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Intellectual Property: From Biodiversity to Technical Standards

Introduction

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In response to my retirement from the law faculty at Washington University in July 2014—which entailed my stepping down as a longtime faculty advisor to the *Washington University Journal of Law and Policy*—the editors of the *Journal* graciously proposed organizing a volume of articles addressing any topic or series of topics that have been the subject of my own intellectual property scholarship. I suggested that the editors solicit articles from the authors who contributed chapters to my book, *Biodiversity and the Law: Intellectual Property, Biotechnology and Traditional Knowledge*,¹ and invited those chapter authors either to revisit the topic of their book chapter or, in the alternative, to address any other emerging intellectual property issue that they believed merited attention. Hence the origin of the four pieces in this Volume. Three of the chapter authors who responded to the *Journal*'s invitation opted

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1. BIODIVERSITY AND THE LAW: INTELLECTUAL PROPERTY, BIOTECHNOLOGY AND TRADITIONAL KNOWLEDGE (Charles R. McManis ed.) (2007). A selection of the chapters in this book were also published as a *Journal* symposium, *Biodiversity, Biotechnology, and the Protection of Traditional Knowledge*, 17 WASH. U. J.L. & POL'Y 1, 1–233 (2005). The current symposium, INTELLECTUAL PROPERTY: FROM BIODIVERSITY TO TECHNICAL STANDARDS, thus marks the ten-year anniversary of the earlier symposium volume.

to revisit the topic of their respective book chapters, while a fourth opted to write on the completely separate topic of intellectual property and technical standards—a topic which I myself recently addressed.² What these two disparate topics have in common is that they both focus on intellectual property issues that arise in a somewhat unconventional context.

The pieces in this Volume can thus be divided into two parts. The first part will focus on biodiversity and the law (specifically intellectual property law), while the second part will focus on intellectual property and technical standards.

BIODIVERSITY AND INTELLECTUAL PROPERTY LAW

The link between intellectual property law and legal responses to the problem of biodiversity loss is not self-evident. As one of the pieces in this Volume suggests,³ however, the link is to be found in the Convention on Biological Diversity (CBD),⁴ which was opened for signature at the “Earth Summit” in Rio de Janeiro in 1992 and entered into force in 1993.⁵ The fundamental change wrought by the CBD was its declaration that biological organisms were henceforth to be treated as sovereign possessions of the countries in which they occurred, and that any benefits (including any resulting intellectual property) derived from natural sources are to be shared in an equitable manner with the country where the species was first collected.⁶ The general purpose of the CBD was to reduce the unsustainable use and destruction of the world’s biodiversity by increasing its value in its natural state in those developing countries where most of the world’s biodiversity is to be found. The specific purpose, from a developing country perspective, at least, was to stop

2. See Charles R. McManis & Jorge L. Contreras, *Intellectual Property Landscape of Material Sustainability Standards*, 14 COLUMBIA SCI. & TECH. L. REV. 485 (2013) [hereinafter Material Sustainability Standards].

3. See James S. Miller, *The Realized Benefits from Bioprospecting in the Wake of the Convention on Biological Diversity*, 47 WASH. U. J.L. & POL’Y 51 (2015).

4. See generally United Nations Convention on Biological Diversity, June 5, 1993, S. TREATY DOC. NO. 103-20 (1993), available at <http://www.cbd.int/convention/text/> (last visited Jan. 7, 2015) [hereinafter CBD].

5. See Miller, *supra* note 3.

6. *Id.*

what developing countries decried as “biopiracy” (i.e., the unrestricted and uncompensated appropriation of the biological resources of developing countries by researchers from developed countries) and to promote the equitable sharing of benefits growing out of what is more commonly called “bioprospecting” (i.e., the systematic collection of biological resources for screening as potential candidates for the development of—often patented—medicinal drugs or other forms of biotechnology).⁷ The developing country stakeholders who might have a claim to the benefits growing out of bioprospecting can range from the host country itself, to participating academics from within that country, to members of traditional communities that have long made use of genetic resources found in their particular localities, thus providing researchers with potentially promising research starting points.⁸

A particularly salient link between biodiversity protection and intellectual property law can be found in Article 8(j) of the CBD, which in principle obligates member countries to: (1) respect, preserve, and maintain the innovations and practices of indigenous and local communities embodying traditional lifestyles relevant to the conservation and sustainable use of biological diversity; (2) promote their wider application with the approval and involvement of the holders of such knowledge, innovations, and practices; and (3) encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations, and practices.⁹ As I have argued elsewhere,¹⁰ this CBD obligation to provide legal protection

7. See generally Charles R. McManis, *Fitting Traditional Knowledge Protection and Biopiracy Claims into the Existing Intellectual Property and Unfair Competition Framework*, in INTELLECTUAL PROPERTY AND BIOLOGICAL RESOURCES (Burton Ong, ed.) (2004).

8. See Burton Ong, *Harnessing the Biological Bounty of Nature: Mapping the Wilderness of Legal, Socio-Cultural, Geo-Political and Environmental Issues*, Chapter 1, INTELLECTUAL PROPERTY AND BIOLOGICAL RESOURCES 5–6 (Burton Ong ed., 2004).

9. CBD, *supra* note 4, Art. 8(j).

10. See, e.g., Charles R. McManis, *supra* note 7, at 426–28 (arguing that existing intellectual property systems—inclusive of the closely related law of unfair competition—and associated contractual relations can provide far more comprehensive protection of traditional knowledge that critics generally acknowledge); Charles R. McManis, *Intellectual Property, Genetic Resources and Traditional Knowledge Protection: Thinking Globally, Acting Locally*, 11 CARDOZO J. INT’L & COMP. LAW 547, 551 (noting that at the 2001 WTO Ministerial the WTO specifically instructed the TRIPS Council to examine the relationship between the TRIPS Agreement and the CBD).

for the “traditional knowledge” of indigenous and local communities overlaps to a significant degree with the obligation imposed on members of the Agreement on Trade-related Aspects of Intellectual Property¹¹ (commonly referred to as the TRIPS Agreement) to provide legal protection for “undisclosed information”—an expansive term that is used in Article 39 of TRIPS and is arguably broad enough to include undisclosed traditional knowledge of indigenous and local communities as well as the more conventional form of “undisclosed information” (i.e., trade secrets) that is the particular focus of Article 39.¹² This link between the CBD and the TRIPS Agreement was deemed sufficiently important that the World Trade Organization, in its 2001 Doha Declaration, instructed the Council for TRIPS to explore the relationship between the TRIPS Agreement and the CBD, particularly with respect to the protection of traditional knowledge and folklore.¹³

Illustrating the interdisciplinary nature of the problem of biodiversity loss and responses to it, the three authors whose Articles compose this part of the current Volume represent all three divisions of academic inquiry—namely the physical sciences (botany), the social sciences (anthropology), and the humanities (law).¹⁴ Admittedly, none of these pieces explicitly address the link between biodiversity protection and intellectual property law—though James S. Miller’s Article alludes to that link when it identifies royalties as one of the benefits that might be expected to grow out of bioprospecting.¹⁵ Thus, one purpose of this Introduction is to make

11. Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, The Legal Texts: The Results of the Uruguay Round of Multilateral Trade Negotiations 320 (1999), 1869 U.N.T.S. 299, 33 I.L.M. 81 (1994) [hereinafter TRIPS Agreement].

12. *Id.* Art. 39.

13. World Trade Organization, Ministerial Declaration of 14 November 2001, WT/MIN(01)/DEC/1,41 I.L.M. 746 (2002) [hereinafter Doha Declaration].

14. While the empirical study of legal systems can be classified as a part of the social sciences, the law itself, consisting as it does of a formal embodiment of various societal norms, ranging from substantive norms to the procedural, evidentiary, and remedial norms for the law’s enforcement, is to that extent arguably more closely analogous to the humanities than to the social sciences.

15. See Miller, *supra* note 2 (discussing royalties as one of the financial benefits that can result from bioprospecting).

that link explicit by calling attention to the connections between the Convention on Biological Diversity and the TRIPS Agreement. The role of the three succeeding pieces, on the other hand, is to address the three questions posed in the original book for which the authors contributed chapters. Part I of that book addressed the question of biodiversity loss and what is to be done about it. Part II addressed the question whether biotechnology (stimulated in significant part by the patent system) is part of the solution to the first question or is part of the problem—or perhaps both. Part III focused specifically on traditional knowledge, the legal protection of which, as we have seen, is mandated by Article 8(j) of the CBD and arguably by Article 39 of the TRIPS Agreement as well.¹⁶

The first Essay, by James Ming Chen, a law professor at Michigan State University College of Law, is entitled “Αρκτούρος: Protecting Biodiversity Against the Effects of Climate Change Through the Endangered Species Act.”¹⁷ His Essay provides an update on one specific legal response to the question of what is to be done about the problem of biodiversity loss, thus supplementing his original chapter, entitled “Across the Apocalypse on Horseback: Biodiversity Loss and the Law,” which focused on a number of legal responses to the problem of biodiversity loss.¹⁸ Both the original chapter and the update serve as a reminder that the legal responses to the problem of biodiversity loss will come primarily from the field of environmental law, with intellectual property law at best playing a supporting role. In his Essay, Chen explains how the Endangered Species Act can be used to address biodiversity loss triggered by climate change,¹⁹ and concludes that, despite its shortcomings, the Act deserves credit for protecting the vast majority of protected species from ultimate extinction.²⁰

16. See *supra* notes 9–12.

17. James M. Chen, *Αρκτούρος: Protecting Biodiversity Against the Effects of Climate Change Through the Endangered Species Act*, 47 WASH. U. J.L. & POL’Y 11 (2015).

18. James M. Chen, *Across the Apocalypse on Horseback: Biodiversity Loss and the Law*, 17 WASH. U. J.L. & POL’Y 12 (2005).

19. Chen, *supra* note 17.

20. *Id.*

The second Article, by Glenn Davis Stone, Professor of Anthropology at Washington University, entitled “Biotechnology, Schismogenesis, and the Demise of Uncertainty,”²¹ supplements his original chapter, which was entitled “The Birth and Death of Traditional Knowledge: Paradoxical Effects of Biotechnology in India.”²² In the original chapter, Stone summarized the polarized debate over the impact of agricultural biotechnology on the developing world and offered a case study of the paradoxical sociological effects of introducing patented biotechnology (namely BT cotton) in India.²³ In his current Article, Stone explains the concept of “schismogenesis,” which describes the self-amplifying process of divergence: I take an extreme position in reaction to your extreme position, leading you to take a more extreme position, and so on. Building on his original chapter, describing the paradoxical (and thus uncertain) effects of the introduction of genetically modified cotton in India,²⁴ Stone notes that while uncertainty is central to science and policy-making, the wars over genetically modified organisms have created a rapacious demand for certainty, a demand that many interlocutors have eagerly filled by asserting and endorsing claims that confer certainty with regard to matters that Stone would argue are quite unsettled.²⁵

The third Article, by James S. Miller, Vice-President for Research at the Missouri Botanical Garden, is entitled “The Realized Benefits from Bioprospecting in the Wake of the Convention on Biological Diversity,”²⁶ In this Article, Miller explains how and why the interest in natural products development waxed and waned after the entry into force of the Convention on Biological Diversity.²⁷ Miller concedes that the flow of funds to developing countries that are home to the world richest biodiversity did not happen as expected, due to the

21. Glenn D. Stone, *Biotechnology, Schismogenesis, and the Demise of Uncertainty*, 47 WASH. U. J.L. & POL’Y 29 (2015).

22. Glenn D. Stone, *The Birth and Death of Traditional Knowledge: Paradoxical Effects of Biotechnology in India*, in BIODIVERSITY AND THE LAW: INTELLECTUAL PROPERTY, BIOTECHNOLOGY AND TRADITIONAL KNOWLEDGE (Charles R. MacManis ed., 2007).

23. *Id.*

24. *Id.*

25. Stone, *supra* note 21.

26. Miller, *supra* note 3.

27. *Id.*

paucity of drug candidates identified. He argues, however, that this outcome is explained in part by limitations of methodology that were used for evaluating crude extracts in bioassays.²⁸ Miller concludes that although the bioprospecting surge may not have yielded the much anticipated wealth of new drugs, these projects did result in numerous positive benefits, including advancements in biological and pharmacological knowledge, capacity building in developing countries, economic benefits to poor rural communities, influence on the ethics of international collaboration, and promotion of conservation of biological diversity.²⁹

In short, there is clearly a link between intellectual property law and combatting the problem of biodiversity loss, though intellectual property law has thus far played only a minor role, as bioprospecting ultimately generated fewer economic benefits than were anticipated. On the other hand, the surge in natural products research itself can be said to have been generated at least in part by the incentives that intellectual property law creates to invent and commercialize products, publish the results of such research, and undertake research with the assurance of a modicum of commercial privacy for undisclosed information, such as undisclosed research results and traditional knowledge.

INTELLECTUAL PROPERTY AND TECHNICAL STANDARDS

Another somewhat unconventional role for intellectual property law can be found in the interaction of intellectual property with technical standards. In his Article, “Technical Standards, Intellectual Property, and Competition—A Holistic View,”³⁰ Nuno Pires de Carvalho, Director of the Intellectual Property and Competition Division of the World Intellectual Property Organization, notes that commentators generally look at the interaction between intellectual property law and technical standards from the perspective of one particular field of intellectual property, especially patents. In

28. *Id.*

29. *Id.*

30. Nuno Pires de Carvalho, *Technical Standards, Intellectual Property, and Competition—A Holistic View*, 47 WASH. U. J.L. & POL’Y 61 (2015).

particular, commentators such as myself have focused primarily on the legal significance of asserting patents or copyrights in specific technical standards.³¹ By contrast, Carvalho argues that only a holistic approach, which identifies the irreconcilable objectives of technical standards and the entirety of intellectual property law will adequately explain the interaction.³² One particular virtue of Carvalho's holistic approach is that it treats the subject both internationally and comparatively, discussing not only the current state of the law in the United States but also in a number of other countries, the European Union, and the World Trade Organization.

In successive discussions of technical standards in relation to patents, copyrights, and trademarks, Carvalho demonstrates that the impact of standardization on intellectual property is to be characterized as the interference of regulation in free markets.³³ In his words, “[b]ecause intellectual property is about differentiation, and because free markets thrive on differentiation—and succumb to its absence—market regulation [i.e., standardization], in distorting free markets, naturally distorts intellectual property.” The main impact occurs when technical standards are mandatory, and thus acquire the nature of legally binding norms of conduct. Here, technical standards generally will be treated as an “essential facility,” and thus subject to compulsory licensing on fair, reasonable, and non-discriminatory (FRAND) terms.³⁴ As far as voluntary standards are concerned, the impact on intellectual property is much less considerable but can nevertheless occur in certain special circumstances that Carvalho identifies in his Article.³⁵ He also notes that while standardization reduces the freedom of markets by reducing product differentiation, it is a “confined” [i.e., justified]

31. *See, e.g.*, Material Sustainability Standards, *supra* note 2.

32. Carvalho, *supra* note 30.

33. *Id.*

34. *Id.*

35. *Id.* (noting that when a voluntary standards essential patent holder breaches the duty of good faith, in general the solution is the denial of injunctions against patent infringement and the compulsory licensing of FRAND terms).

reduction, as standards are often adopted for the sake of technical and economic efficiency, which has a positive effect, albeit downstream, on competition.³⁶

36. *Id.*