

1. Emerging markets and the world patent order: The forces of change

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1 BACKGROUND

The world is always changing. The international system for the regulation of patents reflects these changes. The world of the 1870s and 1880s when the Paris Convention for the Protection of Industrial Property was negotiated, the world of the 1970s when developed and developing countries clashed over a New International Economic Order, the world of the late 1980s and early 1990s when the World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) was negotiated, and the world of 2013 each present a unique historical context. In this book, we do not intend to recap the historical development of the international patent system, including its relationship to the multilateral system for the regulation of trade. Instead we intend to focus on the world of today and the forces that are influencing the evolution of the international patent system. In particular, our focus is on the influence of the so-called “emerging market” economies.

Emerging economies such as Brazil, China and India had approached the international patent regime as importers of patented technology, worried about the cost and development implications of adopting the patent standards of developed countries. In many cases they joined key treaties of the patent regime comparatively late. For example, India joined both the Paris Convention and the Patent Cooperation Treaty (PCT) in 1998 and made full use of the transitional provisions available to it under the TRIPS Agreement. China joined the Paris Convention in 1984 and the PCT in 1994. Brazil was an early joiner of the patent regime, being one of the original signatories to the Paris Convention in 1883 and becoming a member of the PCT in 1978. That said, Brazil historically was a resister of pro-patent policies within the regime. Another important emerging economy, Russia (as the Soviet Union) developed in the twentieth century

an alternative regulatory model to the patent system in the form of the system of inventors' certificates.

Today these countries have large domestic markets. Based on GDP data China is the second largest economy in the world, with Brazil, Russia and India coming in at sixth, ninth and tenth respectively.¹ As the United Nations Conference on Trade and Development's (UNCTAD) annual world investment reports have documented, these emerging markets have become important sources of foreign direct investment (FDI) inflows and outflows. Together the BRICS – Brazil, Russia, India, China and South Africa – represented about 25% of world GDP in 2010.² Our interest in emerging markets and the BRICS in particular is not in their influence as market powers, but rather as regulatory leaders within the patent regime.

Regulatory leadership does not necessarily follow market power. Japan emerged as a dominant economic power in the 1980s and yet its influence on the evolution of global regulatory standards has been remarkably weak.³ More precisely, we are interested in seeing to what extent the BRICS are emerging as regulatory innovators within the patent regime. Even if they are not innovators in the sense of introducing new standards and models of patent regulation, they may nevertheless be adaptive managers of existing standards. The history of national patent systems is characterized by enormous diversity in terms of both administration and standards relating to things such as patentable subject matter, infringement and duration of protection. This diversity, at least on the face of it, suggests that states have engaged in a process of steering their systems to suit their industrial context. A third possibility is that some countries might be engaged in a process of simple modeling of standards set elsewhere. Simple modeling might be a prelude to adaptive management. A country might adopt a modeling strategy as a way of learning about the patent system before it begins the harder task of managing it for its own context. To some extent this may be the story of China. It is in a process of modeling the rules of the game because it sees itself as having the capacity to win significant benefits under those rules.

¹ See The World Bank, "Gross Domestic Product 2011", *World Development Indicators Database*, Washington, DC, The World Bank, 15 April 2013, <http://databank.worldbank.org/databank/download/GDP.pdf>.

² Adjusted for purchasing power parity (PPP). See BRICS, *The BRICS Report: A Study of Brazil, Russia, India, China, and South Africa with Special Focus on Synergies and Complementarities*, New Delhi, Oxford University Press, 2012, p. xiii.

³ John Braithwaite and Peter Drahos, *Global Business Regulation*, Cambridge, Cambridge University Press, 2000, p. 27.

As we will see, there are few examples of regulatory innovation within the patent systems of emerging markets. Brazil's separation of examination power for pharmaceutical patents between its patent office and its drug regulatory authority ANVISA is one example. Perhaps the creation of a disclosure obligation standard for genetic resources and related traditional knowledge by some countries (for example China and Brazil) might also count as innovative since such a standard has not been part of Western patent law systems. There are some clear examples of adaptive management such as India's careful drafting of exclusions from the meaning of invention in Section 3 of its patent law, as well as its continuing commitment to pre-grant opposition at a time when Europe and the USA have put the emphasis on post-grant opposition. The chapters in this book dealing with the Middle East and the Association of Southeast Asian Nations (ASEAN) also suggest that some simple modeling is going on or perhaps just muddling through as small countries without much to gain from the patent system copy patent standards as part of a compliance strategy aimed at obtaining trade deals.

1.1 The Emerging Markets

During the second half of the twentieth century, from an economic development and "political systemic" standpoint, countries were largely referred to in three broad categories. The "developed" or "industrialized" countries referred to most of Europe, Japan, the United States of America (USA), Australia, New Zealand and other members of the Organisation of Economic Co-operation and Development (OECD). A second group of countries were characterized by a "communist" political and economic ideology, and functioned as "command economies" under the direction of centralized authority. The "developing countries" referred to a large and disparate group in terms of GDP per capita and comparable indicators, but were neither sufficiently economically developed to be grouped with the "industrialized" countries nor were they command economies. Regions as disparate as most of Africa, East Asia, Latin America and the Middle East were comprised of developing countries.

In the late 1980s, the political economy within the command economy countries shifted, markedly and rapidly in the case of Russia, and at a more measured pace in China. By the year 2000, the "communist bloc" had largely vanished, with China remaining as the only major command economy, and even then of a much different economic character than during the second half of the twentieth century. The process of economic liberalization that took place in China resulted in a tremendous economic boom. By the early 2000s, it had become difficult to characterize China

as a typical “developing country” because of its high rate of GDP growth and its increasing influence in world markets, although based on per capita income and poverty levels China remains a developing country. Today China is seen by some as leading the creation of a distinctive model of authoritarian capitalism, one that will challenge the ascendancy of the neo-liberal model.⁴

Similar growth spurts took place in Brazil and India. The geographic size, natural resource endowment and political influence of Russia made it an increasingly attractive investment destination, despite a rather uncertain internal political environment. These four countries took on the acronym BRICs and have been labeled “emerging markets”. Later, they were termed the BRICS as South Africa came to be seen as part of the group. There is no “neat division” that places a country within the category of an “emerging market”. Indonesia is sometimes referred to as an emerging market. Surely the label can be applied elsewhere.

The emerging markets have changed the negotiating dynamic within the world trading system. The governments of these countries are not passive “takers” of initiatives proposed by the developed countries.⁵ Negotiating initiatives put forward by the developed countries at the WTO and World Intellectual Property Organization (WIPO) have been stalled for more than a decade as developing countries refused to adopt them, and insist on their own agendas. Largely as a consequence of this, the principal negotiating forums are bilateral and regional, where negotiating partners can be selected on the basis of likely outcomes and strategic value, and on the perceived vulnerability of the other side. The emerging markets have recognized the economic and political power inherent in access to large and growing consumer markets that are attractive to multinational business.

1.2 The International Patent System

The Paris Convention of 1883 established the basic ground rules of the international patent system, represented by the principles of national treatment and independence, and a right of priority intended to facilitate system-wide patent protection.⁶ The Paris Convention was not and is not

⁴ See, for example, William H. Thornton and Songok Han Thornton, *Toward a Geopolitics of Hope*, New Delhi, Sage Publications, 2012.

⁵ See Susan K. Sell, “The Geo-politics of the World Patent Order”, Chapter 3 in this book, and Peter Drahos, *The Global Governance of Knowledge: Patent Offices and Their Clients*, Cambridge, Cambridge University Press, 2010 (hereinafter “Drahos, *Global Governance*”).

⁶ See generally Frederick Abbott, Thomas Cottier and Francis Gurry,

a “harmonization” exercise in terms of substantive patent law. The development of the European Patent Convention of 1973 and establishment of the European Patent Office (EPO), and the very recent adoption by the EU of the EU Patent Regulation (and EU Patent) represent the highest level of multi-nation harmonization of patent law, but in the rather unique context of European integration. The WTO TRIPS Agreement negotiated from 1986–93 introduced substantive “approximation” of patent law on a broad multilateral basis, though without covering all of the issues relevant to patent law (such as oppositions, employee inventions, etc.), and leaving considerable flexibility to individual WTO member countries.⁷ Since the conclusion of the TRIPS negotiations, the developed countries, encouraged by the multinational business community, have pressed for closer harmonization of substantive international patent law, including with the proposal of a Substantive Patent Law Treaty (SPLT), seeking to limit the use of flexibilities in the TRIPS Agreement.

Although substantive harmonization at the multilateral level has not been realized, there have been a number of successful efforts toward creating a more harmonized international patent system. The Patent Cooperation Treaty (PCT) concluded in 1977 provides a mechanism for using the same patent application to file in numerous countries, and with an international examination report encourages similar assessment of patenting criteria.⁸ The Patent Law Treaty (PLT) limits national variations in the format of patent applications. As or more important than these “hard law” treaties have been increasing levels of cooperation between national patent offices, including technical training and support, which encourages examiners to follow the same criteria in assessing patent applications, largely regardless of the underlying basic patent law. While the potential obstacles to a single global patent are probably too great for serious diplomatic effort today, a longer-term drive toward that objective appears implicit in the trend of concluded agreements.

Another major push toward substantive harmonization takes place in the context of bilateral and regional negotiations on intellectual property agreements, free trade agreements and investment treaties.⁹ Here the

International Intellectual Property in an Integrated World Economy, New York, Aspen Publishers, 2011, pp. 59–107, 165–316.

⁷ See UNCTAD-ICTSD, *Resource Book on TRIPS and Development*, Cambridge, Cambridge University Press, 2005; Carlos M. Correa, *Trade Related Aspects of Intellectual Property Rights: A Commentary on the TRIPS Agreement*, Oxford, Oxford University Press, 2007.

⁸ See Drahos, *Global Governance*, p. 184.

⁹ See Susan K. Sell, “The Geo-politics of the World Patent Order”, Chapter

participating countries select their own negotiating partners or groups, bypassing the unwieldy multilateral Geneva environment. The Anti-Counterfeiting Trade Agreement (ACTA)¹⁰ and negotiations on the Trans-Pacific Partnership Agreement (TPP)¹¹ are extensions of this push. A difference that has recently characterized the emerging markets is their reluctance to participate in negotiations with the EU or USA when intellectual property subject matter would be on the agenda. Significantly, none of the BRICS are part of the TPP negotiations, which, if concluded, would lead to the largest trade bloc in the Asia-Pacific region. A chapter on intellectual property in the TPP containing TRIPS-plus standards is a core negotiating objective of the USA. India is an exception to the extent that it has negotiated with the EU, but intellectual property rights (IPR) issues have been a major obstacle to concluding an agreement. However, the EU and USA have successfully recruited a significant number of developing (and developed) countries in bilateral and regional agreements, which cover patent subject matter. The standard template USA bilateral free trade agreement (FTA) attempts to conform patent law in the counterpart country to the substantive standards in force in the USA, and arguably provides in some respects even stronger patent protection than under domestic USA law.¹² It also provides an investor to state dispute settlement mechanism that can be used to challenge patent legislation and local court decisions as violations of international law on takings of property.¹³

3 in this book; Mohammed El Said, “IP Policy and Regulation in the Arab World: Changes, Challenges and Opportunities”, Chapter 15 in this book; Jakkrit Kuanpoth, “Patents and the Emerging Markets of Asia: ASEAN and Thailand”, Chapter 14 in this book.

¹⁰ See Pedro Roffe, Xavier Seuba and Ricardo Melendez (eds.), *The Plurilateral Enforcement Agenda: The Genesis and Aftermath of ACTA*, Cambridge, Cambridge University Press, forthcoming 2013.

¹¹ See, for example, Office of the United States Trade Representative, “TPP Negotiations Shift into Higher Gear at 16th Round” [Press Release], 13 March 2013.

¹² See, for example, Frederick M. Abbott, “Intellectual Property Provisions of Bilateral and Regional Trade Agreements in Light of U.S. Federal Law”, *UNCTAD-ICTSD Project on IPRs and Sustainable Development*, Issue Paper No. 12, February 2006.

¹³ See, for example, *Eli Lilly and Company v. Government of Canada*: “On November 7, 2012, Eli Lilly and Company, a US-based corporation, served the Government of Canada with a Notice of Intent to Submit a Claim to Arbitration under NAFTA Chapter 11. Eli Lilly and Company is alleging that the invalidation of its Strattera pharmaceutical patent by Canada is inconsistent with Canada’s commitments under NAFTA.” “Cases Filed Against the Government of Canada: *Eli Lilly and Company v. Government of Canada*”,

The interest of the developed countries in promoting strong patent protection and harmonization reflects the mercantile interests of these countries, and their export and foreign direct investor communities. It is not surprising that countries with industries investing in new technologies seek to prevent third parties from relying on that technology to manufacture and market competing products. The “flipside” of this coin is that preventing others from using new technologies results in higher prices for consumers, and when public and social interests are at stake (e.g., in the field of public health) this can impose a significant cost on developing countries.¹⁴ Moreover, precluding others from using patented technologies may impede follow-on technological development in developing countries (the type of imitation practiced by the USA during Britain’s Industrial Revolution).

While agents of multinational business promote claims that implementing a strong patent regime will benefit developing (and even least developed) countries, leading economists have traditionally been wary of such claims.¹⁵ Economists who have studied the international patent system in depth have concluded that the value of a patent system for a country will depend on the level of economic development and other country- and region-specific factors, as well as the specific industry to which it is applied.¹⁶ As Haiyang Zhang points out in his chapter, the economic evidence for the developmental effects of the patent system is ambiguous at best. Countries at earlier stages of technological development are likely to benefit more from open access to patented technologies than they are from local development of internationally competitive new patent-dependent technologies. Only when the country has reached a sufficient

Foreign Affairs and International Trade Canada, Ottawa, ON, 2013, <http://www.international.gc.ca/trade-agreements-accords-commerciaux/topics-domaines/disp-diff/eli.aspx?lang=eng&view=d> (accessed 4 May 2013). Also, Notice of Intent to Submit a Claim to Arbitration Under NAFTA Chapter Eleven, Eli Lilly and Company, Disputing Investor, and The Government of Canada, Disputing Party, 7 November 2012.

¹⁴ See Andre Kudlinski, “Harmonizing the National Policies for Healthcare, Pharmaceutical Industry and Intellectual Property: The South African Experience”, Chapter 12 in this book, for discussion of impact of patents on pharmaceutical pricing in South Africa, and for discussion of role in technology transfer.

¹⁵ See Edith Tilton Penrose, *Economics of the International Patent System*, Baltimore, MD, Johns Hopkins Press, 1951, pp.101–07, 162–9, reprinted in Abbott, Cottier and Gurry, *International Intellectual Property in an Integrated World Economy*, pp.135–41.

¹⁶ See Keith E. Maskus, *Private Rights and Public Problems: The Global Economics of Intellectual Property in the 21st Century*, Washington, DC, United Book Press, 2012.

level of economic development may the benefits from encouraging local innovators by means of patents exceed the economic and social costs of paying patent rents to multinational providers of goods and services. Even then, developing (and developed) countries must be careful to avoid damaging social welfare interests by allowing prices of essential goods to rise beyond the means of the population. There is also the possibility that even if one becomes a temporary net winner from the patent system, the system itself may not be the best way to retain innovation primacy. A combination of market competition, the use of other intellectual property rights and public good spending may be a more powerful combination. Moreover, in many instances patents may block rather than promote innovation.¹⁷

Despite this perspective of economists, there is a new wave of mercantilist theory promoting the idea of a new world order in which patents have become the new “value asset” that stimulates economic progress.¹⁸ The more patents accumulated by a country and businesses, the more economically successful it will be. Using this premise, the adoption of a strong patent system is encouraged as a means of promoting rapid economic development. Conversely, the absence of strong patent protection will doom a country to falling behind in the development race.¹⁹

The idea of patents as ends in themselves in promoting economic progress seems to capture the imagination of journalists, including finan-

¹⁷ See, for example, Yochai Benkler, “A Political Economy of the Public Domain: Markets in Information Goods vs. the Marketplace of Ideas”, in Rochelle C. Dreyfuss, Diane L. Zimmerman, and Harry First (eds.), *Expanding the Boundaries of Intellectual Property: Innovation Policy for the Knowledge Society*, Oxford, Oxford University Press, 2001, p. 271; and Michele Boldrin and David K. Levine, “The Case Against Patents”, *Federal Reserve Bank of St. Louis Research Division*, Working Paper 2012–035A, September 2012, <http://research.stlouisfed.org/wp/2012/2012-035.pdf>.

¹⁸ See, for example, Global Intellectual Property Center, U.S. Chamber of Commerce, “Measuring Momentum: GIPC International IP Index”, first edn., Washington, DC, Global Intellectual Property Center, December 2012, including scoring of patent regimes based on strength of enforcement and absence of flexibilities, finding BRICS countries deficient.

¹⁹ For example, Global Intellectual Property Center, “Measuring Momentum”, p. 4, stating:

No country aspires to be on the bottom of the jobs-supply chain. Promoting IP means protecting domestic innovators and creators, attracting world leading research and development, and creating and sustaining high-quality future jobs. The GIPC Index provides a clear and objective roadmap for nations to compete in a global economy, which is fueled by innovation, investment, and jobs.

cial reporters.²⁰ The idea also seems to have gained currency in some emerging markets like China where personal and financial success is measured by the number of patents one secures.²¹

The idea that countries at earlier stages of economic development will benefit from imitating the technological accomplishments of more advanced economies is dismissed as the thinking of a bygone era,²² as FDI and technology transfer will presumably act as substitutes for internally generated local development. One is reminded here of the “thinking” that precedes every international financial crisis in which it is said that asset bubbles represent the dawn of a new era of constant growth in capitalism. There is little in the way of empirical evidence to support this new way of thinking. China is the country that most recently leap-frogged up the development curve and it did so with a weak patent system that encouraged local imitation of foreign-generated technology. Before China, Japan, as the chapter by Yoshiyuki Tamura in this volume makes clear, followed the same strategy. India was able to develop a vibrant pharmaceutical industry, often called “the pharmacy of the developing countries”, in the absence of pharmaceutical product patent protection. But, perhaps this is the point. It may be that the new thinking is precisely designed to discourage the emergence of another China to challenge the existing organization of multinational business.

2 THE SITUATION IN THE EMERGING MARKETS

We have assembled chapters from each of the countries of the BRICS acronym that describe and analyze the state of the patent regime in 2013. Our intention is to look at a “snapshot” of the situation today, and what it may tell us about how the future of the international patent order will unfold, and with what potential consequences. Should we be recommending some modification or alteration in the current path, however modest? Is there some lesson or lessons to be drawn by developing countries or by the industrialized world?

To preview our conclusion, a review of the situation in the BRICS countries suggests that the international patent system should remain in a

²⁰ See, for example, Clive Cookson, “Patent Proof of Rising Innovation”, *Financial Times*, 19 May 2011, <http://www.ft.com/intl/cms/s/0/bfd85ce6-8111-11e0-9360-00144feabdc0.html#axzz2OyCRzhlf> (accessed 4 May 2013).

²¹ See Wei Zhuang, “Evolution of the Patent System in China”, Chapter 9 in this book.

²² See Global Intellectual Property Center, “Measuring Momentum”.

“multispeed” mode for the foreseeable future, and that international patent law harmonization is not on the immediate horizon. Just as the United States and European Union placed considerable value on internal autonomy in the development and application of IP law, Brazil, China, India, Russia and South Africa also value autonomy. The potential wildcard is that multinational corporate interests may exert sufficiently strong lobbying pressure that government autonomy in these countries is challenged. But, these pressures and counter pressures have been at work since the mid-1800s, and it is hard to see why there would be a dramatic change now.

We have discerned a trend among emerging market countries in deployment of financial and other incentives to induce local production of technologically sophisticated products. There also has been some movement toward issuing or threatening compulsory patent licenses for excessive prices or failure to work locally, though so far activity of this type has been limited. Industrial policy intended to promote local production appears to challenge one of the tenets of the multinational business community’s patent lobbying premises, that is, that granting local patents will result in increased licensing opportunities, transfer of technology and local production. Emerging market policymakers seem to have concluded that passive reliance on patents to induce technology transfer and local production is not working, and that a more direct approach is required. It is interesting to view this trend in historical perspective. When Article 5A(2) of the Paris Convention was adopted by the Hague Conference in 1925, it expressly recognized that failure to work was an acceptable ground for granting compulsory licenses, providing only a minimum timeframe prior to which such a license might be issued.²³ “Import substitution” policy was quite popular in Latin America in the 1970s and 1980s, and while compulsory licensing was not actively used, other means of compelling technology transfer were tried. By the 1990s, import substitution policies did not seem to be working to induce economic development. The Washington Consensus was in part a reaction to import substitution policies, and the TRIPS Agreement arguably places at least a modest constraint on compulsory licensing for failure to work since Article 31 requires compliance with a number of conditions for the granting of a compulsory license.²⁴

²³ Article 5A of the Paris Convention has gone through a number of revisions. The main substantive addition regarding compulsory licensing occurred in 1925, but further clarifying elements were subsequently added to this Article. See G.H.C. Bodenhausen, *Guide to the Application of the Paris Convention for the Protection of Industrial Property as Revised at Stockholm in 1967*, Geneva, World Intellectual Property Organization, 1969, pp. 67–73.

²⁴ Article 27.1 of the TRIPS Agreement prohibits discrimination between

This trend toward local production is consistent with some recent work suggesting that technological development is a holistic process that incorporates elements of education and training, employment opportunity and infrastructure support, and that the social and economic welfare of a country will be limited if one or more of these components is lacking.²⁵ In this regard, the treatment of patents within a country will depend on how they fit within the framework for increasing local production opportunities. If the availability of patent protection can be successfully used to induce foreign investors to build facilities within a country, that will be one option. But, if the foreign investor cannot be induced to participate adequately in the local economy, compulsory licensing may be a way to accomplish a similar objective. China, for example, has been extraordinarily successful in attracting FDI. The fact that it has not issued compulsory licenses over the last two decades suggests it is attaining its goals for the transfer of technology in other ways. It is interesting that Edith Penrose was critical of using compulsory patent licensing to encourage local production on grounds that it would lead to a misallocation of global resources, i.e., a proliferation of less efficient producers. It may be that Penrose did not foresee how reliance on imports might limit the availability of employment and learning opportunities and ultimately harm the development process.

2.1 Brazil

Brazil adopted a patent statute in 1809, and was among the initial signatories and adherents to the Paris Convention in 1883/84.²⁶ By the 1930s the value of the patent system was being questioned, and by the 1960s Brazil had become a leading critic of the international patent system as it then

imported and locally produced products. However, as the WTO dispute settlement panel noted in *Canada – Patent Protection of Pharmaceutical Products*, Report of the Panel, WT/DS114/R, 17 March 2000 (the Canada-Generics case), “discrimination” is a pejorative concept reflecting distinction without justification (at para. 7.94). There are a substantial number of circumstances under which a requirement of local working of the patent may be justified.

²⁵ Frederick M. Abbott, *Trends in Local Production of Medicines and Related Technology Transfer*, Geneva, World Health Organization (WHO), December 2011, http://www.who.int/phi/publications/Trends_in_Local_Production_of_Medicines.pdf; Massachusetts Institute of Technology, *Production in the Innovation Economy*, Cambridge, MA, MIT Research Initiative, <http://mit.edu/pie/research/index.html> (accessed 4 May 2013).

²⁶ See Denis Borges Barbosa, “Patents and the Emerging Markets of Latin America – Brazil”, Chapter 8 in this book.

operated. This critical perspective characterized Brazil's participation in the TRIPS negotiations. For complex internal and external political reasons, when Brazil reformed its patent law in 1996 it included some significant TRIPS-plus elements (such as by foregoing the pharmaceutical patent transition and providing for pipeline patenting of drugs). Since the late 1990s, Brazil's internal and external patent policy has been influenced by competing internal and external demands. Brazil has been a leader in pursuing the development agenda at WIPO.

Brazil presently is focused on improving the capacity of its patent office (INPI) to process applications as it seeks to address a significant backlog. INPI is working cooperatively with other patent offices in Latin America to improve cooperation in the region. It is taking steps to improve the judicial mechanisms under which patents are enforced and challenged. As Brazil has acted to strengthen its domestic patent system, applications and grants continue to be dominated by foreign inventors. The reasons for the ongoing relative shortfall in patenting activity by local inventors are not so clear. It might be noted that Brazilian private sector enterprises traditionally have not invested heavily in R&D. While patenting by domestic inventors has not been increasing relative to countries such as China, nationals seemed to predominate in filings for plant variety protection (PVP).²⁷ Denis Borges Barbosa in his chapter points out that the successful use of the PVP system by Brazil has a lot to do with Embrapa, the agricultural agency established by the Brazilian government in 1973. Embrapa has been key to developing thousands of technologies and plant varieties that have seen Brazil go from being a food importer to a major food exporter.²⁸

The Brazilian government continues to maintain a significant social welfare focus that acts as a buffer to strong mercantile policies in the patent area. This can be seen, for example, in the involvement of ANVISA, Brazil's health regulatory authority, in pharmaceutical patent application assessment, an important example of regulatory innovation by one of the BRICS. Brazil has been one of the few countries to use compulsory licensing to address pharmaceutical pricing issues, in terms of both threatening and granting such licenses.²⁹ Brazil also maintains a

²⁷ However, it should be noted that Brazilian subsidiaries of foreign-based companies may be considered "domestic" in the data provided.

²⁸ On the importance of Embrapa in transforming Brazil's agricultural sector, see BRICS, *The BRICS Report*, pp. 106–08.

²⁹ See Frederick M. Abbott and Jerome H. Reichman, "The Doha Round's Public Health Legacy: Strategies for the Production and Diffusion of Patented Medicines Under the Amended TRIPS Provisions", *Journal of International Economic Law*, vol. 10, no. 4, 2007, pp. 949–52.

specific sectoral program that promotes local production of pharmaceutical products.³⁰

In December 2010, the government of Brazil adopted the so-called “Buy Brazil Act” that gives substantial preferences in government procurement to products produced in Brazil and that otherwise reflect investments in Brazil (including in research and development (R&D)).³¹ Brazil is not party to the WTO Government Procurement Agreement. Although this legislative initiative is not specifically linked to patents or compulsory licensing, it reflects a trend among emerging markets not to rely on stimulating domestic R&D and innovation merely by providing patent protection, but to take a more proactive role in channeling resources toward local production, with anticipated gains in local employment, integration with educational institutions, etc. Another example of where Brazil has been successful in stimulating local technological innovation without relying on the patent system has been its bio-fuel program. Launched in the

³⁰ See Frederick M. Abbott, “Comparative Study of Selected Government Policies for Promoting Transfer of Technology and Competitiveness in the Colombian Pharmaceutical Sector”, *United States Agency for International Development, Programa MIDAS*, 2007.

³¹ The European Commission Market Access Database describes the Act as follows:

In 19 July 2010, the Brazilian government amended Law No 8666 with a provisional measure (“Medida Provisória” MP 495) giving preference of up to 25% to Brazilian-owned firms under specific conditions to achieve economic growth, national technological innovation and employment. Both houses of the Brazilian Congress passed the so called “buy Brazil act” law 12.349/10 of 15 December 2010. The new rules discriminate competing foreign-owned firms as these “buy national” preferences are given to products: 1) made in Brazil; 2) made or provided by Brazilian corporations, and 3) made or provided by corporations that have invested in research and technology development in Brazil. The margin of preference depends on a market study with criteria such as job creation and income generation, effect on the collection of taxes and development and technological innovation made in Brazil. However, the government can disregard preferences if there is no local production or capacity to provide the services in Brazil.

...

The new law gives Brazil the possibility for specific strategies to support Brazilian production such as in the information and communication technology (ICT) sector. Federal agencies and parastatal structures have to give preferences to locally produced ICT products and services based on non transparent criteria.

European Commission, “Market Access Database”, http://madb.europa.eu/madb/barriers_details.htm?jsessionid=C2D50B91C2D44F06B8B0612153A45E9F?barrier_id=970031&version=3 (accessed 4 May 2013).

1970s, this import substitution program has benefited from government-supported research and subsidies.³²

Brazil appears to be moving gradually toward a more strongly protective patent regime, with particular interest shown by its domestic biotechnology industry. But, as noted above, offsetting internal social policy interests temper that movement.

As an emerging market actor, Brazil's most notable influence on the international patent system over the past several years has probably been its willingness to employ compulsory licensing to influence pharmaceutical pricing. In this regard, Brazil has stood as an example to developing countries considering the same course of action. The participation by ANVISA in the review of patent applications reflects Brazil's willingness to experiment with alternative methods of protecting the public interest. Brazil has also been active in promoting the development agenda at WIPO. It has also been an influential supporter of a disclosure obligation standard in patent law in fora such as the WTO. While the Brazilian patent office is investing to improve its capacity, and judicial capacity to assess patent claims is also improved, so far Brazil's policy perspective regarding patents is somewhat ambiguous. A "stronger" patent policy is pursued by the national patent office (INPI), while at multilateral fora Brazilian delegates argue for a more flexible patent policy.

2.2 China

China has embraced patenting as evidence of technological progress, but the correlation between increased patent applications and genuine innovation remains rather inconclusive.³³ In recent years, the volume of domestically-based applications to the China Patent Office has increased dramatically. However, the preponderance of these applications is for utility model and design patents, and not for "invention patents". About 15% of patents granted in China are for inventions, with utility models and designs accounting for the balance. In addition, the level of technical progress so far evidenced by the granted invention patents is argued to be rather limited, as reflected in a low rate of renewal. The percentage of Chinese-owned patents at the USPTO (United States Patent and Trademark Office) and EPO remains rather low in comparison with the main countries of origin.

Notwithstanding what may be a modest start, as China continues to

³² See BRICS, *The BRICS Report*, pp. 108–10.

³³ See Wei Zhuang, "Evolution of the Patent System in China", Chapter 9 in this book.

invest in R&D, there seems little doubt but that this will lead to an increase in meaningful technological accomplishments. China has been increasing its spending on R&D by about 20% per year since 1999 with the aim of reaching a total of 2.5% of its GDP by 2020.³⁴ But, we should be careful to distinguish the cart and the horse. Investing in innovation and patents are different things. China will become more internationally competitive in high technology fields because the government has set about to do that, and is devoting very substantial financial resources to this endeavor. But, can and will patent law get credit for the accomplishments? No doubt proponents of strong patent protection will make that claim, but the Chinese government does not seem to be relying on strengthening of the patent system to create a high technology environment. Of the major revisions to China's patent law of 1984, only one has occurred since China became a member of the WTO in 2001, the revision of 2008. The other revisions were to some degree influenced by China's need to satisfy key WTO members on intellectual property issues as part of its accession to the WTO.³⁵ As Wei Zhuang shows in her chapter, this 2008 revision represents a balanced approach to patent reform. Certainly the strengthening of compulsory licensing and the introduction of a disclosure obligation for genetic resources would give patent lobbies in the USA such as the Biotechnology Association some cause for concern.

There are persistent reports that Chinese enterprises are penetrating US and European industry computers and databases to "appropriate" technological information, including the latest technologies.³⁶ Although this approach involves new tools, it is a more sophisticated approach to reverse engineering and/or piggybacking on the R&D investments of other countries and their enterprises that has propelled countries over development hurdles for centuries. Negotiation of the WTO TRIPS Agreement was intended to curtail some of this imitation. Yet it would appear that China is not content to rely on the potential innovation-inducing properties of patents to develop indigenous technology in the "slow lane".

China has recently amended its patent law to facilitate use of "flexibilities", signaling government recognition that strong patent protection

³⁴ The Royal Society, *Knowledge, Networks and Nations: Global Scientific Collaboration in the 21st Century*, London, The Royal Society, 2011, p. 19.

³⁵ For an analysis, see Andrea Wechsler, "China's WTO Accession Revisited: Achievements and Challenges in Chinese Intellectual Property Law Reform", in Christoph Hermann and Jörg Philipp Terhechte (eds.), *European Yearbook of International Economic Law 2012*, vol. 3, Springer, 2012, pp. 125–58.

³⁶ See Richard A. Clarke and Robert K. Knake, *Cyber War*, New York, HarperCollins Publishers, 2010.

raises potential technological and social roadblocks. There are indications that the Chinese government is preparing to issue compulsory licenses on several medicines for the treatment of hepatitis B, tuberculosis and HIV/AIDS.³⁷ China is also increasing its focus on competition law, though this is in its early phases.

As home-grown Chinese enterprises become more export-oriented, patent applications in foreign markets are increasing. China may join the USA, EU and Japan as a strong mercantile patent promoter. This assumes that China follows the pattern familiar to the developed economies, and seeks to take advantage of a strong technological portfolio by earning patent rents. But, this is speculation. While China has been relatively quiet in multilateral discussions of patent policy (as compared, for example, with Brazil and India), whether this reflects a subtle movement into the developed camp or an interest in reserving a more nuanced approach is not clear. Time will tell.

Whatever role the patent system will play in China's future development strategy we should be clear that it is FDI, along with China's management of that FDI, that accounts for its current economic and technological success. China today is the second largest recipient of FDI flows and has been the largest developing country recipient for the last 18 years.³⁸ Supporters of the patent system might argue that China's adoption of the patent system has been responsible for this FDI inflow. We can begin to assess the plausibility of this claim by means of the following null hypothesis: the opening up of China's internal market of 1.3 billion people made no difference to FDI flows.

We have elsewhere noted a trend toward government policies encouraging local production. As China is a leading recipient of FDI inflows and has become a manufacturing base for a large part of global multinational business, it seems fair to posit that Chinese government policy has been directed toward encouraging local production as part of its overall development strategy.

2.3 India

India faces similar pressures to Brazil and China to compete globally in technological development, but is showing less of an inclination to pursue a strong patent approach. This appears mainly a result of domestic social

³⁷ Wei Zhuang, "Evolution of the Patent System in China", Chapter 9 in this book, note 93.

³⁸ BRICS, *The BRICS Report*, p. 128.

pressures, for example with respect to access to medicines. It may also reflect the democratic nature of the Indian governing system, and the relatively incremental approach to change. Although a few high profile pharmaceutical cases have dominated the IP news coming out of India, that probably is not a good reflection of the situation at the patent offices, which are issuing many patents. India is not yet experiencing strong growth in domestically owned patent applications, though it is highly competitive in certain technological fields such as computer software development (where barriers to entry are relatively low). Because of the heavy involvement of the public and the Parliament in patent law, it would appear that India is unlikely to opt for a globally harmonized approach, absent some very strong incentive.

The chapter by Rajeev Kher explores and reflects the complexity of the internal and external forces influencing patent law development in India.³⁹ On the one hand, India is one of the central emerging market economies and sees itself as a future technological leader. The government remains a substantial contributor to R&D efforts, reflecting its historical pattern. The private sector is changing, but individual enterprises are fairly unaccustomed to investing substantial parts of their revenues back into R&D. There remains a private R&D shortfall, and the way to encourage domestic R&D is not clear. One potential avenue is to assure relatively strong IP protection, and there is an influential part of the government encouraging that direction. On the other hand, India has a very large poor population that is dependent on social programs, which even so are not well-funded. The budget is always strained. Therefore, measures that encourage private R&D through the assessment of patent rents on the public and private sectors create difficulties, and need to be offset in one way or another. There is no evident “easy answer” to balancing the interests in private capital formation for R&D investment, and public needs in terms of access to new technologies. A balance must be struck, and internally India is constantly struggling to find the right balance. What does seem clear, however, is that India is not interested in having its course charted by Europe or the United States.

India also seems to have an important capacity for price innovation. In the context of patents the price performance and export success of its generic industry has attracted much attention, but price innovation is part of a deeper pattern in Indian industry. For example, Tata Chemicals have produced a water filter that can provide a family with safe drinking water for \$0.65 a month and in 2010 the government released a prototype of a

³⁹ Rajeev Kher, “India in the World Patent Order”, Chapter 10 in this book.

laptop costing \$35.00.⁴⁰ India's combination of cheap but highly trained scientific labor, and a huge population of poor people is an endogenous driver of the development of low-cost products. It also means that there is less need to follow a US-EU patent system that produces technologies most Indians cannot afford.

India also provides us with a rare example of regulatory innovation by a member of the BRICS that has had an effect on international patent administration. In response to European patent claims relating to the neem plant and US patent claims concerning turmeric the Indian government set up a taskforce in 2000 to track the extent of misappropriation of Indian traditional medicinal knowledge.⁴¹ India designed a traditional knowledge resource classification system that shares structural similarities with the International Patent Classification system. It is a proprietary database that the Indian government makes available to other patent offices on the condition that these offices use it only for patent searching and they only disclose so much as is essential as part of their reporting processes.⁴² As a result of all this India's traditional knowledge systems are much better integrated into the patent-searching systems used by the world's major patent offices.⁴³ Like Brazil and China, India has been a supporter of a disclosure obligation standard for genetic resources.

The year 2013 will be considered a significant one in terms of the way in which Indian patent law evolves over the medium term. The Supreme Court has rendered an important decision on a case involving interpretation of Section 3(d) of the Patent Act (that incorporates an assessment of enhanced efficacy for pharmaceutical inventions claiming a modification of a known compound),⁴⁴ and the Supreme Court is also likely to hear

⁴⁰ BRICS, *The BRICS Report*, p. 123.

⁴¹ A brief description of the history of the taskforce as well as the data produced by it can be found at the website of the Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy in a document entitled "Traditional Knowledge Digital Library" available at <http://indianmedicine.nic.in/showfile.asp?lid=316>.

⁴² A copy of the agreement allowing the European Patent Office access to the TKDL is available at <http://www.spicyip.com/docs/TKDL-EPO.pdf>.

⁴³ For a description of the cooperation between WIPO and India on the TKDL see WIPO, "WIPO and India Partner to Protect Traditional Knowledge from Misappropriation", 22 March 2011, http://www.wipo.int/pressroom/en/articles/2011/article_0008.html.

⁴⁴ *Novartis v. India*, Supreme Court of India, Civil Appeal Nos. 2706–2716 of 2013 (Arising Out of SLP(C) Nos. 20539–20549 of 2009), decided 1 April 2013. See Frederick M. Abbott, "The Judgment in *Novartis v. India*: What the Supreme Court of India Said", *Intellectual Property Watch* (Inside Views), 4 April 2013.

a challenge to the first compulsory license on a pharmaceutical product issued under the Patent Act.⁴⁵ In the *Novartis* case, the Supreme Court backed the Patent Controller in his rejection under Section 3(d) of a claimed drug modification for which enhanced therapeutic efficacy was not demonstrated. If the Indian courts likewise affirm the grant of the compulsory license, this should give the government confidence in charting its own path in the implementation of patent law standards.

India has in the first week of January 2013 announced the development of legislative proposals that would sharply restrict imports of information technology products; essentially demanding that multinational electronics companies produce information technology goods within India.⁴⁶ Although there is some question as to whether the Indian government intends to follow through and implement such import restrictions and local production demands, a legal emphasis on local production would constitute a break with or repudiation of “WTO orthodoxy” and might signal a new trend in emerging market approaches to existing imbalances in economic power. The underlying premise of the WTO legal system is nondiscrimination among imported and locally produced products, and first-best global economic development through comparative advantage/specialization. Local production requirements differentiate in favor of domestically produced goods, essentially mandating the creation of local employment opportunities.⁴⁷ Russia, as noted below, has adopted policies in the pharmaceutical sector directed toward requiring local production of medicines, suggesting the possible emergence of a pattern among emerging market countries.

2.4 Russia

Since the early 1990s and the quasi-opening up of the Russian economy to competitive market forces, the Russian patent system has transitioned from state awards of inventors’ certificates to implementation of

⁴⁵ *Bayer v. Union of India, Intellectual Property Appellate Board*, OA/35/2012/PT/MUM, 4 March 2013.

⁴⁶ Amol Sharma, “India: Tech Import Restrictions Are for Security”, *The Wall Street Journal*, 9 January 2013, <http://professional.wsj.com/article/SB10001424127887324081704578231262464225242.html?mg=reno64-wsj>.

⁴⁷ The United States has, in fact, initiated consultations with India alleging that certain programs requiring the use of domestically produced solar cells and solar modules are inconsistent with, inter alia, the Agreement on Trade-Related Investment Measures (TRIMS). *India – Certain Measures Relating to Solar Cells and Solar Modules*, Request for Consultations by the United States, GIU1023; GISCMD9611; GITRIMSID135; WTIDS45611, request dated 6 February 2013.

TRIPS-compatible legislation.⁴⁸ The system of inventors' certificates will disappear into history's alleyways, but we should also note that the Soviet Union at various stages in the second half of the twentieth century outperformed OECD countries in terms of economic growth and innovation.⁴⁹ Russia will now have to play the innovation game under the rules of the patent world order.

Russia's economic opening up post-dates China's for all practical purposes, and the influence of multinational corporations in the operation of the domestic patent system has probably yet to be felt. Business R&D in Russia is only 29% of total R&D spending.⁵⁰ The Russian patent office (Rospatent) faces challenges similar to those of other emerging market economies in terms of investment by the government and personnel, but because Russia has a substantial scientifically trained labor force, this should not present a long-term issue (any more than in the US or Europe). Patent application filings by local inventors are relatively low in comparison with other emerging market countries like China. In the course of accession to the WTO, based on a decision of the Russian Supreme Arbitration court in April 2012, Russia has eliminated discrimination between patent fees payable by domestic and foreign applicants.

Until recently, Russia did not have judicial capacity in place to decide patent infringement and validity cases, but in 2011 legislation was adopted to create the Arbitration Court for Intellectual Property Rights (referred to as the "Patent Court") which as of 2013 has jurisdiction over federal executive authorities, as well as deciding private patent cases.⁵¹ As this Patent Court is entirely new, it is premature to address its influence.

In the context of the WTO accession process, Russia was criticized by the EU, USA and others for failing to adequately protect IPRs. Most of such criticism was directed at the copyright sector and lack of protection for computer software and entertainment works. Russia was also faulted for failing to provide market exclusivity based on submission of regulatory data regarding pharmaceutical products. In the context of the accession negotiations, Russia has introduced regulatory data protection. It does not appear that Russia's patent system was a major factor in the enforcement discussions.

⁴⁸ See Tetyana Payosova, "Russian Trip to the TRIPS: Patent Protection and Public Health", Chapter 11 in this book.

⁴⁹ See Manuel Castells, *The Information Age: Economy, Society and Culture, Volume III: End of Millennium*, Oxford, Blackwell Publishers, 2000, pp. 5–67.

⁵⁰ The Royal Society, *Knowledge, Networks and Nations*, p. 32.

⁵¹ Daria Kim, "Russia Establishes Specialised Court for Intellectual Property Rights", *Intellectual Property Watch*, 1 March 2013.

Russia is increasingly attracting foreign direct investment, and in this context it is a near-certainty that greater attention will be focused on Russia's implementation of its patent system, including the role of its courts.

As with other emerging market economies, Russia faces the challenge of achieving a balance between promoting investment in R&D and economic growth, on one side, and caring for a large population that includes many individuals dependent on public sector assistance. This challenge is particularly evident in the area of public health and access to medicines. Russia has adopted price controls on an extensive list of essential medicines (approximately 500). Russia has introduced a comprehensive program for the development of its pharmaceutical industry known as "Pharma 2020". There is a strategic goal to increase domestic production of pharmaceuticals as well as exports. To promote local production, the government has established additional price allowances for procurement from local enterprises of a total of 567 drugs under its national drug reimbursement program.⁵² Russia is actively promoting the construction of pharmaceutical manufacturing plants in the country, and this has attracted substantial investments from Europe and Israel, and discussions are ongoing with Indian producers.

2.5 South Africa

Brazil, Russia, India and China constituted themselves as a formal group under the BRIC acronym in 2006. South Africa joined the BRICS in 2011 on the occasion of the group's third summit. South Africa is the only member of the group that is not a top ten economy. In addition, South Africa's economy remains strongly dependent on natural resource mining. While South Africa has a TRIPS-compatible patent law, its patent office has not conducted substantive examination of patent applications, leaving it to private parties to launch ex post grant challenges, of which there have been relatively few.

Notwithstanding the relatively low priority that patents have generally enjoyed in industrial development policy in South Africa, the country's patent system was the focus of a great deal of attention in the late 1990s and early 2000s. It was during this period that the USA and EU launched a challenge to the TRIPS-compatibility of provisions of the 1997 Medicines Act Amendments, a challenge that was pursued in the courts by

⁵² See Tetyana Payosova, "Russian Trip to the TRIPS: Patent Protection, Innovation Promotion and Public Health", Chapter 11 in this book.

multinational originator pharmaceutical companies. Ultimately, the challenge was withdrawn. But, the incident propelled developing countries to pursue the Doha Declaration on the TRIPS Agreement and Public Health at the WTO in order to prevent similar future attacks.

Notably, several originator pharmaceutical companies were found by South Africa's Competition Commission to have abused their dominant position by excessive pricing based on their patents, and this resulted in the negotiation of several "voluntary licenses" from the originator companies to local South African producers. This may have been the single most important invocation by a developing country of competition law in respect to patents.

There is an effort under way internally in South Africa to amend the Patent Act, including introducing substantive examination of patent applications.

South Africa is very actively pursuing local production of important medicines, including active pharmaceutical ingredients, to address large-scale ongoing demand for HIV/AIDS treatment.⁵³ The industrial policy program includes procurement preferences for domestically produced products. In addition, the South African Department of Trade and Industry is working with foreign direct investors to establish production facilities within the country. It is possible that compulsory licensing of patents will play some role in the development of the local production sector beyond that in place as a consequence of the Competition Commission action.

South Africa might be investing more in creating competition law regulatory capacity than the other BRICS. Its Competition Commission is increasing its enforcement capacity, particularly in the area of cartels.⁵⁴ This greater regulatory capacity may prove to be an important means for South Africa to control abuses of market competition by intellectual property owners. Andre Kudlinski in his chapter analyses the role of South Africa's Competition Commission in cases brought against GlaxoSmithKline and Boehringer-Ingelheim. Both involved patented antiretroviral medicines. Kudlinski's views concerning the technical merits of these cases can be debated. What cannot be debated is the importance of developing countries creating competition law capacity to deal with structural effects of a large number of patents. This kind of capacity is

⁵³ See Andre Kudlinski, "Harmonizing the National Policies for Healthcare, Pharmaceutical Industry and Intellectual Property: The South African Experience", Chapter 12 in this book.

⁵⁴ BRICS, *The BRICS Report*, p. 153.

especially important in a country such as South Africa where patents are not examined and can be obtained by means of application and registration. It will also be important if patent offices move to a system of automatically recognizing the examination results of a small number of key offices. The work of the Federal Trade Commission in the USA in policing abuses of patents by the pharmaceutical industry is an example of where investing in institutional capacity in the competition law field has a long-term payoff. For the moment patent policy is not central to South Africa's development plans. It is focusing on other levers such as tariffs. But what it has done on patents in the health sector suggests that it will not be buying wholesale into any upward harmonization initiatives on patents coming out of the USA and EU.

3 DEVELOPING COUNTRIES OUTSIDE THE EMERGING MARKETS

Outside of the BRICS, there appears to be considerable pressure on and within developing countries to view patenting as emblematic of technological development. Efforts are directed toward increasing patent office capacity, reducing the time needed for patent grants, etc. However, movement toward strengthened patent environments in these regions confronts competing social demands, budgetary and personnel constraints. The picture is mixed.

3.1 ASEAN and Thailand

The Association of Southeast Asian Nations (ASEAN) is comprised of 10 countries with significantly different levels of economic development, and different social welfare concerns. Singapore and Brunei are among the world's wealthiest countries, while Cambodia and Myanmar are among the poorest. Nonetheless, the ASEAN countries have worked together on patent and other IP issues, mainly on a consultative basis and involving cooperation among the various patent offices in terms of sharing information on examinations. The ASEAN countries have not engaged in efforts to approximate or harmonize patent law, and the very different levels of development and political dynamic within the countries suggests that this will not take place anytime soon. Nevertheless, ASEAN could provide a forum to defend against political pressures from countries outside the region seeking to transpose externally developed patent norms ahead of a regional approach.

Thailand has adopted a TRIPS-compatible patent law, but its patent

office confronts difficulties not uncommon to developing countries. There is a small number of patent examiners (17) expected to assess patent applications across the fields of technology. Because the pay scale for examiners is low, qualified technical personnel are very difficult to retain in competition with local industry.

Thailand issued three government use compulsory licenses in 2006–07 on antiretroviral (2) and anticoagulant (1) medicines in order to bring down prices, initially through importation.⁵⁵ When the licenses were issued, Thailand indicated that its medium-term objective was to produce the drugs locally. Its action was met by strong critical reaction, particularly from the European Commission, but also from the US government. Since Thailand was clearly within its legal rights under the TRIPS Agreement to grant the licenses, this incident showed that compulsory licensing continues to be highly controversial from a political standpoint. In 2008, Thailand issued four compulsory licenses on anticancer medicines.⁵⁶

3.2 The Arab Middle East

Like ASEAN, the Arab Middle East region is comprised of countries with substantially different levels of economic development, social welfare systems and political perspectives. Many countries of the region were colonies of European powers, and patent laws modeled on European patent laws were in place for a long time.

More recently, countries of the Arab Middle East have come under pressure from the United States and European Union to include patent law within the framework of bilateral investment agreements, and to essentially move toward patent law harmonization with those countries. The EU has recently concluded a “patent validation” agreement with Morocco that reintroduces the concept of the “confirmation patent” by which the patent office of the Arab country agrees to grant patents based on grants made by the EPO.⁵⁷

⁵⁵ See Abbott and Reichman, “The Doha Round’s Public Health Legacy”, pp. 949–57.

⁵⁶ The Ministry of Public Health and the National Health Security Office Thailand, “The 10 Burning Questions on the Government Use of Patents on the Four Anti-Cancer Drugs in Thailand”, February 2008.

⁵⁷ See European Patent Office [Press Release], “Euro-Moroccan Partnership to Benefit the Patent System”, 20 December 2010; “The EPO and Morocco Strengthen their Partnership on Patents”, 20 June 2013, <http://www.epo.org/news-issues/news/2013/20130620.html>.

However, despite the commitments under bilateral agreements and the TRIPS Agreement, the patent offices of many Arab Middle East countries face problems common to developing countries, including lack of budget resources and lack of technically qualified examiners. There are problems with transparency in terms of information on patents granted.

There are recent studies showing that prices of pharmaceuticals within countries like Jordan have increased as a consequence of commitments under bilateral agreements. However, at least part of this effect is based on commitments to grant market exclusivity rights based on registration, and not exclusively on newly granted patents. A more complete assessment of the effect of the patent provisions in bilateral agreements will take some time.

It is interesting to note that Dubai has launched a major biotechnology research-pharmaceutical manufacturing park.⁵⁸ Saudi Arabia is also investing heavily in attracting pharmaceutical manufacturing by offering tax and other incentives, and major multinational originator companies have announced plans to build manufacturing facilities in that country.⁵⁹

4 REACTION IN THE DEVELOPED COUNTRIES

In addition to considering the impact that emerging market implementation of patent law may have on the international patent system, it is also important to consider how the leading industrialized countries (e.g., the USA, EU and Japan) will react to stronger high-technology competition from home-grown emerging market companies. One clear response is pressure to conform both emerging market and other developing country market patent law to trilateral standards. As Drahos has pointed out, such pressure takes place not only at the level of bilateral and regional trade agreements such as the Trans-Pacific Partnership, but also (and arguably more importantly) at the level of patent office cooperation and training.

⁵⁸ pharmaceutical-technology.com, “DuBiotech, United Arab Emirates”, London, 2012, www.pharmaceutical-technology.com/projects/dubiotech/ (accessed 4 May 2013).

⁵⁹ See Sara Gambrill, “Saudi Arabia Emerges as Pharma Manufacturing Hot Spot”, *Life Science Leader*, 2012, <http://www.lifescienceleader.com/magazine/current-issue-3/item/3916-saudi-arabia-emerges-as-pharma-manufacturing-hot-spot>, (accessed 4 May 2013); Elizabeth Broomhall, “Pharmaceutical Firm to Build Plant at KAEC”, *ConstructionWeekOnline.com*, 30 June 2010, <http://www.constructionweekonline.com/article-8784-pharmaceutical-firm-to-build-plant-at-kaec/> (accessed 4 May 2013).

In this regard, there is pressure to conform domestic patent law in accordance with the mercantile interests of the major capital exporting countries.

A second level of reaction takes place in the internal markets of the trilateral capital-exporting countries. We see adoption of domestic laws and implementing actions directed toward limiting penetration of imports from emerging markets. These limitations include increased focus on enforcement of patent and other IPRs at the border, anti-counterfeiting initiatives, and an emerging attention to cybersecurity in ways that could be understood to constitute trade barriers. There is also a growing web of private enforcement of intellectual property rights that draws in global payment services such as American Express, Discover, MasterCard, PayPal and Visa.⁶⁰ The loss of payment services has the potential to affect many businesses in developing country markets. The heightened attention to protection of domestic markets can be seen in the European Union, for example, in relation to new rules making it more difficult to import pharmaceutical products.⁶¹ The recent example of US blocking of acquisitions by China's Huawei in the telecommunications field shows the role of cybersecurity in economic competition. Most of these actions are not specifically "patent-directed", but are arguably a reaction to increased competition from high-technology products from the emerging markets. Both the USA and the EU already have in place legislation allowing IPRs enforcement at the border.⁶² This is not to suggest that the trilateral countries do not have legitimate enforcement concerns in the interest of protecting public health and safety and national security. The difficulty for everyone concerned regards separating the wheat from the chaff.

As emerging market companies increase their patenting in the home markets of the trilaterals, there will almost by definition follow enforcement actions in those markets based on those patents. We have recently witnessed patent-based conflict between Apple Computer and Samsung in the USA and European markets, and this could be the prelude to

⁶⁰ See "2012 U.S. Intellectual Property Enforcement Coordinator Joint Strategic Plan 2012", whitehouse.gov, June 2012, p.2, www.whitehouse.gov/sites/default/files/omb/IPEC/ipec_two-year_anniversary_report.pdf (accessed 4 May 2013).

⁶¹ See, for example, Directive 2011/62/EU of the European Parliament and of the Council of 8 June 2011 amending Directive 2001/83/EC on the Community code relating to medicinal products for human use, as regards the prevention of the entry into the legal supply chain of falsified medicinal products.

⁶² See Frederick M. Abbott, "The United States Response to Emerging Technological Powers", Chapter 18 in this book.

an enlarged arena for combat among well-capitalized patent owning enterprises that encompasses emerging market exporters. If current patenting patterns hold, Chinese enterprises will be significant factors in the USA and EU patent litigation fields. Geetruï Van Overwalle in her chapter explores this potential phenomenon in the context of the EU, and suggests that increased attention to patent quality may be necessary to prevent a flood of market impediments and counterproductive litigation.

5 CHANGING GLOBAL INTEREST PATTERNS

5.1 A Global Elite

In the early 1980s the chaebols that dominated South Korea's economy had very little interest in patents. If we fast forward to the patent litigation over smartphones between Apple and Samsung currently raging across at least nine jurisdictions, it is safe to say that interest in patents amongst South Korean multinationals has increased. During the patent litigation between Samsung and Apple it was reported that Samsung had about 28,000 granted US patents. If we assume an average cost range of between US\$10,000 and US\$20,000 to obtain these US patents, then Samsung paid out somewhere between \$280 million and \$560 million to obtain this patent portfolio. Of course, Samsung has also taken out patents in the other major markets such as Japan and Europe, as has Apple. Our point is that, as multinationals interested in keeping barriers to markets that they dominate high, both Samsung and Apple have a common interest in supporting the patent system. Once one masters the cost and complexity of the patent system, thereby becoming a member of an exclusive club, there is little reason to revolt against the system that supports one's status. If the BRICS spawn multinational networks of production and distribution of the kind represented by Apple and Samsung, then it seems a reasonable assumption that the convergence/harmonization pressures on the patent system will increase. Of course, while multinational elites may benefit from this convergence, it is still an open question as to whether states and the majority of their citizens will. Tax transfer games can easily deprive treasuries of their share of patent rents.⁶³ More fundamentally, can a globalized patent system deliver appropriate and affordable innovation to

⁶³ See Peter Drahos, "Rethinking the Role of the Patent Office from the Perspective of Responsive Regulation", Chapter 5 in this book.

the world's poor, who vastly outnumber the world's rich? As we observed earlier, price innovation in what Schumacher called "intermediate" technologies⁶⁴ is more likely to benefit the billions of poor people in the world.

The rise of the emerging market economies has lifted a significant part of their populations into a new middle class that is fueling a global consumption boom. At the same time, it has also created a new "super-elite" of the extraordinarily wealthy in each of the emerging market countries.⁶⁵ The super-elite controls a disproportionate share of the national economy and tends to have a significant influence on government. There is an existing class of extraordinarily wealthy individuals in the USA, Europe and Japan. For the USA, the concentration of wealth in the hands of a small percentage of the population has increased dramatically over the past decade.⁶⁶

It is interesting to consider whether the super-elite across continents share more in common with each other than with the country where they reside, and whether this should influence how we think about the development of government policies in the emerging markets. It is possible that interests in the preservation of wealth among a few individuals will have a disproportionate impact on government policies, including patent policies. Patents are wealth preservation mechanisms. Theoretically, this argues toward convergence of patent law.

5.2 Small and Medium Enterprises

Small- and medium-sized enterprises (SMEs) are frequently referred to in debates on improving the efficiency of patent applications and grants. Inefficient patent administration systems are costly to navigate. Streamlining will reduce expenses and make the international patent system more accessible to SMEs.

Drahos has provided data showing that patenting is concentrated among highly capitalized companies in a small number of industrial sec-

⁶⁴ See Ernst Friedrich Schumacher, *Small is Beautiful: Economics as if People Mattered*, New York, Harper and Row, 1973.

⁶⁵ See Chrystia Freeland, *Plutocrats: The Rise of the New Global Super-Rich and the Fall of Everyone Else*, New York, The Penguin Press, 2012; P. Sainath, "Gates, Buffet & the Art of Giving", *The Hindu*, 12 March 2011, <http://www.thehindu.com/todays-paper/tp-opinion/article1530591.ece>.

⁶⁶ See, for example, Joseph E. Stiglitz, *The Price of Inequality: How Today's Divided Society Endangers Our Future*, New York, W.W. Norton & Company, 2012; Warren E. Buffett, "Stop Coddling the Super-Rich", *The New York Times* [op. ed.], 14 August 2011.

tors.⁶⁷ Arguably these companies will benefit most from streamlining of the system by which patents are granted and maintained.

Moreover, while SMEs might be able to secure patents under a more closely integrated administrative system, enforcement of patents in disparate geographic locations will remain beyond the means of most SMEs.

5.3 The Individual Consumer

Where does the individual consumer fit within this overall framework? Who is looking out for these interests? Here we will make reference to the continuing importance of competition law and its enforcement as a partial antidote to further integration of the international patent system. This observation is not a new one, as Edith Penrose made a similar suggestion in the 1950s. We revert also to suggestions each of us have made in the past. More rigorous standards of patent application assessment is necessary;⁶⁸ regional approaches to patent examination may help with allocation of resources;⁶⁹ non-governmental organization and general public attention to IP matters remains essential from a political standpoint.⁷⁰

6 CONCLUDING OBSERVATIONS

The implementation of patent law in the emerging market countries is having an impact on the international patent system. First, it is apparent that the principal emerging market economies are not strictly adhering to the patent regimen of the USA, Europe and Japan, but are instead adapting patent law to their own unique environments. As we have seen this is more a story of adaptive management of existing standards than it is an innovation of new standards and models. Much of this adaptation of

⁶⁷ Drahos, *Global Governance*.

⁶⁸ See Carlos M. Correa (ed.), *A Guide to Pharmaceutical Patents*, vols. 1 and 2, Geneva, South Centre, 2008.

⁶⁹ See Frederick M. Abbott, Ryan Abbott, Wilbert Bannenberg, and Marianne Schürmann, "Regional Assessment of Patent and Related Issues and Access to Medicines: CARICOM Member States and the Dominican Republic", *Health Research for Action Final Report*, Vol. I – Main Report, 31 December 2009, pp. 57–69; Drahos, *Global Governance*.

⁷⁰ See Frederick M. Abbott, "Innovation and Technology Transfer to Address Climate Change: Lessons from the Global Debate on Intellectual Property and Public Health", International Centre for Trade and Sustainable Development, ICTSD Programme on IPRs and Sustainable Development, Issue Paper No. 24, 2009.

patent standards has been concentrated in the public health sector. Second, to the extent that these emerging economies want to maintain the operating space within which to chart their own paths, they are unlikely to sign on to a strong global patent harmonization exercise. Third, the emerging economies have placed some priority on addressing social welfare within the context of the patent regime, such as by using compulsory licensing to provide access to medicines.

Perhaps the most interesting trend among the emerging markets is the building up of local technology-dependent industries through use of preferential procurement policies and other industrial policy mechanisms. While the domestic and international patent system may play a role in the shape of industrial development, it seems that the emerging markets have concluded that a patent system “does not a high-growth economy make”. This does not truly represent a break from the industrial policy implemented by the USA, EU and Japan. The governments of each of these countries have used their vast resources to incentivize local R&D and production. For the USA, much of this has been done in the context of expenditures by the Department of Defense, and more recently by the Department of Energy. For Europe, Airbus Consortium R&D and local production was heavily supported by government subsidy. The Japanese government has invested heavily in its computer industries.

For countries that are pursuing an integrated industrial policy that focuses on the result, rather than the particular means used to accomplish the objective, patents are likely to remain a part of the industrial policy mix. This chapter does not suggest that emerging markets have discovered an alternative to patents. Rather, and not surprisingly, they appear to have concluded, despite simplistic arguments about patents and innovation, that they cannot simply rely on the patent system to build up a sound technological base and a competitive economy. Patents are a tool to be modified and used as the specific task requires. As the task changes, so may the terms of patenting.

On the issues of technology transfer and collaboration, as the chapter by Padmashree Gehl Sampath and Pedro Roffe shows, there are deepening networks of South-South cooperation, networks in which the BRICS appear to be playing an important leadership role. The more general point is that we should not be looking at the world through a simple core (the OECD)-periphery model (the South) when it comes to technology innovation and diffusion. A final point is that the BRICS today are a formal coalition with a wide-ranging interest in global governance arrangements. Some big ideas are beginning to come out of this coalition, such as the proposal for a multilateral bank to be run by the BRICS. No doubt this will have caused some smirks in the IMF's corridors. But with leaders like

Putin, the BRICS as a geopolitical group will not fear confrontation. The negotiation of TRIPS was an example in which a powerful alliance of a few (the USA, EU, with supporting roles from Japan and Canada) charted a course for the many. Two decades on from TRIPS the power of this few to dictate terms on intellectual property has clearly waned. Whatever the future of global patent governance arrangements, it will be partly decided by choices made within the BRICS.

