How to Turn Intellectual Property Knowledge and Experience into
Economic Power and Social Progress in Health and Agriculture:
The Secrets Developing Countries and Their Indigenous Peoples Need to Know
About Intellectual Property Practices in Developed Countries

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Introduction

Advances in information technology (IT) are rapidly transforming economic relations and technology transfer practices between more developed and less developed countries. Science-based technological innovation no longer takes place just in developed countries such as the U.S. Europe, and Japan.[1] Some formerly developing countries, such as Korea and Mexico, are catching up and joined the developed countries.[2] And some major developing countries, including Brazil, China, India, and South Africa, are now at the forefront in the development - and increasingly basic research - for innovations in health and agriculture[3]. The new term for such countries is "Innovative Developing Countries" or "IDCs".[4] Recognition of the importance of proper intellectual property

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[1] *see, e.g.,* Bill Hennessey, *Changing Traffic Patterns in Technospace*, 2005 Mich. St. L. Rev. 201 (2005) *available at* http://www.piercelaw.edu/assets/pdf/hennessey-michiganstatelawreview.pdf,

[2] The Republic of Korea and Mexico have now become members of the "club" of developed countries, the Organization for Economic Cooperation and Development [OECD] *see* www.oecd.org

[3] Richard T. Mahoney, *Building Product Innovation Capacity in Health*, www.iphandbook.org

[4] Brazil adopted its first Innovation Law in 2004 http://www.scidev.net/News/index.cfm?fuseaction=readnews&itemid=1809&language=1 *see also* R.A. Mashalkar, *Nation Building through Science and Technology,* 1 Innovation Strategy Today 16-37, C. Morel *et al*, *Health Innovation in Developing Countries to Address Diseases of the Poor,*1 Innovation Strategy Today 1-15 (2005) *available at* http://www.biodevelopments.org/innovation/ist1.pdf, and Peter Philips and Camille Ryan, *Building*

("IP") policy to economic development is rapidly increasing.[5] Knowledge about intellectual property creation and innovation management is also spreading to other developing countries, including the African countries represented at this meeting. This has important public policy implications for health and agriculture in Africa and in the entire world.[6]

In 2006, the World Health Organization's Commission on Intellectual Property Rights, Innovation, and Public Health issued a comprehensive report recommending, among other policy suggestions, that "developing countries should establish, implement or strengthen a national programme for health research including best practices for execution and management of research, with appropriate political support, and long-term funding." The report also recommended international efforts to "foster innovation in developing countries."[7] Thanks to modern information technology, the challenges are great but the opportunities are even greater, because capacity building is becoming easier. This was noted in an important recent article in the United States:

> Developing countries are facing a cycle of converging pressures: loss of arable land, depletion of natural resources, relentless industrialization, sprawling urbanization and rapid population growth. Providing for adequate health and nutrition will remain a challenge well into this century. Not surprisingly, to address these issues, developing countries are increasingly considering innovative

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Research Clusters: Exploring Public Policy Options for Supporting Regional Innovation http://www.iphandbook.org/handbook/chPDFs/ch03/ipHandbook-Ch%2003%2011%20Phillips-Ryan%20Clusters%20and%20Innovation.pdf

[5] William O. Hennessey, "Patent Protection and Its Role in Promoting Invention, Innovation, and Technological Development" (WIPO 1999) *available at* http://www.piercelaw.edu/williamhennessey/index.php

[6] *see* G. Pascal Zachary *'Browning' the technology of Africa* http://www.taipeitimes.com/News/editorials/archives/2007/12/27/2003394332 (December 12, 2007), William Hennessey, "Enacting International Laws and Implementing Public Policies To Protect The Rights of Indigenous Peoples to Knowledge and Biodiversity: Challenges and Opportunities, presented to the 1st Global Summit on HIV/AIDS, Traditional Medicine & Indigenous Knowledge in Accra, Republic of Ghana (March 2006) *and* William O. Hennessey, *What's New? Innovating the Teaching of Innovation Law*, 12 J. of I.P Rights (India 2007) pp. 118-128 *available at* http://www.piercelaw.edu/williamhennessey/index.php

[7] Public Health, Innovation, and Intellectual Property Rights, Report of the Commission (WHO 2006) http://www.who.int/topics/innovation/en/ 175, 182

> advances in biotechnology. Yet cutting-edge biotechnologies, predominantly owned by entities from industrialized nations, invariably engender IP constraints that complicate access. In developing countries, inadequate capacity in IP management inhibits international technology transfer, stymies domestic innovation and impedes access to lifesaving technologies.
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> By building and strengthening human and institutional capacity in IP management, developing countries can overcome many of these obstacles. Increased capacity will facilitate international development partnerships and encourage increased international technology transfer of proprietary health and agricultural biotechnologies. Equitable access to critical biotechnological innovations will improve basic health and nutrition, especially among the poor of developing countries, disproportionately represented by women and children. When women and children are chronically sick and hungry, there is no social justice.
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> Strengthened human and institutional IP capacity in developing countries will also drive domestic innovation, generating products and processes that address the specific needs of the country and region. The connection between IP innovation and technological progress is fundamental; IP management capability is interwoven into the innovation framework, providing incentives, protecting innovative endeavors, providing a shelter for development and fostering a platform for commercialization and market entry. Such protection is essential, as innovation requires intensive investment of intellectual and physical capital. If ignored, the innovative assets of developing countries will remain disorganized, haphazardly managed and chronically underutilized, to the detriment of the public good.[8]

Innovation in health and agriculture in developing countries brings more than improvements in health and agriculture to the peoples of those countries; it must also bring economic development, increased social justice, and poverty reduction. This can only happen if the conditions for cooperation between all parties are present and there is adequate understanding of how IP rights work in such a way that all parties benefit.

Article 8(j) of the U.N. Convention on Biological Diversity [CBD] of 1992 provides that:

> "[e]ach Contracting Party shall, as far as possible and as appropriate, respect, preserve and maintain knowledge, innovation and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation

[8] Jon R. Cavicchi and Stanley P. Kowalski, *IP in Developing Nations: Use the kitchen door,* National Law Journal (Dec. 10, 2007) *available at* http://www.law.com/jsp/nlj/PubArticleNLJ.jsp?id=1197021870805

> and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices".[9]
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> Article 16(4) of the CBD provides that:
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> [e]ach Contracting Party shall take legislative, administrative or policy measures, as appropriate, with the aim that the private sector facilitates access to, joint development and transfer of technology referred to in paragraph 1 above for the benefit of both governmental institutions and the private sector of developing countries…

And the recognition of the importance of such traditional knowledge (TK) in the development of the global trade regime was reaffirmed in Paragraph 19 of the November 2001 Doha Ministerial Declaration of the World Trade Organization [WTO] in connection with the Agreement on Trade-Related Aspects of Intellectual Property [TRIPS Agreement]:

> We instruct the Council for TRIPS, in pursuing its work programme…to examine *inter alia* the relationship between the TRIPS Agreement and the Convention on Biological Diversity, [and] the protection of traditional knowledge and folklore…

At a World Intellectual Property Organization [WIPO] Symposium in 2002, I proposed a conceptual framework for *national* recognition of rights to identification, information, participation, benefit sharing, conservation, and preservation for the holders of traditional knowledge and folklore that choose to exploit their rights.[10] I also asserted that effective systems of national recognition must be developed before an international agreement for minimum standards or harmonization of such standards in international agreements. That paper is online, and I do not intend to revisit that discussion here.

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[9] www.cbd.int

[10] William Hennessey, Toward a Conceptual Framework for Recognition of Rights for the Holders of Traditional Knowledge and Folklore, Proceedings of the WIPO Caribbean Symposium on Indigenous Knowledge and Folklore, Port of Spain, Trinidad & Tobago (February 2002) http://www.faculty.piercelaw.edu/hennessey/RghtsfrHldrs.pdf

Since that time, proposals have been made for an international regime on access and benefit sharing by the Secretariat of the CBD, pursuant to Paragraphs 44 (n) and 44(o) of the Plan of Implementation adopted by the World Summit on Sustainable Development held in Johannesburg in September 2002.[11] At the 1st UNAIDS Summit here in Accra in March, 2006, I discussed the problem of how the 19th and 20th Century international colonial system created the conditions of "unjust enrichment" and economic exploitation by the Western powers of the traditional knowledge of African peoples (including misappropriation of art and agricultural knowledge, and 'biopiracy'). That paper also explored the reasons why the peoples of Africa need to understand the principles of IP that underpin the advanced economies if they are to rectify the situation and claim their due in the 21st Century.[12] Given that history, naturally, there is pervasive distrust by the people most in need of IP knowledge in Africa of both the motives and the methods of multinational corporations in the developed countries.

We cannot change history. But what we can change is the distrust that arises because African peoples do not know enough about the principles of IP protection, management, and technology transfer practiced by such corporations. Without access to the kinds of practical information that such corporations have and use day-to-day, policy makers and knowledge workers in developing countries cannot make proper decisions about whom they can trust. We cannot trust others until we have trust and confidence in our own knowledge.

[11] UNEP/CBD/MYPOW/6 (7 January 2003) *see* http://www.biodiv.org/programmes/socioeco/benefit/regime.asp

[12] see note 3. That paper is also online at http://www.piercelaw.edu/williamhennessey/index.php

"Knowledge is power."[13] Fortunately, practical knowledge about how to create and manage IP for economic development in health and agriculture that had been, until recently, unavailable in most developing countries is now at hand. This paper is a brief report on "best practices" for IP management in health and agriculture set out in the recently published online *IP Management in Health and Agriculture: Handbook of Best Practices* (2007) published by two non-profit organizations, the Centre for Management of Intellectual Property in Health Research and Development (MIHR) in the U.K., and the Public Intellectual Property Resource for Agriculture (PIPRA) in the U.S.[14] The *Handbook* provides a wealth of suggestions on approaches that the public sector in particular can employ to achieve its goals within an evolving IP framework, considering national laws and policies, international IP policies, effective IP management, creative licensing practices that assure global access and affordability, institutional IP management capabilities, efficient patent offices, and transparent IP court systems.[15] A common thread of principles runs through the handbook, explaining how and why IP creation, management, and exploitation create economic wealth in developed countries, and how developing countries can also create wealth from the intellectual assets of their peoples. The following discussion addresses some of those principles.

I. Seeking IP Rights: How To Turn "Holders" of Knowledge into "Owners" of Property

[13] The quotation is attributed to the English scientist and philosopher, Sir Francis Bacon
[14] A. Krattiger *et al*, MIHR/PIPRA Intellectual Property Management in Health and Agriculture: a Handbook of Best Practices (2007) *available at* www.iphandbook.org
[15] *id.* p. 5

In a famous case in 1980, the U.S. Supreme Court made the observation that "anything under the sun that is made by" man is patentable.[16] (Laws of nature and natural phenomena cannot be protected by patents.) But even inventions which may be patentable do not become "IP" until the holder has been given grant of a property right through a patent issued by an official patent office. The property right in an invention must be created through the inventor's own efforts through the filing of a patent application and its examination by a patent office. Traditional knowledge in and of itself cannot be patented because it does not meet the requirement of novelty. But *technical improvements* in traditional knowledge may meet that requirement. This is sometimes called "New Traditional Knowledge" ("NTK").[17]

The procedures for preparing and filing patent applications are very complicated. In developed countries, lawyers undergo years of training in order to attain the competence to do this. Over the past 25 years, students from countries such as China, Taiwan, Korea, and more recently, India and Brazil, have been traveling to the United States, Europe, and Japan to learn these valuable skills. (Many lawyers and government officials from African countries including Ghana have come to study IP at my law school.) The knowledge they take back to their home countries is the foundation for knowledge holders in those countries to acquire patents in their own countries and around the world. More and more, companies in Brazil, China, India, and South Africa (among many other IDCs) are seeking patent protection in the developed countries.

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[16] Diamond v. Chakrabarty 447 U.S. 303 (1980) Article 27.1 of the TRIPS Agreement says " patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. "

[17] "Member States may control their genetic resources and acquire benefits that may later develop from the use of those resources, including inventions that may ultimately be patented because they are new, useful and involve an inventive step." *Communication of the United States to the Council for TRIPS* WTO IP/C/W/469 (13 March 2006)

Likewise, the "holder" of a trade secret needs to make efforts in order to become the "owner" of a trade secret under the law. Many medicinal practices are handed down from one generation of practitioner to the next, sometimes for many generations. But unless the holder of the secret practice makes efforts to ensure that others do not have access to it, that secret cannot be protected under the law.[18] The *Handbook of Best Practices* includes a set of analytical tools (a "toolbox") to help inventors understand how to create property out of inventions by seeking property rights.[19] It explains the requirements for patents, trademarks and related rights, copyrights, and trade secret protection. A "holder" of traditional knowledge may become an "owner" of an IP right *only* by taking the necessary steps to turn knowledge into property. But until such legal steps are taken, there is no basis for legal protection. Therefore, it is important that holders have access to competent legal advice from an IP specialist.[20]

II. IP, once created, must be exploited or it is worthless

The greatest American President, Abraham Lincoln, once said, "The patent system... added the fuel of interest to the fire of genius, in the discovery and production

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[18] Article 39.2 of the TRIPS Agreement says "Natural and legal persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices so long as such information:

* is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;

* has commercial value because it is secret; and

* has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.

[19] John Dodds and Anatole Krattiger, *The Statutory Toolbox: An Introduction* www.iphandbook.org Section 4. The *Handbook* has successive chapters on *How to Read a Biotech Patent, Trademark Primer, Plants, Plant Breeders' Rights, Gene Banks, Plant Variety Protection, IP and Information Management* among other topics. Each topic explains how a "holder" of knowledge can become an "owner" of intellectual property.

[20] For example, there are some non-profit organizations that serve as clearing houses for such advice. *see, e.g.,* www.piipa.org, www.pipra.org, www.mihr.org

of new and useful things."[21] In order for property to create wealth, it must be exploited. A farmer who owns a field but does not cultivate it gains nothing from his ownership. A company that builds a factory and does not use it has wasted its resources. Similarly, an "owner" of an IP right who does not exploit it gains nothing, and the world gains nothing from it either.[22] Exploitation of patent rights takes place through commercialization. Even if the holders of new traditional knowledge (NTK) are able to get patent protection for it and become owners, they may not have the skills or investment necessary to commercialize it. And so it may be necessary for them to commercialize their IP through arrangements with partners who have that capacity, through a licensing arrangement, in which the IP owner continues to control the IP asset, or by a complete transfer of the protected knowledge by an assignment of rights in exchange for compensation.

In many countries, researchers in universities and government institutes may also be able to turn their knowledge into property. But knowledge of how to protect, manage, and transfer IP may take many years - even decades - to attain. In 1996, the government of the Republic of South Africa issued a White Paper on Science and Technology, which proposed a "National System of innovation."[23] It issued its National R&D Strategy in 2002.[24] The South African Research & Innovation Management Association [SARIMA]

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[21] Abraham Lincoln, Second Lecture on Discoveries and Inventions (Feb. 11, 1859).Thomas Edison, the American inventor of the first successful electric light bulb, is quoted as saying "Good fortune is what happens when opportunity meets with planning." http://thinkexist.com/quotation/

[22] It is estimated that more than 90 percent of patents in the United States are never commercialized. Such patents do, however, become part of a large body of information which is eventually available to all after the patents expire.

[23] Departments of Arts, Culture, Science and Technology White Paper on Science and Technology www.dst.gov.za/legislation_policies/white_papers/science_technology_white_paper.pdf

[24] *South Africa's National Research and Development Strategy* (Department of Science and Technology 2002) www.dst.gov.za/loegislation_policies/strategic_reps/sa_nat_rd_strat.pdf

was established in 2002.[25] The Association collects information from universities and government research institutions about the activities of their Technology Transfer Offices ["TTOs"]. For many such institutions, the skills necessary for the protection and commercialization of knowledge will come slowly. A wise plan for development of the necessary skills is one that has patience, and does not require immediate returns.

III. Exploitation of IP for economic cannot take place without collaboration and trust between different parties

Technology transfer for economic development is not about a one-time transaction in a marketplace between a buyer and a seller of knowledge who will never meet again. Rather, it is about long-term relationships. In order for such long-term relations to develop, there must be mutual persistence, a willingness to cooperate, and a belief that the other party can be trusted. Technology transfer cannot take place in a climate of mutual hostility, suspicion, and name-calling. The parties that shout out loudly about "biopiracy" will never be able successfully to do business with the people they are calling "biopirates." Although there are clear cases of misappropriation of traditional knowledge from indigenous peoples to international markets, the number of such cases is low. Not every multinational company engaged in international biotechnology transfer is a "biopirate." As this meeting demonstrates, there are many people hard at work to bring the fruits of advancements in health and agriculture to the peoples of the developing countries who need them. That includes successful partnerships for the protection and commercialization of traditional knowledge for economic development. The once-secret knowledge that will bring power is now available to everyone at www.iphandbook.org.

[25] *see* Rosemary Wolfson, *Technology Transfer in South African Public Research Institutions,* www.iphandbook.org (2007) pp. 1651-1661