***return in kind*** biodiversity resources obtained from a community is

385. Arrow, *supra* note 382, at 151.

386. *Id.* Yelpaala, *supra* note 382, at 222.

not necessarily discharged with a corresponding obligation to pay royalties.[387] What then the traditional communities need is the use of their resources to tackle their fundamental needs. Royalties are not necessarily what traditional societies need in return for their biodiversity resources.

In the case of traditional knowledge in herbs, plants, and other biodiversity resources with medicinal properties community rights might also fall into two categories. Traditional knowledge in herbs, plants, and other resources used for the treatment of common colds and similar illness may be widely diffused among the general population. The use of such knowledge may require no special skills. Such traditional knowledge would be more widely diffused than the second category of knowledge in medicinal herbs and plants held by a group of specialized individuals within the community. The use of the second category of traditional knowledge demands some special skills of well-trained individuals who can identify the right resources, have the knowledge of the process and dosage of the medicine. Generally, ordinary citizens of the community do not possess the same skills or knowledge and are therefore not equipped to practice healing and the treatment of patients.[388] Traditional healers and medicine persons are the ones who typically will possess this specialized skill and know-how. Notwithstanding the fact this type of traditional knowledge is highly concentrated in the hands of a few healers and medicine professionals it is nevertheless treated as non-proprietary traditional knowledge.[389] Some traditional societies may view such knowledge as being an intricate part of the culture and the healers hold it in "trust" for the community. The term trust as used in many traditional societies carries with its own complex characteristics unfamiliar to the common law trust.[390]

The trust is an ancient ancestral concept manifesting itself in the present and unfolding into the future. The obligations of the trustees are rooted in ancient ancestral values permanently coloring those obligations through time. Thus, the trust obligations are backward looking for guidance on how best to manage communal assets so as to protect current and future generations. This institutional framework is not unlike any of the ancient spiritually derived *lex lata* creating permanent values and frameworks for governance but exhibiting intolerance for deviations.[391] Trustees, under the traditional trust, are answerable to the ancestors now and in the life after for managing the *corpus* just as they are answerable to current and future generations.[392] The traditional trust clearly appears to impose unique obligations and restrictions on holders of traditional knowledge which, if

387. The sharing provisions of the Biodiversity Convention starting Article 15 are weak and soft with no enforcement mechanisms. The other provisions with sharing implications such as Article 16, 18, 20 and 21 suffer from the same malady. *See* Biodiversity Convention , *supra* note 1.

388. MARCEA ELIADE, SHAMANISM, (1964)(offering a complex spiritual and religious nature and origins of Shamanism)

389. Shiva, *Bioprospecting supra* note 26, at 311.

390. Asante, *supra* note 279.

391. The Bible, King James Version, Leviticus.

392. Asante, *supra* note 279, at 1171, 1178 (arguing that the head of the family enjoys general immunity for accounting in family disputes over management of family property and that removal of a family head is a collective act requiring the consent of the majority of the elders).

observed, would prevent the disclosure of traditional knowledge to the detriment of the community.

Nowhere is the tension between the traditional trust regime in communal societies and modern intellectual property laws better captured than in a series of Australian copyright cases involving Aboriginal art. In one of these cases, *Bulun Bulun v. R & T Textiles Pty Ltd.*, the defendants were sued under the Australian Copyright Act for the copyright infringement of the artwork of an Aboriginal artist, *Bulun Bulun.*[393] The court, *inter alia,* had to determine the relationship between the artist and his community with respect to the ownership of the artwork in question. From the undisputed evidence in the *Bulun Bulun* case it appeared that the artist viewed himself as an instrument of the ancestors in the production of the artwork. To him the artistic expression was not driven by pure and simple creative impulses but rather as part of his spiritual responsibility that ran with and secured ownership of community land.[394] What appeared to the ordinary eye as an artistic expression was in fact a spiritual code received from the ancestors through visions and "*seeings*" expressed by him for the community. He was neither asserting his individual creativity in the artwork nor ownership rights in it to the exclusion of his community.[395] In view of this, the Court, relying on Ghanaian customary law of trust, held that the artist held the copyright in trust for his community.[396]

E. Biodiversity Resources as Private Property Rights.

If the objectives of the Convention have an undercurrent of recognizing and providing private property rights, that undercurrent appears stronger in the substantive provisions of the Convention. First, the contracting parties sought to guarantee access to genetic resources through the Convention. This is achieved in Article 15 which, consistent with the United Nations General Assembly Resolution on Permanent Sovereignty over natural resources (Resolution 1803), recognizes the rights of sovereign states over their genetic resources.[397] However, the nature of these sovereign rights is left to interpretation and permanent sovereignty does not necessarily negate private ownership by communities or individuals. Given its historical context Resolution 1803 might be adopted to guarantee the existence of sovereign power to protect community or individual rights in resources.[398] The discussion of community rights above suggests rather

393. *Bulun Bulun v. R & T Textiles Pty Ltd.* (1998) 86 F.C.R. 244, 248 (Austl.).

394. *Id.* at. 248.

395. *Id.* at 249-250.

396. *Id.* at 260-261..

397. Although the U.S. played an active role in the crafting of Resolution 1803 it seemed to have some concerns over Article 15 and others. *See,* Starr and Hardy, *supra* note 32 at 116

398. Might this be one of the reasons for objections made by the U.S. to Articles 15, 16, and 19 of the Convention on Biological Diversity? Starr and Hardy, *supra* note 32 at 117-118 (explaining that Article 8(j) was viewed as highly controversial because of perceived loss of profits from access to cheap technology and Article 21 was considered to be so ambiguous as to constitute a blank check; United States: Declaration Made at the United Nations Environment Programs Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity, May 22, 1992 31 I. L. M. 848 (1992).

strongly that biodiversity resources constitute private property of the communities within which they are found.

However, the Convention appears to go even a step further in the recognition of private rights in the form of intellectual property. Article 16 dispels any doubts about the protection of intellectual property rights in the Convention.[399] Admittedly, Article 16 is also burdened with ambiguity since on its face it seems to be concerned with the conservation of biological diversity through technology transfer.[400] But a fair reading of its provisions would support the notion that intellectual property rights are adequately recognized and protected. Under Article 16 (1) the Contracting Parties undertake to provide and/or facilitate access to and transfer of technology essential to the conservation and sustainable use of biological diversity.[401] But Article 16 (2) obligates access to biodiversity resources under fair and equitable terms.[402] However, in a general way, Article 16(5) recognizes the influence of patents and other intellectual property rights on the implementation of the Convention and imposes an obligation on the parties to cooperate in the recognition of patents and other intellectual property rights subject to national legislation and international law.[403] Article 16 (5) might be read as saying that any failure to protect or under-protect intellectual property rights would be inconsistent with the obligations imposed by the Convention and other international obligations such as TRIPS.[404] Indeed, Article 16(5) goes beyond the mere recognition of intellectual property rights. As a corollary to the right of access to technology under fair, equitable, and favorable terms, Contracting Parties are obligated to protect patents and other intellectual property rights.[405] Thus, even in the midst of ambiguity, the position of those concerned with the protection of intellectual property rights seems secure.

The failure to characterize the nature of the rights in biodiversity resources covered by the guarantees of access has significant property implications. Biodiversity materials fall into various categories. Some of them form part of the

399. Biodiversity Convention, *supra* note 1,Article 16 of the Convention on Biological Diversity states:

> 3. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, with the aim that Contracting Parties, in particular those that are developing countries, which provide genetic resources are provided access to and transfer of technology which makes use of those resources, on mutually agreed terms, including technology protected by patents and other intellectual property rights, where necessary, through the provisions of Articles 20 and 21 and in accordance with international law and consistent with paragraphs 4 and 5 below.
>
> 5. The Contracting Parties, recognizing that patents and other intellectual property rights may have an influence on the implementation of this Convention, shall cooperate in this regard subject to national legislation and international law in order to ensure that such rights are supportive of and do not run counter to its objectives.

400. Ambiguities in the technology transfer language of Article 16 might read to limit the transfer of technology to developing for conservation and preservation of biological diversity and financial obligations and terms of transfer might be seen as too costly and favorable to Third World countries. The reported controversy over Article 8(j) is better understood within the context of Article 16. For a discussion of Article 8(j) *see,* Núnez, *Peruvian Experience supra* note 57, at 496-500.

401. Biodiversity Convention, *supra* note 1 at art. 16 (1).

402. *Id.* at art. 16 (2).

403. *Id.* at art. 16 (5).

404. *Id.*

405. *Id.*

natural biosphere. They are naturally occurring with biological or botanical properties. As such, they may not, *ipso facto*, belong to the category of things generally protected by modern intellectual property laws. *Control over their physical properties does not mean ownership of their scientific properties. It is, however, the science of biodiversity resources that is at the crust of the debate.* It is mostly scientists in developed countries who can more easily translate the science into processes to meet the difficult technical conditions for patentability and ownership. Other biodiversity resources such as seeds, seed breeding, and plan cultivation, while possessing scientific properties, have been the subject of deliberate selection, manipulation and transformation through human effort. The knowledge that drives and emerges out of this process is often traditional or indigenous, community based, centuries old, and constantly evolving.

Under modern intellectual property regimes such knowledge might be considered as being in the public domain and on that account not entitled to protection. Moreover, traditional or indigenous knowledge of the medicinal or food properties of biodiversity resources cannot often be explained systematically in accordance the exacting technical patent requirements by indigenous people. The knowledge of how things work is seldom, if ever, supported by the "scientific whys". Again, it is the scientist, who, when given access to this information and the raw materials, can distill and routinize the process and thereafter obtain property rights in the results. Thus, old and predictable indigenous ways may become new scientific inventions deserving of protection as intellectual property. Seldom is there attribution to, or joint property interest in the indigenous people. The research and development provisions of the Convention neither address nor guarantee joint intellectual property rights for the researchers and the traditional or indigenous people who supplied the raw material and the related traditional knowledge as the building blocks. Collaborations of a similar character between scientists or multinationals often result in joint property rights but not in the situation at hand. The Convention merely encourages cooperation in research and development. It is unclear whether and how this process serves the lofty goals of the Convention to achieve fairness and equity in the distribution of the benefits from sharing biodiversity resources.

The discussion of the scope and depths of the ambiguities captured by the use of polysemy and hyponymy leaves one with the obviously pregnant question: why did the contracting parties resort to such negotiating techniques? Given the issues at stake in the Convention, polysemy and hyponymy served multiple purposes and was perhaps essential in the case of the Biodiversity Convention. The use of deliberate ambiguity may have several objectives and effects. Polysemy may postpone the resolution of thorny issues for future events or negotiations. The use of ambiguity may also seek to rely on certain different meanings generally attributed to the ambiguous terminology in different cultures, under different national legislation, or in international agreements even when there is no explicit reference to the different meanings in the text of the agreement. In such a case, future controversy over the meaning of the ambiguous *terminology* might also be resolved through further negotiations and

compromises. From developments following the adoption of the Convention it would appear that there are various regional and national efforts afoot to clarify the meaning of the term *all rights* as used in Article 1.[406] Moreover, under certain circumstances, a false compromise is better than failed negotiations. The failure to reach some false compromise on difficult issues may lead to a complete collapse of negotiations even when there is substantial agreement on many other significant issues. An all or nothing approach to international negotiations is not always the best when the issues are complex. Such was the case in the negotiations for establishing an International Code of Conduct for Technology Transfer.[407]

If the goal of the Convention was to establish a global system of non-private ordering for achieving the objectives of fostering, preserving and encouraging sustainable use of biodiversity resources there might be disappointment. A regime of private property rights in biotechnological inventions derived from biodiversity resources appears to have been deeply embedded in the basic scheme of the Convention. Without government regulation a regime of private ordering could not guarantee the achievement of the goals of the Convention. However, given the ambiguities and false comprises the risks presented by private ordering could be minimized through future negotiations and compromises reducing the role of private ordering.

V. CONCLUSION

The Biodiversity Convention has been the subject of significant commentary since its adoption. Much of the intellectual exertion on the Convention has been devoted to issues related to the equitable exploitation of biodiversity resources. Various models and suggestions have been advanced to address the management of access to those resources in order to protect the interests of biodiversity resource holders, particularly indigenous communities. Conspicuously missing in the otherwise diligent and serious discussions of the issues is the question of property rights. Also missing in the volumes of work on the subject is an adequate attention to the *fundamental needs* of the holders of these resources.

Certainly, most of the biodiversity resources are held in a complex regime of property rights hardly, if ever, reflected in even the most thoughtful and benevolent analysis of Convention. Neither the Convention nor the sophisticated analysis of its provisions confronts the obvious issue of the nature and scope of the property rights in biodiversity resources. While the instrument contains hints and inferences on the subject of property rights of resource holders, the Convention did not unambiguously address the ownership of biodiversity resources. The omission might have been deliberate given the complexity of the

406. Núnez, *Peruvian Experience*, *supra* note 57, at 536 (explaining that in 2002 Peru was the first country with a large indigenous population to provide comprehensive protection of collective indigenous biological resources); Kuruk, *Protecting Folklore, supra* note 156; Kuruk, *Role of Customary Law*, *supra* note 381 (providing a description of regional, national, model law and customary responses in different parts of the world).

407. Yelpaala, Licensing Agreements *supra* note 102, at 258-266

subject matter and the strategic posturing of Contracting Parties. It might also have been a strategic negotiation technique to reach the compromise necessary for the adoption of the Convention. Whatever, the reasons for the omission and the ambiguities surrounding the question of ownership, it has invited some speculative theories about the ownership of biodiversity resources. In this work, we sought to address the validity and universality of speculative theories about the origins of property rights, clarify and hopefully lay to rest the issue of ownership of biodiversity resources. In doing so, we have drawn certain conclusions worth noting.

First, prominent among the theories about the nature of rights in biodiversity resources is the common heritage of humanity concept under which biodiversity resources are *res nullius*, accessible to all without let or hindrance. The notion that biodiversity resources constitute a common heritage of humanity, *ex facie*, has a powerful transcendent universal appeal. Yet, the common heritage concept is no more than a thinly veiled ploy, a veritable subterfuge for gaining access to the resources owned by others or under the jurisdiction and dominion of independent sovereign states. It comes wrapped as a neutral conceptual framework for organizing the biodiversity resources of the world. However, at its core it is no more than a conceptual instrument for the redeployment of an old, well tested, and oiled machinery used during the age of explorations and colonialism for justifying aggressive and acquisitive occupation of vast areas of the world by European nations. Perhaps, more troublesome are the foundational principles upon which the edifice of the common heritage concept is built. It has its roots in European philosophical speculative theories about the original state of nature within which property rights might have emerged. The inspiration for these speculative theories was the Biblical narrative of creation burdened by certain assumed God's purposes for such creation. Thus, the original state of nature that might have produced property rights emerged out of Jueo-Christian cultural milieu within which European philosophical thought functioned.

Whatever the merits of this inspiration, it is doubtful whether European philosophers spoke for the whole world on this issue. The history of the world provides us with several complex systems of multicultural and multidimensional social, political and religious organizations with many compelling and competing antiquated texts and oral creation narratives on the original state of nature. Arguably some of these texts predate the Bible. Certainly, these competing narratives are not without merit and as such the common heritage concept cannot assert any commanding or monopolistic influence over the original state or the resulting property regime and its application to biodiversity resources located outside the territorial and cultural milieu of the speculators.

Second, assuming for the purposes of argument the validity of the common heritage concept, it must be explained why its scope and applicability is limited to certain resources. If all resources were meant to serve God's purposes, the powerfully universal and transcendent values captured in the common heritage concept would logically compel its application to all resources of the world. It should apply with equal force to all physical, natural and intellectual resources of the world in both developed and developing countries. It seems seriously

contradictory to the claimed God's purposes to exclude from the commons inventions some of which are essential to human existence particularly that these resources are part of nature, inexhaustible, and can be simultaneously exploited without ever depleting them. This contradiction is independent of the fact that some of the so-called inventions are derived from biodiversity resources and traditional knowledge of antiquity. The Strategic ploy behind the common heritage concept is easily transparent.

Third, we have argued that the organizing scheme of the modern sovereign state is anchored on territorial sovereignty and territorial integrity. The United Nations Charter adopted and enshrined territorial sovereignty as an essential organizing scheme for the maintenance of international peace and security. To give more concrete content to the preservation of international peace and security, the United Nations General Assembly adopted Resolution 1803 XVII in 1962 protecting the right of states to exercise *permanent* sovereignty over their natural resources. Given the history of aggressive use of force by powerful states, sometimes cloaked in more acceptable legitimate terminology, to gain access to the resources of weaker states, we have argued that Resolution 1803 XVII rises to the level of *jus cogens* under international law. Protecting the permanent sovereignty of states over their natural resources under the *jus cogens* norm would advance the normative objectives of *jus cogens* and the foster the goals of the United Nations Charter of maintaining international peace and security. Biodiversity resources unambiguously constitute part of the resources of the states within which they are found. The common heritage concept as applied to these resources threatens international peace and security since it denies resource holding states permanent sovereignty over their natural resources. Any claims to freedom of access under the common heritage concept by foreign interest, private or political institutions would invite resistance from the resource holding states. Such resistance may lead to armed conflict which would undermine the goals of international peace and security of the United Nations Charter. An international norm which preempts aggressive modes of acquisition of foreign resources with prohibitive *jus cogens* norm advances this universal goal of international peace and security of the U.N. Charter.

Fourth, the Convention employed some of the oldest techniques in international diplomatic negotiations to achieve apparent agreement. Relying on polysemy and hyponymy, the Contracting Parties achieved what is generally called a false compromise on the issue of the nature and scope of property rights in biodiversity resources. The Convention does not directly or unambiguously address the nature or essential legal characteristics of biodiversity resources. It nevertheless recognizes certain rights of resource holders by requiring informed consent and the sharing of benefits. Such a false compromise captured in the ambiguities of the provisions of the Convention on rights proves to be a major asset to biodiversity resources holding states and traditional or indigenous communities. The Convention does not, nor did it intend to alter national or customary conceptions of property rights in biodiversity resources in the resource holding states. Collective or communal property rights which seem to have deep historical roots in traditional societies have not been altered or negatively

affected *per se* by the Convention.

Fifth, to the extent that resource holding states continue to have *permanent* sovereignty over their biodiversity resources, the real issues they face concern post-convention erosion of their sovereignty through other international agreements of a multilateral, plurilateral or bilateral nature such as TRIPS. Of fundamental importance to the resource holding states is the determination of how their biodiversity resources might be exploited to address their fundamental needs including health and food security. As it stands, the exploitation of these resources under a concession model with the payment of royalties is directed *mostly* at addressing the lifestyle needs of affluent societies in developed countries. It would be unfortunate if developing countries are willing to remain trapped in this vibrant global economy as raw materials suppliers.

Finally, it appears that future research efforts on this topic must focus on empowering resource holding states and their traditional or communal societies to take charge of their destiny by redirecting the *internal* exploitation of their biodiversity resources and related research and development towards their fundamental needs. Future research might then focus on how the resource holding states in the South could collaborate and coordinate their efforts towards taking charge of their destiny in such areas as neglected tropical diseases, pharmaceutical products aimed at diseases of the poor and seed development to address food security. Such collaboration might use existing R&D business models currently employed successfully by global pharmaceutical, biotechnology and seed multinational enterprises in addressing the life style needs of affluent societies.