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**TRIPS II, Asia and the Mercantile Pharmaceutical War:
Implications for Innovation and Access**

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I. The TRIPS II Agenda

A powerful agenda for adoption of high levels of intellectual property protection, including related regulatory protection, is being advanced by the United States (and certain other developed countries) for developing countries, including developing and emerging market countries of Asia.¹ This agenda essentially reflects a TRIPS II exercise, but is largely being carried out in bilateral and regional negotiations, as well as in WTO accession negotiations.

The TRIPS II agenda, as the TRIPS I agenda, is explained by strong mercantile interests seeking to increase technology and expression rents. Circumstances since the launch of the GATT Uruguay Round in 1986 have changed substantially. In 1986, OECD industries were principally concerned with preventing weak developing country industries from substituting low-cost and often lower quality “copied” versions of products on local markets, but were not threatened with competition in their home markets or with respect to originator and high-quality products.²

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¹ See discussion and analysis of the phenomenon in Frederick M. Abbott, *The WTO Medicines Decision: World Pharmaceutical Trade and the Protection of Public Health*, 99 AM. J. INT’L L. 317, 348-58 (2005) and Frederick M. Abbott, *Toward a New Era of Objective Assessment in the Field of TRIPS and Variable Geometry for the Preservation of Multilateralism*, 8 J. INT’L ECON. L. 77, 88-98 (2005).; Peter Drahos, *Developing Countries and International Intellectual Property Standards-Setting*, 5 J. WORLD INTELL. PROP. 765 (2002); Carsten Fink & Patrick Reichenmiller, *Tightening TRIPS: The Intellectual Property Provisions of Recent US Free Trade Agreements* (World Bank Trade Note No. 20, 2005); WORLD BANK, GLOBAL ECONOMIC PROSPECTS 2005, ch. 5, at 98-110.

² Frederick M. Abbott, *Protecting First World Assets in the Third World: Intellectual Property Negotiations in the GATT Multilateral Framework*, 22 VAND. J. TRANSNAT’L L. 689 (1989); contributions by Silvia Ostry and J. Michael Finger in THE POLITICAL ECONOMY OF INTERNATIONAL TRADE LAW: ESSAYS IN HONOR OF ROBERT E. HUDEC (Daniel Kennedy and & Southwick, eds.) (Cambridge University Press 2002), and; SUSAN SELL, PRIVATE POWER, PUBLIC LAW, THE GLOBALIZATION OF INTELLECTUAL PROPERTY RIGHTS 121-62 (2003)(Cambridge).

The OECD industry groups driving the TRIPS II agenda are (1) the copyright-dependent audio-visual industry concerned with unauthorized duplication and distribution of video and audio content and (2) the pharmaceutical (and agricultural chemical) industry concerned with competition from generic producers and, in a forward-looking sense, emerging originator enterprises.

This paper focuses on the implications of the TRIPS II agenda for the pharmaceutical sector in the Asian region. Copyright protection has significant implications for “access to knowledge”, in addition to entertainment, and this paper acknowledges the public welfare implications of developments with respect to copyright.³ However, the applicable legal norms and public welfare analysis differ substantially as between the copyright-dependent and patent-dependent industry sectors, and this paper will focus on the latter.

II. The Problems of Innovation and Access

A tremendous amount of attention has been paid to the problem of “access to medicines” by nongovernmental organizations, in academic literature, the popular press, through industry response, and by governments, including in intergovernmental negotiations.⁴ A substantial part of this attention is devoted to problems of market failure.⁵ References to market failure are largely grounded in differential levels of income and wealth in developing and developed countries. Among other consequences, differential market demand characteristics cause the research-based pharmaceutical industry to invest principally in “diseases of the North”.⁶ Market structure and regulatory failures cause the Pharma industry to concentrate on developing variations of existing products, rather than seeking breakthrough innovations.⁷ Prices in lower income markets are not driven to marginal cost because of threat of export to a higher income markets.

A substantial part of policy literature argues that problems of inadequate demand-pull may be remedied by Northern-tier subsidy, in some cases coupled with differential pricing.⁸ Governments and charitable organizations, operating, *inter alia*, through public-private partnerships may generate innovation in neglected subject matter areas (i.e., diseases) characterized by insufficient demand-pull. Rules against “parallel importation”

³ See generally INTERNATIONAL PUBLIC GOODS AND TRANSFER OF TECHNOLOGY 393 (Keith Maskus & Jerome H. Reichman eds., 2005).

⁴ See references in Frederick M. Abbott, *Managing the Hydra: The Herculean Task of Ensuring Access to Essential Medicines*, in K. Maskus & J. Reichman, id.

⁵ See, e.g., SAVING LIVES, BUYING TIME: ECONOMICS OF MALARIA DRUGS IN AN AGE OF RESISTANCE (Kenneth J. Arrow, Claire B. Panosian, and Hellen Gelband, eds. 2004), National Academies Press.

⁶ Report of the Commission on Intellectual Property Rights, *Innovation and Public Health, Public Health Innovation and Intellectual Property Rights*, e.g., at 27-32, WHO 2006 and literature of Drugs for Neglected Diseases Initiative (DNDi), at <http://www.dndi.org/>.

⁷ See NIHCM Foundation, *Changing Patterns of Pharmaceutical Innovation* (2002) relied on by the U.S. Federal Trade Commission in its report on patents and competition (see U.S. FTC, *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy*, October 2003, at Chapter 3, Part II).

⁸ Arrow, et al., note 5, advocating subsidy and noting general trend to differential pricing, but observing particular problem with differential pricing for malaria treatment because of lack of developed country market (at 65); WHO Commission on IPRs, at, e.g., 128-31.

may be adopted to segregate markets and permit differential pricing (at least at the inter-regional level).⁹

Although market failure based on income and wealth differential plays a significant role in the present failure of the international community to provide affordable treatments, and to generate innovation for both developed and developing markets, this paper suggests that a significant problem also lies in the implementation of regulatory structures designed to preserve the existing global market dominance of OECD-based pharmaceutical suppliers. Problems of global pharmaceutical supply, including the promotion of innovation, should be understood in the context of a continuing struggle for dominance in which a relatively small number of highly capitalized OECD-based enterprises face increasingly strong competition from emerging market, and principally Asian, pharmaceutical enterprises. The extent to which competitive markets in pharmaceutical supply are able to develop may have important worldwide public welfare implications.

This paper does not suggest that there is a single solution to the pharmaceutical innovation and access problem. Income and wealth differentials will continue to play a significant role in determining levels of access to medicines and other public health necessities, and governmental support measures will be needed to assure at least minimum access. The pharmaceutical sector may be the most complicated of all industry sectors in terms of regulatory issues, ranging from research and development (including the conduct of clinical trials), manufacturing practices, distribution, prescription and liability.¹⁰ Bearing in mind the complexity of the issues, this paper argues that a failure to restrain the mercantilist agenda presently being implemented by the United States and other OECD countries will exacerbate existing problems and raise the economic and social cost of addressing the global problem.

III. Industry Structure

A. OECD

OECD-based companies are the preponderant developers and owners of pharmaceutical technology as reflected in patent holdings and originator regulatory approvals.¹¹ OECD-based companies dominate OECD internal markets in sales of

⁹ WHO Commission, *supra* note 6.

¹⁰ See, e.g., Abbott, *Managing the Hydra, supra*, and U.S. Federal Trade Commission, *Generic Drug Entry Prior to Patent Expiration: An FTC Study* (2002), <http://www.ftc.gov/os/2002/07/genericdrugstudy.pdf>.

¹¹ See, e.g., Gambardella, Alfonso, Orsenigo, Luigi & Pammoli, Fabio, *Global Competitiveness in Pharmaceuticals, A European Perspective*, Report prepared for the Directorate General Enterprise of the European Commission, Nov. 2000; Organization for Economic Cooperation and Development (OECD), Directorate for Financial, Fiscal and Enterprise Affairs, Committee on Competition Law and Policy, *Competition and Regulation Issues in the Pharmaceutical Industry*, DAFFE/CLP (2000)29, Feb. 6, 2001. A recent study by the OECD confirms that the overwhelming proportion of patent applications filed under the Patent Cooperation Treaty (PCT), and at the U.S. Patent and Trademark Office (PTO), European Patent Office (EPO) and Japan Patent Office were from developed country inventors. OECD, *Compendium of Patent Statistics 2004* (OECD 2004). In 2001, for example, the United States, European Union and Japan accounted for 86.3 percent (86.3%) of PCT applications, Korea, Canada, Switzerland and Australia

originator and, to a marginally lesser extent, generic products. Revenues from originator markets far outweigh revenues from generics markets.¹² Japan is counted among the major OECD pharmaceutical powers.¹³

OECD dominance in the pharmaceutical sector is very heavily subsidized by OECD governments. The US National Institutes of Health budget of \$28 billion per year is principally devoted to research on new therapies,¹⁴ the results of which are made available at virtually no cost to US Pharma companies. Moreover, the US federal government through the Medicare Part D program is massively underwriting the purchase of prescription drugs,¹⁵ which purchases inure largely to the benefit of US-based Pharma companies. The regulatory procedures under which new drugs are evaluated and approved are funded by the government.¹⁶ New programs for the development of vaccines are being funded by the US federal government.¹⁷ Other OECD governments subsidize pharmaceutical research and development to a lesser degree, and they support the Pharma industry through government drug reimbursement programs. The pharmaceutical sector is not a “private market economy”. It is heavily government-subsidized and regulated. To the extent that US and other OECD Pharma companies

accounted for nine percent (9%), China for 0.8%, Russian Federation 0.6% and rest of world 3.3%. *Id.*, at 20, Graph 7. Brazil and China have experienced substantial increases in the number of patents filed locally, but foreign applicants account for the bulk of the increases. *Id.*, at 35-36.

¹² *New products and markets fuel growth in 2005*, IMS Health.com, May 3, 2006.

“Despite a growth rate of 7%, down slightly from 2004 and the lowest since 1998, in 2005 total global pharmaceutical sales passed another threshold to reach \$602 billion*,”

...

In the 10 leading international markets combined, which account for 81% of world-wide sales, audited growth was just 5.7%, down from 7.2% in 2004. Emerging markets, however, such as China, South Korea, Brazil, Russia and Turkey all experienced double-digit growth – signalling the important shifts currently occurring in the global pharmaceutical market.

...

Generics will assume a more central role as patients bear a greater percentage of their healthcare costs and payers seek to restrict the growth of healthcare expenditures. Price moderation for branded drugs is likely as a result, increasing the importance of, for example, improved product launches and accelerating the growth of existing drugs. In 2005 sales of generics in the top eight markets (the US, Canada, France, Germany, Italy, Spain, UK and Japan) exceeded \$55 billion, and are expected to experience double-digit growth over the next five years.”

¹³ Japan-based enterprises have invested heavily in the Chinese economy, and it is probable that Japanese pharmaceutical companies are significantly involved in the Chinese market.

¹⁴ On NIH budget, see Abbott, *World Pharmaceutical Trade*, *supra* note 1, at note 58.

¹⁵ A February 9, 2005, letter from the Director of the Congressional Budget Office to the Chair of the House Committee on Ways and Means estimates the cost of Part D through 2015 as \$798 billion. Letter from Douglas Holtz-Eakin to William “Bill” M. Thomas, Feb. 9, 2005, at <http://www.cbo.gov/showdoc.cfm?index=6076&sequence=0>.

¹⁶ This does not apply to clinical trials which are typically funded by industry.

¹⁷ Aaron Smith, *Drugmakers get \$1 billion for bird flu vaccine, Feds give Glaxo, Novartis, MedImmune nearly \$700 million to help prepare for bird flu pandemic threat*, May 5, 2006, <http://money.cnn.com/2006/05/04/news/companies/novartis/index.htm>.

compete successfully on the global market, they do so on the basis of extensive government support.

B. India

Indian producers have acquired a significant share of developing country generics markets, but have historically lacked access to high value OECD consumer markets.¹⁸ Indian generic producers are increasingly penetrating OECD markets, focusing on high profit opportunities and shifting from concentration on developing country markets.¹⁹ They are seeking early market entry and 180-day exclusivity periods under the U.S. Hatch-Waxman Act system,²⁰ and they are purchasing stakes in OECD generics producers.²¹ Capitalization of the Indian pharmaceutical industry is rapidly growing and is reflected in stock market valuations.²² The Indian government is increasing attention to research and development funding.²³ India's primary focus remains on the generics market, but its enterprises and government are pursuing penetration of the global originator market. Development of the clinical trial subindustry, coupled with advances in R&D capacity, should make India a successful low-cost developer of new therapies.

The internal Indian regulatory structure is undergoing a transformation, largely based on implementation of TRIPS I requirements as the ten-year pharmaceutical transition period ended on December 31, 2004.²⁴ Amendments to the Patents Act included implementation of pharmaceutical product patent protection.²⁵ Nine thousand "mailbox"

¹⁸ For historical data, see Carsten Fink, *Patent Protection, Transnational Corporations, and Market Structure: A Simulation Study of the Indian Pharmaceutical Industry*, 1 J. OF INDUSTRY, COMP. & TRADE 101-21 (2001).

¹⁹ D G Shah, Secretary General, Indian Pharmaceutical Alliance, *Presentation to Technical Expert Group on Patents Law Issues*, New Delhi, October 18, 2005, PowerPoint in author's files.

²⁰ See, e.g., *Ranbaxy v. Apotex*, 350 F.3d 1235 (Fed. Cir. 2003), *Pfizer v. Dr. Reddy's*, 359 F.3d 1361 (Fed. Cir. 2004).

²¹ *Torrent to buy Pfizer's drug co in Germany*, THE HINDU BUSINESS LINE, June 28, 2005.

²² See, e.g., FICCI Report for National Manufacturing Competitiveness Council (NMCC), *Competitiveness of the Indian Pharmaceutical Industry in the New Product Patent Regime* (Mar. 2005). As of May 15, 2006, Dr. Reddy's Laboratories had a stock market capitalization of \$2.86 billion USD (wsj.com), Ranbaxy, approximately \$4.3 billion from Forbes 2000 data (see Lawrence Sáez, Asia Research Centre London School of Economics, *The emergence of Chinese and Indian multinationals: Current structure and future challenges*, Cambridge U. Asia Law & Business Assoc., 6th Annual Conference 2006 (PowerPoint).

²³ See presentation by Dr. Ramesh Mashelkar (Council of Scientific and Industrial Research, India), *Human Development and Pharmaceutical Development*, with special reference to TRIPS and India, National Institutes of Health, Globalization, Justice and Health Conf., Wash, D.C., Nov. 4-5, 2003.

²⁴ See Abbott, *World Pharmaceutical Trade*, *supra* note 1, at 20-23.

²⁵ On April 5, 2005, the Patents (Amendment) Act was published as law. Gaz. India Extraordinary pt. II, sec. 1 (2005), Patents (Amendment) Act, 2005, No. 15, New Delhi, 5 Apr. 2005 (An Act further to amend the Patents Act, 1970). In addition to introducing pharmaceutical product patent protection, the 2005 amendments (1) defined "inventive step" to require technical advance as compared to existing knowledge, or having economic significance; (2) expressly limited patentability of different forms of the same substance absent a showing of a significant difference in efficacy; (3) maintained a reasonably strong form of pre-grant opposition; (4) eliminated an unnecessary hurdle to the grant of compulsory licenses under the WTO August 30, 2003 Decision; (5) clarified exports permitted under the general compulsory licensing provision (e.g., expressly authorizing export of the nonpredominant part of production), as well as establishing certain presumptive time frames used in that provision; (6) improved a provision intended to

applications are under review. The Act retained the institution of pre-grant opposition proceedings. The WTO August 30, 2003 waiver for exports under compulsory license was implemented.²⁶ A *sui generis* form of prior user right was adopted to permit continued production of generic versions of mailbox-patented products, with payment of reasonable royalty. India is taking steps to rapidly expand the capacity of its patent office and to increase regulatory oversight of pharmaceutical producers. The government seeks to ameliorate the public welfare impact of introducing product patents by extending price controls for a prescribed list of drugs.²⁷

OECD-based Pharma companies have filed large number of mailbox patent applications in India.²⁸ Several are the subject of pre-grant opposition by access-oriented groups,²⁹ as well as by local generics producers.³⁰ Pharma companies have entered into R&D joint ventures with local Indian companies (*see, e.g.*, Glaxo-Ranbaxy arrangements).³¹ The extent to which Pharma companies will make “greenfield” investments or seek to acquire locally-owned producers is as yet unclear. Although purchase of local companies is a potential response to emerging competition, at present most local producers rely on a portfolio of generic products which include versions of drugs patented and/or marketed by different OECD enterprises.³² This makes the value of acquisitions problematic. The Pharma companies might attempt a strategy of purchasing and shutting down local production to foreclose competition (as employed in South Africa),³³ but the Indian government may not tolerate that course of action. Industry

permit parallel importation of patented products; and (7) allowed continued production in India of generic versions of medicines already on the market (if now patented by third parties under the mailbox system), with payment of a reasonable royalty - a form of “prior user right” - adapted to India’s unique situation. Text available at <http://patentoffice.nic.in/ipr/patent/patents.htm>. See also D G Shah, Secretary General, Indian Pharmaceutical Alliance, *The New Indian Patent Law and August 30 Decision: The Response of the Generic Industry*, presentation to WHO-CIPIH Commission on Intellectual Property Rights, Innovation and Public Health Geneva, Mar. 1, 2005 (PowerPoint), and Frederick M. Abbott, *India at the Crossroads: The Patents (Amendment) Bill 2003 and the Future of Public Health*, Proceedings of the India Federation of Chambers of Commerce and Industry (2004) and *Beginning of a New Policy Chapter*, FINANCIAL EXPRESS (INDIA), June 4, 2005.

²⁶ Regarding the WTO waiver, *see generally* Abbott, *WTO Medicines Decision*, *supra* note 1. The waiver provisions are only relevant when compulsory licenses are granted to export the predominant part of local production.

²⁷ Deepali Gupta, *At what price?*, EXPRESSPHARMA, April 16-30, 2006.

²⁸ Shah, *id.*

²⁹ See, e.g., Amelia Gentleman & Hari Kumar, *AIDS Groups in India Sue to Halt Patent for U.S. Drug*, NY TIMES, May 12, 2006.

³⁰ Cipla, for example, has filed a pre-grant opposition against the application by Gilead Sciences for a patent on tenofovir disoproxil fumarate, a second-line HIV-AIDS treatment. See Andrew Jack & Jo Johnson, *Indians march on parliament over Aids drug patent*, FIN. TIMES, May 10 2006, available at <http://www.ft.com/cms/s/694ee44a-e043-11da-9e82-0000779e2340.html>.

³¹ P.T. Jyothi Datta, Ranbaxy, *Glaxo join hands for R&D*, THE HINDU, Oct. 22, 2003. Gilead Sciences has granted royalty-free licenses on tenofovir to a number of Indian producers. The licenses include restrictions regarding export markets and other limitations. Gilead Press Release, *Gilead Announces Licensing Agreements with Three India-Based Companies for Manufacturing and Distribution of Generic Versions of Viread in the Developing World*, Aug. 14, 2006, available at http://www.gilead.com/wt/sec/pr_895671.

³² Author’s interview with DG Shah.

³³ See W. Kaplan, et al., *Ways to Improve Pharmaceutical Access in Developing and Transitional Countries? Setting a Research Agenda*, Boston University School of Public Health, April 23, 2003 (draft),

insiders consider that Indian producers will become a more compelling target of acquisition as they become more competitive in the originator market.

C. China

China possesses a variety of market advantages which suggest capacity to challenge OECD dominance in the pharmaceutical sector.³⁴ The government is promoting technology-related education. China has significant existing capacity in pharmaceutical production and is a major global supplier of pharmaceutical chemicals. Chinese cultural tradition evidences strong interest in medicinal treatments.³⁵ There is a large domestic population with increasing income and wealth. Chinese enterprises are increasing their sophistication in export marketing, including through branding.

One factor which currently separates the pharmaceutical sectors in China and India is transparency. Indian government regulation in the sector is relatively transparent, and the major locally-based producers are publicly traded companies. Dr. Reddy's Laboratories is listed on the New York Stock Exchange. There is less public information available about the regulatory structure and the industry in China, and foreign industry participants raise concerns about the difficulties of navigating the Chinese regulatory agencies and dealing with producers.³⁶ As China-based pharmaceutical producers seek to penetrate the originator market in the OECD, efforts will be needed to strengthen and make more transparent the internal regulatory structure to enhance the reliability of safety and efficacy data. There is a widely shared presumption that Chinese enterprises will emerge as formidable competitors in the global pharmaceutical market, including the originator market. The principal question is one of timing.

D. Others

at page 13, section 3.6.1, *citing* to LABAT AFRICA/CMCS, Pharmaceutical Manufacturing Sector Study 2001, pg. 34, reporting the closing of nine local production facilities (five subsidiaries of multinational companies and four local companies through acquisition and closure by multinationals).

³⁴ See FICCI, *supra* note 22, at 8-9 ("Threat from China"); *Pharmaceutical/Drug Industry in China*, US Dep't of Commerce Foreign Commercial Service Report, Aug. 2005.

IMS Health, *supra* note 12:

"China continues to out-perform
'While growth in Japan rebounded, the bright spot in Asia Pacific continues to be China', said Ray Hill, General Manager, IMS Global Consulting. 'The combination of a healthy economy and increasing diagnosis and treatment rates make China extremely attractive to multinational pharmaceutical companies. Many of them are expanding their presence in China now because they recognize the significant long-term business opportunities that market presents.' Pharmaceutical sales in China grew 20.4% to \$11.7 billion in 2005, representing the third consecutive year that it has achieved 20%+ growth. IMS estimates that China will be the world's seventh largest pharmaceutical market by 2009."

³⁵ The University of Hong Kong is presently engaged in a major research project to identify the active pharmaceutical ingredients of Chinese traditional medicines.

³⁶ Author's interviews with various industry experts.

China and India (along with Japan) are not alone in Asian pharmaceutical production capacity. Indonesia, Malaysia, the Philippines and Thailand and each have significant generic production capacity.³⁷ South Korea is a leading producer of bulk chemicals, and is investing substantially in biotechnology-related R&D and production.³⁸ Singapore is investing heavily in biotechnology research, including through the establishment of the Biopolis research complex.³⁹ Bangladesh has emerged as a significant pharmaceutical production center,⁴⁰ taking advantage of its status as a least developed country (which allows its producers unique flexibility to bypass potential patent and data protection restrictions otherwise applicable under the TRIPS Agreement).

However, China and India are the leading Asian emerging market producers of the active pharmaceutical ingredients (which are the high-value components of production), and their pharmaceutical industries most frequently identified as emerging competitors for a significant share of the global originator and generics markets.

Outside Asia, a number of developing countries maintain significant pharmaceutical manufacturing capacity, although at different stages of the supply chain. Israel (though perhaps better characterized as a developed country), Argentina, Brazil, Egypt and Russia are notable.

E. Market Concentration

The global “originator” pharmaceutical market is significantly concentrated. In 2005, the top 200 revenue-generating medicines worldwide accounted for sales of \$278 billion, and approximately \$245 billion of those sales involved 174 drugs offered by 20 companies.⁴¹ Data compiled by the OECD in 2000 showed a substantial concentration of global pharmaceutical sales among about 20 OECD-based companies. The OECD report observed, “There has been a significant wave of mergers in the pharmaceutical industry in the last few years.”⁴² The trend toward concentration has continued, with the top five pharmaceutical companies in 2003 holding 32.4% of total global market revenue share.⁴³

³⁷ See, e.g., Pacific Bridge Medical, *Asia’s Emerging Pharmaceutical Markets: A Look at China, Indonesia, Thailand, the Philippines, and Malaysia*, June 13, 1997.

³⁸ See, e.g., Sandra Fox, *Outsourcing Bio-Production to Asia*, ContractPharma.com, May 2006.

³⁹ See reports regarding research conducted at the Singapore Biopolis presented at Medecins Sans Frontieres, Neglected Diseases Group Meeting, Penang, Malaysia, Feb. 6-7, 2004, Dr. Alex Matter, Director, Novartis Institute for Tropical Diseases, Singapore, *Novartis Institute for Tropical Diseases*, and; Dr. Ee Chee Ren, Deputy Director, Genome Institute of Singapore and Principal Investigator, SARS Research Kit, *Harnessing Research Capacity for Public Health: A Diagnostic Test for SARS—What lessons for neglected diseases?* Note, however, that Singapore is classified as a high income country by the World Bank.

⁴⁰ See, e.g., *Pharma trade 2nd largest in Bangladesh*, Pharmabiz.com, Oct. 31, 2003.

⁴¹ See 12th Annual Report, Med Ad News 200, World’s Best-Selling Medicines, MED AD NEWS, June 2006, at 1, 20, 30-34.

⁴² OECD, *supra* note 11, at 27-28.

⁴³ See Barbara Rosenberg, *Market Concentration of the Transnational Pharmaceutical Industry and the Generic Industries: Trends on Mergers, acquisitions and Other Transactions*, in NEGOTIATING HEALTH (eds. P. Roffe, G. Tansey & D. Vivas-Eugui, 2006) (Earthscan), pp. 65-78, at 69.

These figures may understate the level of concentration in the global market because a small number of firms tend to dominate specific therapeutic classes.⁴⁴

The originator Pharma industry refreshes its new product pipeline by acquiring rights to promising innovations from smaller scale R&D-based enterprises and/or by acquiring those smaller scale enterprises. It is rare for a new entrant in the pharmaceutical sector to break into the ranks of the major originator-market actors, though it is not unheard of. In the past decade, two biotechnology-oriented new entrants, Amgen and Genentech, each achieved significant global market revenue share,⁴⁵ although Genentech has been acquired by the Swiss pharmaceutical giant, Roche.

IV. The TRIPS II Commitments

A. The Agreements

The TRIPS II agenda is principally manifest in bilateral and regional trade agreements negotiated by the United States, in force or signed with Jordan, Singapore, Chile, Australia, Morocco, Central America – DR, Bahrain, Oman, Peru, and Colombia, and under negotiation with Thailand, Southern Africa Customs Union (SACU), South Korea and others.⁴⁶ The proposed Free Trade Agreement of the Americas, negotiations on which are presently stalled, includes IP commitments.⁴⁷ The TRIPS II agenda is also carried out in WTO accession negotiations which are characterized by bilateral demands for concessions, and which in recent years have witnessed increasing demands for pharmaceutical related protections.⁴⁸ Negotiations ongoing between the United States and Russia are awaiting movement on IP issues.⁴⁹

⁴⁴ OECD, *supra* note 11, at 32-33; Rosenberg, *id.*, at 68-71.

⁴⁵ See Med Ad News, *supra* note 53, at 32, with \$11.8 billion (from 5 drugs) and \$3.7 billion (from 3 drugs), respectively.

⁴⁶ Texts available at <http://www.ustr.gov>.

⁴⁷ Texts available at <http://www.oas.org> (http://www.ftaa-alca.org/NGroups/WGroups_e.asp#IntellectualPropertyRights).

⁴⁸ See, e.g., WTO, Working Party on the Accession of Cambodia, Report of the Working Party on the Accession of Cambodia, WT/ACC/KHM/21, 15 Aug. 2003, at para. 205:

“[The representative of Cambodia] . . . further confirmed that during the transition period, that Cambodia would protect against unfair commercial use of undisclosed test or other data submitted in support of applications for marketing approval of pharmaceutical or of agricultural chemical products which utilize new chemical entities, by providing that no person other than the person who submitted such data may, without the permission of the latter person, rely on such data in support of an application for product approval for a period of at least five years from the date on which Cambodia granted marketing approval to the person that produced the data. Prior to the issuance of marketing approval of any pharmaceutical and agricultural chemical products, the relevant Ministries in Cambodia will determine the existence of a patent covering a product for which an application for marketing approval had been filed by a party other than the patentee, and will not approve such application for marketing approval until the date of the expiration of such patent. He added that Cambodia would seek out all available technical assistance to ensure that its capacity to fully enforce its TRIPS-consistent legal regime upon expiration of the transition periods is assured and that Cambodia would

Pharmaceutical-related commitments in bilateral and regional agreements extend well beyond TRIPS I requirements.⁵⁰ Patents must be granted for new uses of known substances (including second medical indication patents), the scope of biotechnology patenting is extended (e.g., by requiring plant and animal variety patenting), patents must be extended to compensate for delays based on regulatory review, and the TRIPS I patent regulatory review exception is reformulated in a more restrictive way. For some countries (i.e., Jordan, Singapore and Australia), the grounds for issuing compulsory licenses are restricted. Parallel importation of patented products is blocked. In a section of the IPRs chapter labeled “Certain Regulated Products”, marketing exclusivity and data protection is extended for a five-year period based not only on submission of regulatory data in the country where registration is undertaken, but extended to foreign submission of regulatory data, or reliance on foreign marketing approval. Covered products are expanded beyond “new chemical entities” to products not previously approved. Three-year extensions of marketing exclusivity are available for new clinical studies (including those undertaken abroad). Patents are linked to the health department medicines registration process, precluding approval of market entry effective prior to expiration of the patent term. In the US-Australia FTA, the US secured entry into Australia’s pharmaceutical price control system,⁵¹ and the US seeking similar entry into the South Korean price control system.

The international intellectual property system prior to the TRIPS II regime relied on private patent holders to enforce rights through civil litigation. While an imperfect system, patent holders were required to overcome challenges to the validity of their patents. A significant portion of litigated patents are, in OECD jurisdictions, determined to be invalid.⁵² The objective of the TRIPS II exercise is to provide grants of marketing exclusivity without the necessity of validating the patent, and or even maintaining a patent. This is accomplished through data protection rules and patent-regulatory review linkage. The combined effect is to shift the burden of enforcement from the private patent holder to government authorities. Because of the complexity of the rule systems, developing country governments are likely to rely on Pharma industry representations concerning the validity of claims.⁵³ Developing country government authorities are susceptible to inter-governmental pressure, further reinforcing the effect of market exclusivity rules.

make available all legislation in draft and promulgated form to WTO Members so that advice on TRIPS-consistency can be obtained.”

⁴⁹ See, e.g., Trade Committees to Oppose PNTR for Russia Without IPR, SPS Fixes, INSIDE US TRADE, May 12, 2006.

⁵⁰ See references in note 1, *supra*.

⁵¹ Ely Lilly has initiated the first challenge to a determination made under Australia’s PBS. Mark Metherell, *Drug subsidy appeal to test new review*, <http://www.smh.com.au/news/national/drug-subsidy-appeal-to-test-new-review/2006/05/07/1146940413807.html>, May 8, 2006.

⁵² Kimberly A. Moore, *Judges, Juries, and Patent Cases - An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 392 (2002).

⁵³ See Frederick M. Abbott, *Intellectual Property Provisions of Bilateral and Regional Trade Agreements in Light of U.S. Federal Law*, UNCTAD/ICTSD Issue Paper 12, Feb. 2006.

Government officials accepting the foregoing TRIPS II obligations demanded by the United States recognize they are increasing domestic public health-related costs and placing economic pressure on local pharmaceutical manufacturers.⁵⁴ Studies conducted in Australia and Latin America predict significant increases in pharmaceutical acquisition costs.⁵⁵ The obligations are accepted under strong political pressure as a cost offsetting whatever benefits may be perceived on the other side of the trade agreement ledger. The World Health Organization, the World Bank and other multilateral organizations caution against acceptance of the obligations.⁵⁶ Access-oriented NGOs protest against acceptance,⁵⁷ and public protests accompany approval of the agreements.

The United States pays a heavy political cost for the pharmaceutical-related obligations incorporated in the FTAs. Many developing and emerging market country governments consider themselves treated as subjects of an imperial power.

B. U.S. Policy Objectives

The policy objective of the United States in the pharmaceutical sector is apparently to increase US technology rents by foreclosing competition from emerging market pharmaceutical producers in the countries accepting obligations. This is accomplished by extending the range of products subject to patenting, extending patent duration and preventing local registration of generic versions of drugs previously registered in the United States or other OECD countries. Because of the TRIPS I most favored nation (MFN) treatment requirement, the “benefits” of the obligations must be extended to all WTO Members.⁵⁸ This puts European and Japanese pharmaceutical patent holders and originators on the same footing as those from the US. In this sense, Europe and Japan are free riding on the political costs expended by the United States.

C. Outcomes

Predicting the economic and social impact of reinforcing the protection afforded to market-dominant OECD-based Pharma is an inherently uncertain exercise because of the complexity of the relevant industry, the role that government regulation will play and the fact that new technologies may affect markets in ways that cannot be foreseen.

In the absence of other factors, it might reasonably be assumed that the effect of strengthening the control of the market-dominant OECD-based companies with respect to new high-value products would be to reinforce their global market-dominating position with respect to newer drugs. Moreover, because global market revenues from sales of newer drugs far exceed revenues from lower-priced generics, dominance in the originator

⁵⁴ The author of this paper has advised a number of governments involved in these negotiations, and has discussed these negotiations with numerous representatives of governments that were directly involved in the negotiations. He has also advised generic industry associations affected by the agreements.

⁵⁵ See Peter Drahos, Thomas Faunce, Martyn Goddard and David Henry, *The FTA and the PBS, A submission to the Senate Select Committee (Australia) on the US-Australia Free Trade Agreement*, May 2004, and; Miguel Ernesto Cortes Gamba, Alvaro Zerda Sarmiento, Devis Sarmiento & Gerardo Augusto De La Hoz Pinzon, *Modelo Prospectivo del Impacto de la Proteccion a la Propiedad Intelectual sobre el Acceso a Medicamentos en Colombia*, PAHO and IFARMA, Bogota, Nov. 2004.

⁵⁶ See WHO Commission Report, *supra* note 6, at paras. 420-21.

⁵⁷ See, e.g., MSF Briefing Note, *Access to Medicines at Risk Across the Globe: What to Watch Out for in Free Trade Agreements with the United States*, May 2004, available at <http://www.accessmed-msf.org>.

⁵⁸ See discussion in Abbott, *Toward a New Era*, *supra* note [], at 97-98..

sector is likely to reinforce OECD strength in the generics markets as financial fuel is provided for advertising and promotion, as well as for control over distribution channels.

In commenting on the draft of this paper presented at the June 2006 Stanford meeting, Professor John Barton observed that there are various submarkets of the global pharmaceutical market, and that the dynamic impact of rule changes may depend on the relevant market segment. Whether there is a situation of monopoly, oligopoly or competition in a submarket depends, among other things, on the distribution of patents and, inter alia, on the size of the relevant market. Professor Barton noted that the United States and Europe continue to be the most important consumer markets, in significant part because of high prices available (at least in the US market). He suggested that it is still possible for new firms to enter, at least at the submarket level. He referred, by way of illustration, to Amgen and Genentech, and observed that in the future Chinese or Indian firms may enter the ranks of the major global originator companies.

The author expressed and shares the view that Chinese and Indian pharmaceutical enterprises are emerging as potential competitors in the global originator market. Nonetheless, the barriers to market entry are high, and the TRIPS II agenda seeks to reinforce these barriers. The major global Pharma companies are very highly capitalized and aggressively pursue downstream distribution controls. Potential new market entries are routinely acquired before they become threats to market share. It is in recognition of these barriers to entry, that the author has proposed in the following section that Asian governments take steps to protect the independence of locally-based enterprises.

While reasonable minds may differ regarding the relative strength of barriers to entry in the global originator pharmaceutical market, the question remains whether the TRIPS II drive to reinforce the market position of OECD-based Pharma companies is a wise choice from the standpoint of global public health policy. The TRIPS II agenda appears to be premised on the assumption that the Pharma-dominated pharmaceutical supply system in the OECD and developing countries is properly functioning to supply the public with innovative safe and effective medicines at reasonable cost. An objective analysis of the present pharmaceutical supply system is unlikely to reach that conclusion.⁵⁹ The present Pharma-dominated supply system invests approximately 15% of revenues in R&D. A significant portion of that amount is invested in “lifestyle” drugs which generate modest improvements in public health. The R&D is heavily weighted toward incremental innovation – argued by knowledgeable observers as intended to maintain exclusive position in therapeutic areas rather than reflecting patient benefit. A large portion of Pharma expenditure is devoted to physician and direct-to-consumer marketing. Pharma admittedly under-invests in therapies for diseases predominantly afflicting poor populations. Is it wise global public health policy to impose this system worldwide?

⁵⁹ See Abbott, *World Pharmaceutical Trade*, *supra* note 1, at 324-25 and references therein, and *WTO TRIPS Agreement and Its Implications for Access to Medicines in Developing Countries*, Study Paper 2a, UK Commission on Intellectual Property Rights, Feb. 2004.

The customary answer is that the current Pharma-dominated system is the best among less than ideal alternatives. There is a global competition for accumulation of capital and the Pharma companies succeed in accumulating capital through the behaviors characterized above. While the extent and direction of Pharma research may be less than ideal, at least there is a significant amount of capital is directed to R&D. A system which does not strongly protect against technology diffusion will result in underinvestment in research and development.

In this author's view, the argument in favor of reinforcing a concentrated and poorly functioning innovation and supply system made out above is not persuasive. First, the reinforcement of a system which results in market-exclusionary pricing must take into account the consumer welfare loss that it imposes. There is ample evidence that Pharma pricing of medicines results in substantial hardship for poorer segments of the global population. Second, a system designed to rigorously defend against technology leakage assumes that such leakage is harmful to public welfare. It assumes that the world community would be less well off with a larger number of potentially smaller enterprises conducting research. Is there a demonstrable advantage to placing in the hands of a small number of enterprises the power to make decisions about which roads of scientific inquiry will be pursued and which drug candidates will be subject to clinical evaluation? There is no way to objectively determine differences in research output based on alternative models. Yet, is it not possible, or even probable, that wider technology diffusion will result in a greater level of global innovation even assuming some decline in the concentration of capital expenditure?

The TRIPS II agenda is largely directed to foreclosing the emergence of competition from Asian emerging market pharmaceutical enterprises. It is part of a mercantile battle for control of the global pharmaceutical market. While the emergence of competition may be inevitable, from a financial standpoint there is a material difference whether this emergence takes place over a 5, 10 or 20-year period. The policy question is whether it is preferable from a public welfare standpoint to encourage or discourage the emergence of Asian competition?

There is, moreover, a longer-term issue. We can assume that some Indian or Chinese pharmaceutical enterprise will eventually emerge as successful originators even in the face of market-exclusionary rules. We can further assume that Indian and Chinese business executives will behave as their OECD counterparts. That is, once a few Indian and/or Chinese enterprises enter the ranks of the 20 major Pharma companies they will likewise take advantage of rules designed to foreclose the emergence of competitors. Will it make a difference from a global public welfare standpoint if three or five of the top 20 are from Asian emerging market countries? Or, does the problem with the current system lie with the fact of the concentration itself?

V. Asia's Response

What should the response of Asian developing and emerging economy countries be to the demands for highly restrictive pharmaceutical supply market regulation? Should the capacity to establish domestic manufacturing, distribution and exports, and to regulate the consumer market, be exchanged for concessions offered by the United States in "free

trade area” negotiations? Should Asian developing countries entering the WTO concede regulatory flexibility in the pharmaceutical sector?

All trade negotiations are based on reciprocal concessions. South Korea, Thailand, the Philippines and other Asian economies need to weigh the potential economic gains from US market access concessions against economic losses from their own concessions. In the pharmaceutical sector, there are purely mercantile considerations, that is, will the losses from OECD dominance of the pharmaceutical supply market be offset by economic gains from exports in the automobile sector, the electronics sector and other relevant sectors? Analysis in the pharmaceutical sector fundamentally requires that public health consideration also be taken into account. Consumer demand for treatment cannot be shifted without significant public welfare cost. If the price of pharmaceutical supplies increases – and the United States is explicitly bargaining for this with South Korea – the government in principle may shift budget allocations to the public health sector to protect the interests of marginal consumers. If this is not done, then mercantile gains to Asian industry will have been accomplished at the direct expense of the less affluent parts of society.

If Asian governments strengthen the position of OECD originators in their markets, they should be prepared to adopt a more aggressive regulatory posture, including scrutiny of anticompetitive marketing arrangements, review of applications for patents and marketing exclusivity, challenging patent-regulatory review linkages, maintaining vigilance over pricing, and so forth.

A second prong of response should be to increase public funding of research with an explicit view toward strengthening local capacity. The US National Institutes of Health out-license innovation arising from NIH grants to US enterprises. If Asian developing and emerging market countries ultimately intend to compete in the originator market, they will need government support for R&D to be on the same playing field as the OECD originators.

Asian governments will need to be vigilant about protecting successful local companies from being acquired by OECD enterprises and incorporated into the existing oligopolist supply framework. This may involve review of investment proposals in the pharmaceutical sector for their impact on national objectives, or placing limits on the extent of foreign penetration in the pharmaceutical sector. While the idea of limiting foreign direct investment may be contrary to prevailing views concerning advantages of open capital flows, this must be viewed in the context of maintaining competitive local and global markets in a heavily subsidized and regulated sector. A pharmaceutical market “open” to foreign capital investment is, in fact, subject to the consequences of heavy foreign subsidization. It is not a “level playing field”.

Specific measures designed to encourage the market entry of generic products should be considered. For example, under the US Hatch-Waxman Act system, a 180-day period of market exclusivity is given to the first generic producer that successfully obtains approval to enter the market. Regulatory approval systems which encourage generic producers to undertake early market entry may provide the impetus necessary for formulating bioequivalent products and developing manufacturing processes, without engendering substantial long-term public welfare costs.

Asian governments should be prepared to make use of the flexibilities remaining to them under the TRIPS II regime, which includes exporting under compulsory license to address public health needs.

VI. Striking the Right Balance

The question raised by this paper is one of striking the proper balance. At the instigation of the Pharma companies the United States is engaged in a campaign to put in place rules which substantially increase barriers to entry in the pharmaceutical supply sector in developing and emerging market countries. The rules are designed to increase the flow of rent to OECD-based enterprises, with a consequence of raising prices to developing and emerging market consumers. It is in the self-interest of emerging Asian economies to approach these new rules with caution. Asian developing and emerging market countries have self-interests in developing strong domestic pharmaceutical industry capacity. Asian medicines consumers have an interest in affordable access. A cautious approach by Asian governments may yield global public welfare benefits.