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Global Governance

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THE ROLE OF INTELLECTUAL PROPERTY RIGHTS IN GLOBAL ECONOMIC GOVERNANCE

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Introduction

Intellectual property rights (IPRs) have become a key element in national strategies of technologically advanced countries, as they perceive that their economic performance growingly depends on their capacity to exploit the outputs of their creative and innovative activities. In an increasingly globalized market, a key element in those countries' strategies is to ensure the *international* protection of IPRs. Less technologically advanced countries approach IPRs from a different perspective. They fear that IPRs will perpetuate the current technological superiority of developed countries and retard their own development. In fact, advanced countries have succeeded in substantially strengthening the international rules on IPRs, especially with the adoption of the TRIPS Agreement as one of the outcomes of the Uruguay Round of GATT.

This paper examines, first, the historical evolution and internationalization of intellectual property regimes since the end on the XIXth Century. Second, it address the main analytical issues raised by the IPRs regime. It elaborates on the nature of knowledge as a public good and the static and dynamic effects of introducing exclusionary rights, particularly for follow-on innovation and for countries with different levels of social and economic development. Third, the paper discusses the room left to governments in the context of the emerging international IPRs system for the adoption of industrial and technological policies suitable to their own conditions and capacities, particularly for the acquisition and absorption of foreign technologies. The final section considers how different international organizations interact in this field and the ongoing debates on the development dimension of IPRs.

1. Internationalization of intellectual property

Historically, IPRs emerged in response to local needs¹ and were conceived as an essentially territorial right, that is, a right limited to the jurisdiction where it was granted or otherwise recognized. IPRs regimes, hence, significantly varied among countries as governments tried to support the development of their industries or protect them from foreign competition. The search of regimes adapted to their national interests was eloquently expressed by the Swiss Federal Councillor Brenner during the Parliament's debates about the patent law: In our deliberations on this law, we would do well to bear in mind that it should be framed in such a way that it is adapted to the needs of our own industries and conditions in our own country. These considerations, rather than the demands and claims of foreign industries, must be our primary concern in shaping the law'². Switzerland, by way of example, did not introduce patent protection for pharmaceutical products till well advanced the XXth Century since it feared the superiority of German firms in those fields.

The internationalization of the IPRs system started at the end of the XIX and Century with the adoption of two major conventions (see below) and continued during the XXth Century with different intensity, The process was driven by a small group of technologically advanced countries that actively sought to induce the adoption of the same level of protection in other countries to prevent imitation of their creations and innovations.

The adoption of the TRIPS Agreement represented a major step in the internationalization of the IPRs system, as all WTO members are bound to comply with

¹ Historians have found precedents of intellectual property protection in the Middle Ages. Ancestors of the modern trade marks were already in use in the XIIth and XIIIth Centuries (see, e.g. C.D.G. Pickering (1998), *Trade Marks in Theory and Practice*, London: Hart Publishing, p. 37). The Republic of Venice adopted the first patent law in 1474. Patents later became rule-governed 'privileges' conferred at the discretion of monarchs until the modern patent laws substituted the concept of 'right' to an invention for that of a discretionary privilege (see, e.g., Vidaurreta, Guillermo E. *Historia del sistema argentino de patentes de invención (1580 – 1863). Propiedad intelectual en la Constitución Nacional*, Facultad de Derecho de la UBA- CEIDIE y Editorial La Ley S.A., Buenos Aires, 2006).

² Quoted in Richard Gerster (2001) *Patents and Development : Lessons Learnt from the Economic History of Switzerland*, Intellectual Property Rights Series #4, Third World Network, Penang, p. 10.

the minimum standards the Agreement sets forth in the main areas of IPRs protection³. Unlike the previous conventions on IPRs, the obligations under the TRIPS Agreement may be enforced through the dispute settlement system of the WTO. This was one of the main strategic reasons for developed countries to opt for the GATT forum for the negotiation of IPRs rules.

The TRIPS Agreement put an end to the significant leeway that countries had to design their national IPRs regimes under the international conventions established between the end of the XIX Century and the 1980's. When today's industrialized countries were in their process of development, they effectively enjoyed a lot of flexibility to shape their IPR systems.

For instance, between 1790 and 1836, as a net importer of technology, the USA restricted the issue of patents to its own citizens and residents. Even in 1836, patent fees for foreigners were fixed at ten times the rate for US citizens. Netherlands abolished patent protection in 1869, thereby allowing Philips to start its production of light bulbs without infringing Edison's patents⁴, while Switzerland's most important industries, chemicals and textiles, flourished in the 19th century in the absence of patent protection. In many European countries (France, Germany, Switzerland) that are now proponents of strong patent protection, pharmaceutical product patents were only recognized after the 1960s. Portugal, Spain and the Nordic countries waited until the 1990's. All this was possible because at the time there were no binding international rules imposing minimum standards of IP protection as is the case nowadays.

Under the Paris Convention for the Protection of Industrial Property contracting parties were permitted to exclude patent protection in certain sectors, such as pharmaceuticals, determine the duration of patent rights, limit the exclusive rights conferred and grant compulsory licenses for a variety of reasons, including lack of local working of a patent. In fact, the most successful cases in recent history of industrial and technological development (such as the cases of Japan and South Korea) took place in such a flexible

³ See, e.g., Correa, Carlos (2007), *Trade Related Aspects of Intellectual Property Rights. A commentary on the TRIPS Agreement*, Oxford Commentaries on the GATT/WTO Agreements, Oxford University Press, Oxford.

⁴ Ha-Joon Chang (2007), *Bad Samaritans : Rich Nations, Poor Policies and the Threat to the Developing World*, Random House Business Books, p. 132.

framework of IPRs protection. More recently, the robust development of the Indian pharmaceutical industry, which has become a major world supplier of cheap generic medicines and active ingredients, was also possible in the absence of pharmaceutical product patents⁵.

Developed countries also enjoyed a flexible copyright framework in their earlier stages of development. British authors, were legally copied in the USA during most of the nineteenth Century. Foreign authors did not receive copyright protection until 1891. Charles Dickens toured the USA in 1842 pleading for international copyright. He published in 1843 the 'American Notes', where he expressed his frustration with US law. Fifty thousand pirated copies were sold in only three days in the USA. His *A Christmas Carol* sold at that time for the equivalent of \$ 2,50 in London, and for six cents a copy in the USA⁶. The arguments articulated then against copyright protection of foreign works could well be applied in poor countries today: a) expanding literacy demanded cheap yet excellent books; b) there was no inherent property right in literature; c) granting copyright to foreigners would give them a monopoly at the expense of US reading public; d) US publishers and their employees needed the de facto advantage afforded by the absence of protection⁷.

The flexible IPRs regime applied during the XIXth and most of the XXth Centuries came to an end with the adoption of the TRIPS Agreement of the WTO. Hence, much of the flexibility that developed countries enjoyed to design their IPR system is not longer available to developing countries⁸. surprisingly, the Agreement has benefited those countries and industries with greater capacity to generate new knowledge and information. The TRIPS Agreement represented, in particular, a major victory for the pharmaceutical industry⁹, which worked hard to expand the patent protection of pharmaceutical products, excluded from patentability in most developing countries and

⁵ See, eg., S Chaudhuri (2005), *The WTO and India's pharmaceuticals industry. Patent protection, TRIPS and Developing countries*, Oxford University Press, New Delhi.

⁶ See S Vaidhyathan (2001), *Copyrights and copywrongs. The rise of intellectual property and how in threatens creativity*, New York University Press, New York, p. 50-51.

⁷ S Vaidhyathan (2001), *Copyrights and copywrongs. The rise of intellectual property and how in threatens creativity*, New York University Press, New York, p. 50-51.

⁸ See, e.g. CIPR, *Integrating intellectual property rights and development policy*, London, 2002.

⁹ Ed Pratt Jr, CEO Pfizer (1972-91) was reported to say: 'The current GATT victory, which established provisions for intellectual property, resulted in part from the hard-fought efforts of the US government and US businesses, including Pfizer, over the past three decades. We've been in it from the beginning, taking a leadership role'.

in some developing countries at the time the TRIPS negotiations were launched in the Uruguay Round¹⁰. An early study by McCalman concluded that the implementation of patents under the TRIPS Agreement

has the capacity to generate large transfers of income between countries, with the US being the major beneficiary...These transfers significantly alter the perceived distribution of benefits from the Uruguay Round, with the US benefits substantially enhanced, while those of developing countries and Canada considerably diminished. Furthermore, accounting for the increase in dead weight loss from higher standards of patent protection undermines the aggregate benefits of the Uruguay Round package, with the increase in dead weight loss amounting to as much as one fifth of the efficiency gains from trade liberalization¹¹.

McCalman's findings have been amply confirmed by more recent statistics. Although there is no conclusive evidence of an increase in the flows of production technologies to developing countries, there has been an impressive rise in global royalty payments. They grew from 61 billion dollars in 1998 to 120 billion in 2004, the United States being the main beneficiary thereof¹².

2. Justification and role of IPRs

The granting of intellectual property rights (IPRs) has been justified on three different grounds.

¹⁰ More than fifty countries did not recognize patent protection for pharmaceuticals at that time. See UNCTAD, *The TRIPS Agreement and Developing Countries*, Geneva, 1996.

¹¹ McCalman, Phillip (1999), *Reaping What You Sow: An Empirical Analysis of International Patent Harmonization*, available at <http://www.innovations.harvard.edu/showdoc.html?id=5075>, p. 30.

¹² Based on World Development Indicators (2000 and 2006). US receipts for royalty and license fees amounted to U\$S 52,5 billion in 2004 (see http://www.nationmaster.com/red/graph/eco_roy_and_lic_fee_rec_bop_cur_us-fees-receipts-bop-current-us&date=2004).

In accordance with a *natural rights-based* approach (*proprietaryism*) IPRs are a type of property that -as any other property- pre-exist the States which simply recognize, do not create them, as a matter of natural justice. This approach is based on the idea (generally attributed to Locke) that a person who is first connected to an object with economic value is entitled to appropriate it. There are different variants of this theory or creed, including theological and non theological versions.

Under a second approach (*distributive justice*), IPRs do not pre-exist the State but their grant would result from a moral imperative. The society would be morally obligated to reward those who disclose new creations or inventions. This approach shares with the natural rights theory a strong individualistic bias.

A third approach (*instrumentalism*) views IPRs as an instrument that society has created to attain certain objectives. The realization of social goals is what justifies the interference with the liberties of others through the establishment of exclusive rights. IPRs are not conferred for moral reasons but for very practical purposes. This approach is enshrined in many national constitutions. For instance, article I, Section 8° (8) of the US constitution states that

the Congress shall have the power... To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

An important consideration under an instrumentalist approach is that knowledge, by its very nature is a *non-rival public good*¹³. Non-rival goods have the property that they can be available for public use, usually at modest costs, and sometimes even at zero cost. Though non-rival in nature, knowledge is *excludable* by action of its possessor or through the enforcement of IPRs, which artificially create scarcity of knowledge.

¹³ See, e.g., Stiglitz, Joseph, (1999), "Knowledge as a global public good", in Kaul, Inged; Grunberg, Isabelle and Stern, Marc, (Eds.), *Global public Goods. International Cooperation in the 21 ST Century*, New York, p. 309.

Under the instrumentalist approach, the purpose of IP is not to ensure an individual or corporate gain but to benefit society by encouraging inventions and creations¹⁴. In other words, scientific and technological progress is achieved *through* the work of inventors and creators¹⁵. As stated by the U.S. Supreme Court in *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, p. 511 (1917) " the primary purpose of our patent laws is not the creation of private fortunes for the owners of patents but is to promote the progress of science and useful arts ...". Similarly, in relation to copyright, Justice Sandra Day O'Connor stated in *Feist Publications, Inc. v. Rural Telephone Service Co.* that "the primary objective of copyright is not to reward the labour of authors, but to promote the Progress of Science and useful Arts"¹⁶.

An instrumentalist approach, if properly applied, should permit countries to design their IPRs policies in accordance with their own conditions and objectives. As the World Bank has noted, in the area of IP countries may need to adopt different modalities and levels of IPRS, as "one size does not fit all"¹⁷. However, in pursuing their own interests, developed countries have induced in various ways developing countries to adopt standards of IPRs protection that in many cases are not suitable to the conditions prevailing there, particularly as IPRs may affect access to the outcomes of innovation by the poor.

In designing their IP policies, developed countries have essentially aimed at encouraging *domestic* invention and creation. Although any country may potentially benefit from inventions and creations made abroad, the costs that IP generate have little justification if, as a minimum, access to such inventions or creations is not available or affordable for the local population of the country granting IPRs protection. This

¹⁴ See, e.g., Carlos Correa (2003), "Formulating effective pro-development national intellectual property policies", in C. Bellmann, G. Dutfield and R. Meléndez-Ortiz (editors), Trading in knowledge. Development perspectives on TRIPS, trade and sustainability, Earthscan, London, 2003.

¹⁵ See Peter Drahos, *A philosophy of intellectual property*, Ashgate, Aldershot, 1996, p. 201.

¹⁶ *Feist Publications, Inc. v. Rural Telephone Service Co.* 499 U.S. 340, 1991, paragraph 19.

¹⁷ See World Bank (2001), Global Economic Prospects and the Developing Countries 2002, Washington, D.C.

explains, for instance, why the obligation to industrially work a patent in the country of grant was a common feature of patent laws in Europe in the XIXth Century¹⁸.

Two general approaches may be applied to understand the role of IPRS in the production of information: welfare economics and the neo-Schumpeterian economics¹⁹.

Welfare economic examines the role of IPRs in terms of their impact on static and dynamic economic efficiency²⁰.

Static efficiency is best served, in general, when a competitive market is in place. Competition forces firms to increase productivity of capital and labor and reduces the cost of production. In a competitive framework, consumers benefit from greater product quantity, quality and variety and, most importantly, firms' cost savings are passed on to consumers by the way of lower prices. Competition may lead to allocative efficiency, as the price of a product tends to be equal to the marginal cost of production. While producers may obtain a reasonable profit (sufficient to make investment in production attractive) there is maximum diffusion of existing products.

Competition can also lead to dynamic efficiency. It can be a powerful incentive to introduce product, process or organizational innovations. Many important innovations are the result of stiff competition, particularly when different technological options may be pursued. Investment for the production of knowledge in a competitive environment, however, may be deterred by the risk and high externalities associated with the creation of intangibles. Once obtained a new knowledge, it may be easily exploited by others who have not contributed to its development. In this situation, appropriation mechanisms, such as intellectual property rights (IPRs) may provide the necessary incentive to invest in innovation activities. Under the welfare economics approach,

¹⁸ As reflected in the 1925 revision of the Paris Convention for the Protection of Industrial Property See, e.g., M. Halewood, *Regulating Patent Holders: Local Working Requirements and Compulsory Licences at International Law* (1997; 35 OSGOOD HALL L.J. 243).

¹⁹ See on this subject, Benkler, Yochai, (2001), "A political economy of the public domain: Markets in information goods versus the marketplace of ideas", Dreyfuss, Rochelle; Zimmerman, Diane and First, Harry, (Eds.), *Expanding the voundaries of intellectual property*, Oxford University Press, Cheltenham, p. 270-271.

²⁰ See, e.g. UNCTAD, (1997), *Empirical evidence of the benefits from applying competition law and policy principles to economic development in order to attain greater efficiency in international trade and development*, TD/B/COM.2/EM/10, Geneva, p. 5, 8 and 9.

hence, the loss of static efficiency would be set-off against the growth and welfare benefits accruing from the future introduction of new products and processes.

This view is largely based on Arrow's seminal work on the production of knowledge and, particularly, on his discussion on patents²¹. Property rights that allow exclusion of competitors permit prices to be raised above the marginal cost. This might be deemed to be the cost paid by society for getting innovations. However the right to exclude competitors for a certain period leads to a deadweight loss and lowers social welfare in the short term, since there is a reduction in the diffusion of innovations, and a limitation on the number of consumers that may have access to the outcomes of innovation. As noted by David (1992),

“intellectual property inherently entails restricting the extent of useful application of the new knowledge by permitting the imposition of license and royalty charges upon the users. The more secure is the patent monopolist (even though it has been publicly disclosed), the higher the charges that can be levied. This reduces the benefits that would have accrued to society at large, and to consumers in particular, had the information been made available for competitors to exploit in the form of new products or production processes” (p. 16).

In addition, property rights leads to underutilization of information, including for the generation of subsequent innovation. A basic problem is that knowledge is not only output but also an input of R&D activities:

“Since every generation is both ‘the first’ to future producers, and ‘the second’ to prior producers, the conflict is pervasive and sets limits on the extent to which, even in a dynamic analysis, it is efficient to recognize and enforce rights in information products. As Arrow put it, ‘precisely to the extent that [property

²¹ See, e.g. Arrow, Kenneth, (1962), “Economic Welfare and the Allocation of Resources for Invention”, in National Bureau of Economic Research, The rate and direction of inventive activity, Princeton University Press.

rights in information are] successful, there is an underutilization of the information”²².

The neo-Schumpeterian approach focuses on the way in which technological knowledge is created, accumulated and disseminated in a given market structure, rather than on efficiency issues. Schumpeter argued that monopoly power is an important incentive to undertaking innovative activity. Anticipated market power in the new products may provide essential incentives to innovate, since an enterprise would in most cases be impossible if it were not known from the outset that exceptionally favorable situations are likely to arise²³.

Based on Schumpeter’s insights, Scherer explained -from the perspective of the invention-innovation-diffusion sequence- the economic logic of the patent system as follows:

“Society desires the superior products and more efficient processes associated with technological change. Ideally, it would like to realize all the benefits from a given innovation as quickly as possible. This implies swift, widespread imitation of the innovation and a rapid decline in prices until production and necessary marketing costs are barely covered. But absent governmental or other subsidies, inventors and especially innovators are unlikely to bear the costs and risks of developing and introducing a new technology unless they can expect to be sheltered from the imitative swarm for a sufficiently long time to recoup or more than recoup their early investment...By inhibiting and delaying imitation, patent grants prevent the premature erosion of innovators profits and hence instill expectations in the minds of would-be innovators and inventors that their efforts stand a good chance of being rewarded”²⁴.

According to the neo-Schumpeterian view, however, innovation rather than efficient allocation is the primary engine of productivity, and growth and market structure play a

²² Benkler, op. cit, 2001, p. 271.

²³ Schumpeter, J.A., (1942), *Capitalism, Socialism and Democracy*, Harper and Row, New York, p. 83, 89-90.

²⁴ Scherer, F., (1977), *The Economic Effects of Compulsory Patent Licensing*, The Monograph Series in Finance and Economics, New York, p. 14.

more important role than property rights in promoting innovation²⁵. Diffusion propels innovation as a large number of producers and users may introduce improvements on the technology²⁶. Innovation may take place in the absence of mechanisms based on the appropriation of knowledge. Lead time in the introduction of new products, the innovator's capacity to move on the learning curve quicker than competitors, the customer's loyalty derived from superior sale services, and the very structure of the market, such as oligopolistic market structures, may be sufficient to foster innovation²⁷. In some sectors, IPRs do not play, indeed, an important role. Thus, an early study by Levin, Klevorich and Nelson found that firms in 130 lines of business reported that patents were the least important means of securing competitive advantage for new products²⁸. Patent protection, in particular, may not be a key factor to promote innovation in many circumstances. The World Health Organization's Commission on Innovation, Intellectual Property and Public Health, for instance, noted that patents do not work as an incentive for the development of drugs when profitable markets do not exist:

In the context of our work one of the important points is that, where the market has very limited purchasing power, as is the case for diseases affecting millions of poor people in developing countries, patents are not a relevant factor or effective in stimulating R&D and bringing new products to market²⁹.

In sum, there is a need to find a fair balance between private and social benefits through a policy framework that does not only ensure that new technologies are created, but also that they disseminate for competitors to be able to work and improve on them. Disrupting the competitive process by means of excessive IPRs protection might not only result in higher prices but also in less subsequent technological change³⁰. The

²⁵ See Benkler, op. cit., 2001, p. 272.

²⁶ See, eg., OECD, (1992), *Technology and the Economy*, TEP, Paris, p. 51.

²⁷ See, e.g., Scherer, F. and Ross, D. (1990), *Industrial market structure and economic performance*, Hongton Mifflin, Dallas p. 627-628; Scherer, 1999, p. 59.

²⁸ Levin, R.; Klevorich, R. and Nelson, Richard, (1987), "Appropriating the returns from industrial research and development", *Brookings Papers on Economic Activity*, No.3.

²⁹ WHO, REPORT OF THE COMMISSION ON INTELLECTUAL PROPERTY RIGHTS, INNOVATION AND PUBLIC HEALTH 13 (2006) .

³⁰ See, e.g. Welfens, Paul; Addison, John; Audretsch, David; Gries, Thomas and Grupp, Hariolf, (1999), *Globalization, Economic Growth and Innovation Dynamics*, Springer, Berlin, p. 138; Scherer and Ross, op. cit., p. 614-660.

oversimplified view that strong IPRs protection necessarily leads to more innovation and future benefits to society is both theoretically and empirically unsustainable. As noted by Mazzoleni and Nelson,

“In view of the fact that patents entail social and economic costs, it would seem wise not to push for stronger patent protection, unless the evidence indicated that the economic benefits were significant. Such indications are certainly missing from the conventional interpretation of the available empirical studies”³¹.

Most importantly, the balance between private and social benefits of IPRs protection is not necessarily the same in countries with different R&D capacities, levels of income and social needs. Poor countries may logically choose to prioritize access to existing products as IPRs are unlikely to foster local innovation and governments need to face urgent needs. From both an equity³² and economic perspectives, it is essential, hence, that policy mechanisms ensure that innovation results reach those who need them. One obvious example is the case of pharmaceuticals, diagnostic kits and other health-related products upon which the health or life of human beings depend.

The concrete impact of IPRs on innovation, competition and consumers depends on the specific terms and conditions under which such rights are granted. Although the TRIPS Agreement has contributed to a certain level of harmonization of IPRs worldwide, it only provides for *minimum standards* of protection. It does not prescribe homogenous rules and does not cover all aspects of IPRs. Hence, as further examined below, there is considerable leeway for determining, at the national level, various features of intellectual property legislation. This flexibility has been used, in some countries, to expand the field and to increase the level of protection of such rights. Many developing countries, however, have not fully utilized TRIPS flexibilities for various reasons³³.

³¹ Mazzoleni, Roberto and Nelson, Richard, (1998), “The benefits and costs of strong patent protection: a contribution to the current debate”, *Research Policy*, vol.27., p. 274.

³² A resolution approved on April 23, 2001 by the United Nations Commission on Human Rights, called on governments to ensure the accessibility of pharmaceuticals and medical treatments used to treat pandemics such as HIV/AIDS, as well as “their affordability for all,” in accordance with international law and international agreements. The resolution also calls on governments “to safeguard access to such preventive, curative or palliative pharmaceuticals or medical technologies from any limitations by third parties.”

³³ See, e.g., Correa, Carlos (2007), *TRIPS and TRIPS-plus protection and impacts in Latin America*, in F. Gervais (editor), *Intellectual property, trade and development*, Oxford University Press, Oxford.

Patents

A telling example of the flexibilities allowed by the TRIPS system is provided by patent laws as applied in some developed countries. There is no universal definition of what type of subject matter may be a patentable 'invention' nor a universal rule about what level of inventiveness is required to obtain a patent. This has allowed the USA, for example, to grant patents over materials found in nature, computer programs and 'business methods', which are generally not deemed patentable in other countries.

In addition, there are important differences about the scope of patent claims. Japan, for instance, traditionally followed a policy of admitting only narrow claims, while in other countries the patent applicant may opt for broad claims. It has often been argued that a broad scope of protection and a long duration of rights will provide a strong incentive to innovate. But there are significant trade-offs. The broader and longer the IPRs protection, the higher the cost for society of using knowledge is. A broad scope of protection (in terms of the covered subject matter or of the extent of the rights of exclusion conferred) and a long duration of rights, reduce the degree of competition (and static efficiency) as well as the potential use of protected knowledge by subsequent innovators (and dynamic efficiency)³⁴. Overbroad claims may be used to deter entry of competitors, especially small and medium companies that cannot bear the cost and risk of litigation. Skilled patent applicants, however, tend to assess the implications of opting for a broad or narrow claim, as it is not always optimal for the patentee to claim the maximum patent breadth possible. A patent that is too broad increases the likelihood of both infringement and patent validity challenges by competitors or other third parties³⁵.

The possible breadth of patent protection depends on national legislation. There are no international standards on the subject. Similarly, the extent to which a patent may be used to block a would-be competitor depends on the terms on which the "equivalence"

³⁴ See, e.g. Welfens et al, op. cit, p. 143.

³⁵ Amalia Yiannaka and Murray Fulton (2003), Strategic Patent Breadth and Entry Deterrence with Drastic Product Innovations, First Biennial Conference of the Food System Research Group, Madison-Wisconsin, June 2003, available at <http://www.aae.wisc.edu/fsrg/publications/conference/Yiannaka.pdf>, p. 3 and 30.

of inventions is determined under the domestic law. Establishing the boundaries of protected inventions determines the actual scope of the rights conferred by a patent. It is a matter of national legislation to define when products or processes that are not *literally* described in a claim may be deemed "equivalent" and therefore considered as infringing on the patent rights.

There are different approaches to deal with this issue. Under one approach (as applied in the USA), equivalence may be found if the allegedly infringing variant of a process or product performs substantially the same function in substantially the same way to obtain the same result. Another approach relies not on a functional analysis, but on an objective comparison of the elements that constitute the variant and the invention, and particularly on the extent to which the variant introduced by the potential infringer may be obvious³⁶ for a person skilled in the art in the light of the claimed invention. This latter approach may permit an adequate protection of the inventor's interests, while leaving more room for third parties' innovation. A narrow doctrine of equivalents allows a broader room for competition and follow-on innovation.

The scope of patent protection is also dependent on the standards applied to assess the patentability requirements, that is, novelty, inventive step (non obviousness) and industrial applicability (utility). Some efforts have been made to internationally harmonize these criteria. A first important attempt to harmonize substantive patent law, including patentability requirements, was launched by WIPO in 1984, with the ambitious objective of adopting a 'Treaty Supplementing the Paris Convention as far as Patents are concerned'³⁷. While this attempt failed (to a large extent due to discrepancies between the USA and European countries about the "first to file" or "first to invent" rule) in 2001, as a component of WIPO's 'Patent Agenda', WIPO started a process to adopt a Substantive Patent Law Treaty (SPLT) . The draft SPLT and regulations opted for a low requirement of inventive step³⁸. It proposed to assess the claimed invention against the general knowledge of an ordinary skilled person, and not

³⁶ The date at which the equivalence is assessed may be, depending on the doctrine applied, the filing date of the application, the date of publication of the patent or the date of infringement. The latter is the most favorable to the patentee.

³⁷ See, eg., WIPO, 'Suggestions for the further development of international patent law', WIPO Standing Committee on the Law of Patents (Fourth Session, Geneva, November 6-10,2000 WIPO Document No. SCP/4/2 September 25, 2000.

³⁸ See WIPO SCP/9/8 Prov. para. 102

against specialized knowledge in a particular field of technology. The SPLT found considerable opposition from developing countries who are unwilling to give up the policy space still left to them for crafting the patentability requirements.

The main problem faced in this area is the proliferation of patents on subject matter with low or inexistent inventive step. The relaxation of the patentability standards is one of the factors behind the ‘intense pathology of the current [patent] system’ in the United States³⁹. The low standards of patentability applied, in particular, to assess non-obviousness, has led to an explosion of patent applications and grants in that country. The acquisition of patent rights for defensive or offensive reasons has significantly increased the cost of IPRs management and litigation⁴⁰. ‘Evergreening’⁴¹ and other patenting strategies aimed at blocking genuine competition and follow on innovation have become common practice in many jurisdictions⁴².

Lax patentability requirements have distorted the intended objective of the patent system: promoting and rewarding genuine contributions to the state of the art. Ineffective enforcement of the patentability requirements create opportunities to protect technical developments the cost of which is considerably less than the value of the monopoly provided by the patent law. As noted by Adelman, those who obtain such a protection would "be seizing monopoly control of obvious developments rather than obtaining the rightful reward for unique creations, and in doing so would generate a socially wasteful rivalry for control of the high profits"⁴³.

Patents, in fact, are strategically used in many cases to deter competitors, actual or potential, rather than as instruments to obtain a legitimate reward for a technical contribution. This practice has been extensively documented, for instance, in the

³⁹ Jaffe, Adam B. and Lerner, Josh (2004), *Innovation and Its Discontents : How Our Broken Patent System is Endangering Innovation and Progress, and What to Do About It*, Princeton University Press, p. 19.

⁴⁰ See James Bessen and Michael J.Meurer (2008), *Patent Failure*, New Jersey: Princeton University Press.

⁴¹ ‘Evergreening’ consists of the patenting of minor changes to or versions of existing products (e.g. formulations, dosage forms, polymorphs, salts, etc.) in order to extend the life of the original patent over an active ingredient.

⁴² See Carlos Correa, Internationalization of the patent system and new technologies, *Wisconsin International Law Journal*, vol. 20. No.3, 2002.

⁴³ Adelman, Martin (1977), “Property rights theory and patent-antritrust: the role of compulsory licensing”, *New York University Law Review*, vol. 52, No.5.

pharmaceutical industry. In spite that the number of new chemical entities approved for pharmaceutical use is small and declining, thousands of patents are applied for and granted on minor variants of existing medicines (e.g. isomers, polymorphs, formulations, combinations) that lack inventive step. The granted patents are often aggressively used to block generic competition. A recent report by the European Commission on the pharmaceutical industry -released in November 2008⁴⁴- provided robust evidence on these practices in Europe. Among other findings, the report observed that

originator companies have designed and implemented strategies (a "tool-box" of instruments) aimed at ensuring continued revenue streams for their medicines. Although there may be other reasons for delays to generic entry, the successful implementation of these strategies may have the effect of delaying or blocking such entry. The strategies observed include filing for up to 1,300 patents EU-wide in relation to a single medicine (so-called "patent clusters"), engaging in disputes with generic companies leading to nearly 700 cases of reported patent litigation, concluding settlement agreements with generic companies which may delay generic entry and intervening in national procedures for the approval of generic medicines. The additional costs caused by delays to generic entry can be very significant for the public health budgets and ultimately the consumer'.

The European Commission report also found that 'originator companies develop and practice defensive patenting strategies primarily in order to block the development of new competing products, which can lead to obstacles to innovation, higher costs for competing pharmaceutical companies (e.g. royalties), or in delays'⁴⁵.

The grant and use of other types of IPRs may also have significant implications for development. Some of the relevant issues relating to copyright, trademarks, geographical indications and plant breeders' rights are briefly discussed below.

Copyright

⁴⁴ *Pharmaceutical Sector Inquiry. Preliminary Report*, Executive Summary, DG Competition Staff Working Paper, available at http://ec.europa.eu/competition/sectors/pharmaceuticals/inquiry/exec_summary_en.pdf, p. 3.

⁴⁵ *Idem*, p. 4

The scope and level of *copyright* protection may affect access to knowledge for research, education and training in multiple areas. Traditionally, copyright law left considerable room for access to and use of copyrighted materials. The ‘idea-expression’ dichotomy ensured that ideas remained free for use while copyrighted prevented the reproduction of their particular expression⁴⁶. This dichotomy is recognized under many national patent laws and in the TRIPS Agreement⁴⁷. Moreover, the rights conferred to the copyright owner may be limited by a number of defences and exceptions that ensure a balance between exclusive rights and fundamental freedoms and rights, such as the human right to education⁴⁸.

Copyright may play a positive role by supporting the activities of local musicians and other artists in developing countries. However, most benefits, including jobs, generated by their performances and works are currently captured by developed countries where the large entertainment companies operate. Moreover, the availability of copyright protection for such authors and artists in their own countries would be insufficient to allow them to reap the benefits of their works and performances. The important markets are in developed countries, but, given the costs of legal advice and litigation, enforcing copyrights there is almost impossible for developing countries’ authors and artists. Hence, policies aimed at strengthening copyright protection in developing countries in some cases are likely to benefit more foreign creators and companies than local ones⁴⁹.

⁴⁶ For instance, in *Feist Publications, Inc. v. Rural Telephone Service Co.*, Justice Sandra Day O’Connor stated that ‘copyright assures authors the right to their original expression, but encourages others to build freely upon the ideas and information conveyed by a work. This principle, known as the “idea/expression” or “fact/expression” dichotomy, applies to all works of authorship’.

⁴⁷ Article 9.2 stipulates that ‘[C]opyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such’.

⁴⁸ As recognized by the Universal Declaration of Human Rights in 1948 and reaffirmed by various human rights treaties, including the Convention against Discrimination in Education (1960), the International Covenant on Economic, Social and Cultural Rights (1966) and the Convention on the Elimination of All Forms of Discrimination against Women (1981). See, e.g. UNESCO (2007), *A human rights-based approach to education for all*, New York.

⁴⁹ For instance, studies conducted for WIPO found that the Mercosur countries were net importers of copyrighted works and that the largest share of local value added corresponded to the distribution sector. The available figures underlined the relative weakness of domestic production of copyright-protected products. See UNICAMP-WIPO, *Study on the economic importance of industries and activities protected by copyright and related rights in the Mercosur countries and Chile*, available at http://www.wipo.int/sme/en/documents/pdf/copyright_mercosur.pdf. In the case of India, however, the software and film industries are likely to significantly benefit from copyright protection.

The 'Africa Music Project' initiated by the World Bank provides a good illustration of the limitations of a copyright-based strategy to support poor musicians:

at present, virtually all African music that enjoys an international market is produced in Paris or London—the agglomeration of jobs that successful African music generates is not in Africa... Part of the dream of the music project is that more African artists make it big in international markets. However, reality here is not to pick such potential winners and promote them along the path successful artists have followed—that path lying mostly outside of Africa. The idea is to build an industry for the 30,000 low income musicians, recognizing that the measure of success would be a modest increase of earnings for each of them⁵⁰.

In the context of developing countries, the immediate effect of strengthening copyright protection may be to limit access to copyrighted products, including computer programs and educational materials. Such effect could be aggravated if national laws do not provide for appropriate exceptions to the exclusive rights or implement new modalities of protection for digital works, such as technological protection measures (TPMs)⁵¹ and 'anti-circumvention' measures⁵², without the proper safeguards. These measures may restrain access to information in the public domain if digitized information cannot be otherwise obtained.

Although copyright has traditionally excluded facts and data from eligible subject matter, recent developments in some developed countries 'now make it possible to assert and enforce proprietary claims to virtually all the factual matter that previously entered the public domain once it had been disclosed'⁵³. The European Database

⁵⁰ Frank J. Penna, Monique Thormann and Michael Finger (2004), The Africa Music Project, In J. Michael Finger and Philip Schuler (editors), *Poor People's Knowledge. Promoting Intellectual Property in Developing Countries*, World Bank and Oxford University Press, p. 97.

⁵¹ 'Technology protection measures' are legal remedies against acts aiming at removing or altering any digital rights management information, that is, access control technologies used by publishers and other copyright holders to limit the usage of digital media or devices without prior authorization

⁵² These measures prevent the use of "circumventing" devices or services to defeat technical means of protection (such as encryption) of copyrighted works.

⁵³ Reichman, J. & Uhlir, P., (2005), "Global Trends to Restrict Access to data from Government Funded Research", paper prepared for use at the Yale University Conference on Global Information Flows, p. 4-5.

Directive (1996), for example, allows for a practically perpetual protection of information (including of factual nature) in a data base⁵⁴.

While in the last twenty years the protection of copyright has been actively promoted by some industries and developed countries' governments, in designing copyright legislation it is important to consider measures to protect and exploit the *public domain*. It comprises of a vast pool of knowledge available for use without authorization or payment. Contrary to the assumption that underlies IPRs protection, free availability of knowledge may spur innovation. For instance, what is termed the 'open software' movement has demonstrated that innovation may flourish under a system that does not restrict but is based on the free sharing of innovations in software. Another example is provided by 'open content' initiatives⁵⁵ aiming at publishing creative works in a format that explicitly allows users of the content to freely copy, distribute and possibly derive new works based on the content⁵⁶.

The public domain constitutes an important pool of knowledge available to all. It should be protected against undue appropriation. Protecting and enriching the public domain may be, particularly for developing countries, the best option to promote innovations and access to its outcomes in certain fields. Prof. Boyle has noted that

In fact, it is remarkable to consider that the areas where the Internet has succeeded most readily – for example as a giant distributed database of facts on any subject under the sun – are traditionally those in which there are little or no intellectual property rights. The software on which the Internet runs is largely

⁵⁴ The US Supreme Court, however, has rejected the protection of factual information as such and that the US Congress has not enacted legislation in line with the model adopted by the European Directive. in *Feist Publications, Inc. v. Rural Telephone Service Co.*, it was stated that 'as applied to a factual compilation, assuming the absence of original written expression, only the compiler's selection and arrangement may be protected; the raw facts may be copied at will. This result is neither unfair nor unfortunate. It is the means by which copyright advances the progress of science and art' (*Feist Publications, Inc. v. Rural Telephone Service Co.* 499 U.S. 340, 1991, paragraph 19).

⁵⁵ One example is 'Creative Commons' Its main goal is to enable copyright holders that want to grant some of their rights over their works to the public but expect to retain some others, to be able to easily do that through the use of appropriate creative commons licenses. See <http://creativecommons.org>.

⁵⁶ See Schweik, Grove and Evans (2004), "The Open-source Paradigm and the Production of Scientific Information: A Future Vision and Implications for Developing Countries", in *Open Access and the Public Domain in Digital Data and Information for Science: Proceedings of an International Symposium*, p. 106.

open source, another Internet-enabled method of innovation to which policy makers have been slow to adapt. The Internet offers us remarkable opportunities to achieve the real goals that intellectual property policy *ought* to serve: encouraging innovation and facilitating the dissemination of cultural and educational materials. Yet policy making has focused almost entirely on the Internet's potential for illicit copying⁵⁷.

As of September 4, 2006, at least 99 governments in 44 countries had undertaken administrative or legislative action in support of open source software (OSS) development⁵⁸. While legislation has been adopted in 19 countries (mostly in Europe and Latin America)⁵⁹ in others (e.g. France) OSS has been introduced, namely by migrating from Microsoft Windows to Linux systems, through public subsidies or procurement policies of State departments⁶⁰.

Of particular importance is also to ensure that measures aimed at protecting digital works, such as TPMs and 'anti-circumvention measures', do not limit the use of copyrighted works even for legitimate purposes. TPMs designed to prevent third parties from unauthorized access to and use of digital works may permit right-holders to control, monitor and meter every possible use of a work. If strengthened by the legal prohibition to defeat them, such systems create new and powerful means to prevent reproduction, including for fair use, and other legitimate acts.

Trademarks

The implications of trademark protection are more neutral than those of other titles of IPRs, as they may benefit large and small companies alike, in both developed and developing countries. Trademarks, in addition, perform a dual role in protecting the goodwill of their owners and at, the same time, the public against the misleading use of the same or confusing trademarks. However, those companies that may invest

⁵⁷ Boyle, 2004, op. cit.

⁵⁸ Jyh-An Lee (2006), New Perspectives on Public Goods Production: Policy Implications of Open Source Software, *Vanderbilt Journal of Entertainment and Technology Law*, Vol. 9:1, p. 56.

⁵⁹ This trend towards the adoption of OSS is less apparent in Africa than in other regions. Jyh-An Lee, op. cit., p. 56.

⁶⁰ Idem, p. 62.

significant resources in promoting their trademarks and which operate internationally can benefit the most from trademark registration and use. In fact, the obligations introduced by the TRIPS Agreement and soft law developed in the context of WIPO⁶¹ clearly favour large companies with transnational activities. The TRIPS Agreement, in particular, reinforced the protection of well-known trademarks in a way that permit an unregistered trademark to prevail over a registered trademark if the former has become notorious through its use or promotion.

Trademark law is the only area where compulsory licensing is not admitted by the TRIPS Agreement, although there have been cases in the past in which such licenses have been granted⁶².

Geographical indications

The recognition and use of *geographical indications* present more complex implications. Such indications allow producers of a given locality or region to obtain a premium price for the quality, characteristics or reputation of a product attributable to its geographical origin. Although some developing countries have joined European countries in efforts to expand and reinforce the protection of geographical indications in the framework of the TRIPS Agreement⁶³, there is little empirical evidence suggesting that this is the right strategy for developing countries. While there is a large number of GIs in Europe that may be globally exploited, there are only a few GIs in developing countries that may allow producers to obtain a significant benefit. In addition, obtaining

⁶¹ See the Joint Recommendation Concerning Provisions on the Protection of Well-Known Marks, adopted by the Assembly of the Paris Union for the Protection of Industrial Property and the General Assembly of the World Intellectual Property Organization (WIPO) on September 20 to 29, 1999, available at http://www.wipo.int/about-ip/en/development_iplaw/pub833.htm.

⁶² The US Federal Trade Commission (FTC) proposed in the case *FTC v. Cereal Companies* the creation of five completely new companies and required the major existing firms (Kellogg, General Mills and General Food) to license their trademarks. In *FTC v. Borden Company*, it found market dominance in the lemon juice market and the Judge decided to compulsorily license the "Realemon" trademark. See Goldstein, Sol, (1977), "A study of compulsory licensing", *LES*, , p. 124

⁶³ The European Union, Bulgaria, China, the Czech Republic, Hungary, Liechtenstein, Kenya, Mauritius, Nigeria, Pakistan, the Slovak Republic, Slovenia, Sri Lanka, Switzerland, Thailand and Turkey have supported the expansion of GIs protection through an amendment to article 23 of the TRIPS Agreement, while other countries (notably Argentina, Australia, Canada, Chile, Guatemala, New Zealand and Uruguay strongly opposed to it.

international recognition of a particular GI may require substantial investment, and enforcing GIs rights in foreign jurisdictions may be extremely costly and outside the reach of producers from developing countries. Although the Indian government, for instance, has voiced in the WTO its interest in enhancing GI's protection⁶⁴, in the absence of evidence about the potential benefits of a reform of current standards -which may overwhelmingly benefit those countries with a long and solid tradition in GIs- more caution has been advised:

At the multilateral level, it is extremely important for India to weigh the costs and benefits of GI protection in general, and the 'extension' of Article 23 in particular. Given the scarcity of research-based inputs in this regard, there has so far not been much clarity on these issues. Hence, rather than pushing too hard for the 'extension' at the WTO, a more prudent approach on the part of India would be to 'go slow'⁶⁵.

In another report it was argued that GIs may be useful to protect indigenous knowledge, if 'combined with appropriate marketing strategies', but it was warned that the protection conferred does not include the knowledge as such, but only the designation⁶⁶. It was found that GIs 'can present long term benefits as they create value, enhance the marketability of goods and give an edge to developing countries to promote exports and rural development' with the caveat that the overall costs and benefits of GI's protection are not, however, sufficiently clear. The report also recommended caution on the subject, particularly by carefully weighing the opportunity costs in

⁶⁴ The Indian position was strongly influenced by the use of the name 'basmati' to identify aromatic rice grown in the USA, where the American company RiceTec Inc. was granted a patent on a rice variety using that designation. See, e.g. *TED Case Studies. Basmati*, available at <http://www.american.edu/ted/basmati.htm>.

⁶⁵ Kasturi Das (2007), *Protection of Geographical Indications: An Overview of Select Issues with Particular Reference to India*, available at http://www.centad.org/cwp_10.asp. This report points out that around 30 GIs of Indian origin have already been registered in the country. These include Darjeeling (tea), Pochampalli, Ikat (textiles), Chanderi (sarees), Kancheepuram silk (textiles), Kashmir Pashmina (shawls), Kondapalli (toys), and Mysore (agarbattis).

⁶⁶ Daphne Zografos (2008), *Geographical Indications & Socio-Economic Development*", IQSensato, available at <http://www.iqsensato.org/>, p. 16.

relation to less known products⁶⁷. In addition, it would be important to consider the possible displacement of local industries if foreign GIs are recognized. For instance, while the TRIPS Agreement allowed Members to continue in the use of foreign GIs under certain circumstances⁶⁸, this flexibility was lost by many countries in subsequent bilateral negotiations with the European Union, as it succeeded in obtaining the recognition of protection for GIs that were exempted under the TRIPS Agreement.

Plant variety protection

Finally, attention should be paid to the implications of the protection of plants for agricultural development and food supply. A *sui generis* form of protection for plant varieties⁶⁹ -known as 'plant variety protection' (PVP) or 'breeders' rights'- was adopted in some European countries since the 1940's leading to the adoption of an international convention (International Convention for the Protection of New Varieties of Plants-UPOV) by a Diplomatic Conference in Paris in 1961. The UPOV Convention –

⁶⁷ *Idem*, p. 17.

⁶⁸ TRIPS Agreement article 24.4: 4. 'Nothing in this Section shall require a Member to prevent continued and similar use of a particular geographical indication of another Member identifying wines or spirits in connection with goods or services by any of its nationals or domiciliaries who have used that geographical indication in a continuous manner with regard to the same or related goods or services in the territory of that Member either (a) for at least 10 years preceding 15 April 1994 or (b) in good faith preceding that date'; article 24.6: 'Nothing in this Section shall require a Member to apply its provisions in respect of a geographical indication of any other Member with respect to goods or services for which the relevant indication is identical with the term customary in common language as the common name for such goods or services in the territory of that Member. Nothing in this Section shall require a Member to apply its provisions in respect of a geographical indication of any other Member with respect to products of the vine for which the relevant indication is identical with the customary name of a grape variety existing in the territory of that Member as of the date of entry into force of the WTO Agreement'.

⁶⁹ The UPOV Convention (Article 1(vi)) defines a 'plant variety' as: "a plant grouping within a single botanical taxon of the lowest known rank, which grouping, irrespective of whether the conditions for the grant of a breeder's right are fully met, can be

- defined by the expression of the characteristics resulting from a given genotype or combination of genotypes,

- distinguished from any other plant grouping by the expression of at least one of the said characteristics and

- considered as a unit with regard to its suitability for being propagated unchanged;"

subsequently amended in 1978 and 1991- contributed to frame the protection for plant varieties in developed countries. Only a few developing countries initially adopted an UPOV-like legislation or adhered to the Convention. This changed after article 27.3(b)⁷⁰ of the TRIPS Agreement obliged Members to provide patents or some *sui generis* form of protection to such varieties. Although various proposals were elaborated for the design of *sui generis* regimes of protection, many developing countries opted for the UPOV model and became members of the Convention after 1995.

Although PVP has been less controversial than patent protection, concerns have been raised from different perspectives about its impact on plant innovation and diffusion. For some, PVP only benefits commercial breeders by creating private ownership rights to biodiversity, to the detriment of farmers/breeders and traditional. The recognition of PVP would only reward those at the very end of a more complex system of innovation and seed production, eventually limit farmers' and communities' rights to biodiversity and even reduce their space to innovate. The criteria for protection (in particular of uniformity) would exacerbate the erosion of biodiversity, leading to harvest loss and further food insecurity⁷¹.

From another perspective, PVP is seen as insufficient to promote investment in the development of new varieties. One important reason for this would be that under such a protection a registered variety may be legitimately used by a third party as the source for the development of other varieties (breeders' exemption). In addition, PVP in many countries (such as the USA) allows farmers to save and re-use seeds within their exploitations without additional payments to the breeder (farmers' exception). One study concluded the following:

⁷⁰ Article 27.3 b) of the TRIPS Agreement provides that members may exclude from patentability 'plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. This provision shall be reviewed four years after the entry into force of the WTO Agreement'.

⁷¹ See GAIA/GRAIN (1998), 'Ten reasons not to join UPOV', *Global Trade and Biodiversity in Conflict*, No. 2, May, available at <http://www.grain.org/briefings/?id=1>.

Our assessment strongly suggests that the PVPA does not provide patent-like ex ante innovation and investment incentives and that the PVPA has not generated substantial ex post licensing and enforcement activity. Instead, its role in the United States appears to be very modest: it may serve as a marketing tool; it may provide some non-propagation licensing rights akin to contractual shrink-wrap rights, enforceable against those who deal in "saved" seeds; and it may provide a superior alternative to trade secret protection - for example, for seeds whose secret parent lines might otherwise be revealed through reverse engineering (Kesan and Janis, 2002).

Patent protection for plant varieties, however, is only conferred in a few countries (USA, Australia, Japan) but it is banned in many jurisdictions (including European and most developing countries). The ban does not generally apply to plants as such, cells and sub-cellular parts, such as genes. Hence, in many jurisdictions patents may be granted on

- * DNA sequences that code for a certain protein;
- * isolated or purified proteins;
- * plasmids and transformation vectors containing a gene sequence;
- * seeds;
- * plant cells and plants;
- * plant varieties, including parent lines;
- * hybrids;
- * processes to genetically modify plants; and

* processes to obtain hybrids⁷².

The possibility of patenting plants and parts thereof has created tension between patent and plant variety protection. While traditional breeders favor the latter, companies working with modern biotechnology generally prefer the former, as the exceptions are more limited than under PVP and the control over the market is greater. Given the flexible rule contained in article 27.3(b) of the TRIPS Agreement, countries have wide room (much greater than for patents, copyrights and other areas) to introduce a system for plant variety protection that suits the particular conditions under which seeds are produced, distributed and used.

3. TRIPS flexibilities, technology transfer and industrialization

As mentioned, the TRIPS Agreement introduced for the first time in the history of IPRs a set of minimum standards of protection that has significantly reduced the capacity of WTO members to determine the scope and extent of protection for such rights.

Although the new international framework was presented by developed countries during the Uruguay Round negotiations as an instrument to promote innovation in and transfer of technology to developing countries, there is no evidence suggesting that increased IPRs protection has contributed to attain those objectives. Expectedly, the impact of IPRs on innovation will heavily depend, *inter alia*, on the local scientific and technological infrastructure, the industrial profile and the availability of capital to fund R&D. Some developing countries (such as China, Brazil and India) that are more scientifically advanced than others, are starting to reap benefits from decades of investments in education, research infrastructure, and manufacturing capacity. These countries -which have been called in recent literature 'innovative developing countries' (IDCs)⁷³, invest in R&D relatively more than other developing countries, there is a

⁷² See, e.g., Boettiger, S., Graff, G., Pardey, P. Van Dusen, E. and Wright, B (2004), 'Intellectual Property Rights for Plant Biotechnology: International Aspects', in Paul Christou and Harry Klee (Editors-in-Chief), *Intellectual Property Rights for Plant Biotechnology: International Aspects. Handbook of Plant Biotechnology*, John Wiley & Sons, Ltd., Chichester, p. 1093.

⁷³ Morel, Carlos, Tara Acharya, Denis Broun, Ajit Dangi, Christopher Elias, N. K. Ganguly, Charles A. Gardner, R. K. Gupta, Jane Haycock, Anthony D. Heher, Peter J. Hotez, Hannah E. Kettler, Gerald T. Keusch, Anatole F. Krattiger, Fernando T. Kreutz, Sanjaya Lall, Keun Lee, Richard Mahoney,

greater involvement of the private sector, and the interactions between public institutions and private companies and with innovation agents in developed countries are relatively frequent. These countries are best positioned than other developing countries to exploit some modalities of IPRs to their own benefit. However, the greater capacity of the IDCs should not lead to wrong conclusions. A large part of the population in these countries lives under the poverty line and may be seriously affected by the implementation of IPRs that limit access to essential products, such as drugs and seeds.

The industrialization and modernization of agricultural practices will continue to depend in most developing countries on the access to foreign technologies. A key issue is, hence, the extent to which the new set of international standards may foster or deter the transfer of technology to such countries.

Transfer of technology may take place through formal (e.g. licensing agreements) and informal (e.g. reverse engineering) means. Studies on technological development suggest that the relevance of different modes of technology transfer significantly vary in at different stages of industrial development⁷⁴. The type and content of such transfers evolve as the technological capabilities of domestic firms increase. Three stages of industrial development -initiation, internalization and generation- may be identified⁷⁵.

At the initiation stage, mostly "mature" technologies are incorporated through informal channels of technology transfer, notably the acquisition of machinery and equipment and reverse engineering⁷⁶. However, more formal modes of transfer are also used, such as turn-key agreements for the establishment of plants, particularly where production processes are complex and plant lay-outs are difficult to imitate. Foreign direct

Adolfo Martinez-Palomo, R. A. Mashelkar, Stephen A. Matlin, Mandi Mzimba, Joachim Oehler, Robert G. Ridley, Pramilla Senanayake, Peter Singer, and Mikyung Yun, (2005). 'Health Innovation Networks to Help Developing Countries Address Neglected Diseases', *Science*, Vol. 309, 15 July p. 401.

⁷⁴ See, e.g., Kim, L. (1997). *Imitation to Innovation. The Dynamics of Korea's Technological Learning*, Harvard Business School Press, Boston.

⁷⁵ See Lee, Z., Bae, Z. and Choi, D. (1988), "Technology development processes: a model for a developing country with a global perspective", *R&D Management*, vol. 18, N 3. p. 242.

⁷⁶ In the case of South Asian countries, the supply of technical assistance provided by Original Equipment Suppliers (OEM) also played an important role at the initiation stage. See Kim, L. and Dahlman, C. (1992), "Technology policy for industrialization: an integrative framework and Korea's experience", *Research Policy*, N 21, p. 439.

investment (FDI) can also constitute an important channel of technology transfer at the initiation stage as local absorptive capabilities are low⁷⁷.

At the 'internalization' stage licensing and sub-contracting become more important channels of technology transfer and foreign direct investment may also play an important role. However, local firms in developing countries may find obstacles to obtain up-to-date technologies since technology owners do not wish to create competitors, especially when low-cost producers may challenge their positions in global markets.

Finally, at the 'generation' stage local companies may use a broader range of channels for the acquisition of technology, including licensing agreements, equity or non-equity technological partnerships such as cooperative agreements with other firms aiming at the achievement of mutually relevant outcomes through the transfer, sharing or development of technology, with little or no mutual hard control⁷⁸.

IPRs are likely to play a different role in these different stages of industrial development. During the 'initiation' stage IPRs are essentially neutral as they do not affect the main (informal) channels of technological acquisition and do not play a significant role either as incentives to innovation or barriers to a still limited level of imitation. At the 'internalization' stage, industries imitation capacity increases and IPRs, if too stringent, may impede technological catching up through reverse engineering and imitation. For this reason, new industrializing countries (such as Japan, South Korea, China) have tended to keep a flexible IPRs system during that stage thereby allowing firms to get access to relatively mature foreign technologies via licensing, sub-contracting or foreign direct investment. However, given the increased local capacity to imitate, tensions about IPRs protection between domestic and foreign firms tend to augment during this stage. Finally, when local industries become more innovative at the 'generation' phase, foreign technology owners are more sensitive

⁷⁷ See Correa, C. (2000a). Emerging trends: new patterns of technology transfer. In Patel, S., Roffe, P. and Yusuf, A. (eds.), *International Technology Transfer: The Origins and Aftermath of the United Nations Negotiations on a Draft Code of Conduct*, Kluwer Law International, the Hague, p. 263.

⁷⁸ These "technological partnerships" may be regarded as a particular form of strategic alliances. See, e.g., Mothe, Caroline, (1997), *Comment Réussir une Alliance en Recherche et Développement*, L'Harmattan, Paris, p. 73.

about possible imitation, while local demands for strengthened IPRs protection also emerge in order to protect growing domestic investments in R&D and to stimulate the licensing-in of more up-to-date foreign technologies⁷⁹.

As noted above, historically countries have adapted their IPRs regimes to their different levels of economic and technological development. They increased IPRs protection, notably in the case of patents, as their industries reached higher levels of technological capacity. This adaptive approach is now precluded for WTO members, except LDCs until the expiry of the transitional periods allowed under article 66.1 of the TRIPS Agreement. Developing countries have been required to introduce standards of protection at the 'initiation' and 'internalization' stages before they have reached a situation in which they could benefit from some forms of IPRs protection.

Proponents of the TRIPS Agreement have argued that the strengthening of IPRs protection would increase technology transfer to developing countries. The availability of protection and the enforceability of conferred rights would provide title-holders sufficient assurances to part with their technologies and would promote its transfer. This simplistic view ignored, however, the firms' preference to directly exploit their technological advantages, wherever possible, rather than sharing it with potential competitors⁸⁰.

An important issue for policy makers is the extent to which the standards of the TRIPS Agreement may be implemented in a manner that favors technology transfer to developing countries. A number of flexibilities can be used by such countries for that purpose.

It is worth recalling that, the Doha Declaration on the TRIPS Agreement and Public Health, adopted in Doha in November 2001^{81, 82}. Although this Declaration⁸³ specifies

⁷⁹ See e.g., Correa, Carlos (2007), *Intellectual property in LDCs: strategies for enhancing technology transfer and dissemination*, UNCTAD, 2007, available at www.unctad.org/Templates/Page.asp?intItemID=4316&lang=1.

⁸⁰ In cases where technology is transferred, the recipient's capacity to compete is generally limited by means of contractual restrictions, such as limitation of the license to a limited territory, prohibition to export and field of use restrictions.

⁸¹ WT/MIN(01)/DEC/W/2, 14 November 2001 (hereinafter 'the Doha Declaration').

some of the flexibilities available to facilitate access to pharmaceutical products, it is relevant to IPRs in any field of technology. The wording of the *chapeau* of paragraph 5 makes it clear that it only enumerates *some* of the possible flexibilities⁸⁴. In particular, Paragraph 5 (a) and (b) of the Declaration (see Box 1) are important for the implementation of measures intended to expand domestic production with the use of protected technologies.

Box 1. Doha Declaration on TRIPS and Public Health- Paragraphs 5 (a) and (b)

a. In applying the customary rules of interpretation of public international law, each provision of the TRIPS Agreement shall be read in the light of the object and purpose of the Agreement as expressed, in particular, in its objectives and principles.

b. Each member has the right to grant compulsory licences and the freedom to determine the grounds upon which such licences are granted.

Sub-paragraph (a) of paragraph 5 of Doha Declaration confirms the relevance of article 7 of the TRIPS Agreement for the interpretation of its provisions⁸⁵. This article provides

⁸² Paragraph 4 of the Doha Declaration states:

‘We agree that the TRIPS Agreement does not and should not prevent members from taking measures to protect public health. Accordingly, while reiterating our commitment to the TRIPS Agreement, we affirm that the Agreement can and should be interpreted and implemented in a manner supportive of WTO members’ right to protect public health and, in particular, to promote access to medicines for all.

In this connection, we reaffirm the right of WTO members to use, to the full, the provisions in the TRIPS Agreement, which provide flexibility for this purpose’.

⁸³ A declaration is not, under WTO law an ‘authoritative interpretation’ in terms of Article IX.2 of the Marrakesh Agreement Establishing the WTO. However, in practice it may have equivalent effects. Members have provided in paragraph 5 of the Doha Declaration an agreed interpretation on certain aspects of the TRIPS Agreement that WTO panels and the Appellate Body should take into account in disputes relating to that Agreement.

⁸⁴ The chapeau of paragraph 5 of the Doha Declaration states: ‘ Accordingly and in the light of paragraph 4 above, while maintaining our commitments in the TRIPS Agreement, we recognize that these flexibilities include:...’.

⁸⁵ Before the adoption of the Doha Declaration, in *Canada-Patent protection of pharmaceutical products*, a WTO panel had argued, in connection with TRIPS Article 30, that “the goals and the limitations stated in Articles 7 and 8 ” as well as those of “other provisions of the TRIPS

that the protection and enforcement of intellectual property rights ‘should contribute to the promotion of technological innovation and to the transfer and dissemination of technology’, thereby suggesting that the TRIPS Agreement must be interpreted in a manner that favors access by third parties to technology necessary to further innovation and domestic production. The Agreement should not be regarded as a charter of absolute rights to control the exploitation of protected technologies, but rather as an instrument that requires the use of such technologies ‘to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare’ (article 7).

The confirmation of the Members’ leeway to determine the grounds for the granting of compulsory licenses in sub-paragraph (b) opens the possibility for granting such licenses in cases of lack of industrial exploitation of a patent, as further discussed below. Although limited to Least Developed Countries (LDCs), paragraph 7 of the Doha Declaration also confirms that transfer of technology in order to create manufacturing capacity is consistent with the objectives of the TRIPS Agreement⁸⁶.

Scope of protection

A basic flexibility in the TRIPS Agreement relates to the scope of protection conferred under different types of IPRs. Although WTO Members do not have full freedom to determine such a scope, they have certain margin to apply more or less expansive policies. Some examples of such a flexibility are given below.

Under *copyright* rules countries may limit protection to works that present some level of *originality* to be determined in accordance with criteria set out by the national law. Countries have historically applied different criteria to establish originality, and the TRIPS Agreement does not specify how strict such criteria should be. The stricter the criteria, the narrower the scope of protection⁸⁷. In addition, said Agreement does not

Agreement which indicate its object and purposes ...must obviously be borne in mind” in interpreting TRIPS provisions (WT/DS114/R, 17 March 2000, para. 7.26).

⁸⁶ Paragraph 7: ‘We reaffirm the commitment of developed-country members to provide incentives to their enterprises and institutions to promote and encourage technology transfer to least-developed country members pursuant to Article 66.2...’.

⁸⁷ For example, in Germany, where the determination of originality was subject to more stringent criteria than under US and other laws, computer programs that were deemed copyrightable under the latter were not protectable under German law.

oblige Member countries to implement TPMs or anti-circumvention measures. Even if they opted to join the WIPO Copyright Treaty (1996), this Treaty permits contracting parties to allow access to digitized information for fair use, a possibility precluded under some national laws. Similarly, the TRIPS Agreement does not oblige Members to protect non-original databases, as is the case, as noted above, under European law⁸⁸. In the field of computer programs, based on the already mentioned 'idea-expression dichotomy'- national laws may allow for the reverse engineering of source code.

WTO Members are obliged, under article 15.1 of the TRIPS Agreement, to protect *trademarks* defined as 'any sign, or any combination of signs, capable of distinguishing the goods or services of one undertaking from those of other undertakings'. The same provision stipulates that 'Members may require, as a condition of registration, that signs be visually perceptible'. This means that members may, but are not obliged to protect olfactory or sound marks⁸⁹.

The room for maneuver left by the TRIPS Agreement in the area of *patents* to determine the scope of protection may be of great significance for innovation and industrialization policies in developing countries where the overwhelmingly majority of patents are of foreign origin⁹⁰. Although such a room is limited, it may be used to facilitate follow-on innovation and transfer of technology. The TRIPS Agreement specifies that an

⁸⁸ The FTAs signed by the USA do not contain an obligation to protect such databases, consistently with US legislation that so far has not incorporated the European type of protection. Although article 139.3 of the 'Economic Partnership Agreement' between the EU and CARIFORUM countries includes 'data bases' in the definition of 'intellectual property', it does not develop specific standards of protection for them.

⁸⁹ There have also been attempts to register 'taste' marks. For instance, Eli Lilly tried to register the taste of artificial strawberry flavour as a taste mark for pharmaceuticals. This met with objections in 2003 from the US Patent and Trademark Office (USPTO) based on Articles 7(1)(a) (insufficient graphic representation), 7(1)(b) (lack of distinctive character) and 7(1)(c) (the mark was descriptive of the goods, or one of their characteristics) (see <http://ipkitten.blogspot.com/2003/09/taste-mark-refused-trade-mark.html>). In *In re N.V. Organon*, (Serial No. 76467774, 79 USPQ2d (BNA) 1639 (TTAB 14 June 2006) the USPTO also held that the flavour orange is not registrable for use with quick-dissolving antidepressant tablets and pills (see <http://jiplo.oxfordjournals.org/cgi/content/abstract/2/5/279>).

⁹⁰ Some reports have indicated a notable expansion in local patenting in some developing countries, but a correct interpretation of data suggests an overstatement of current trends. See X Li, 'Demystifying explosion in patenting growth rate', *South Bulletin*, Issue 1, October 2007, available at <http://www.southcentre.org> (last visited 19 November 2007).

invention should be patented if it meets the standards of novelty, inventive step (or non-obviousness) and industrial applicability (or utility). However, the Agreement

- a) does not define what an ‘invention’ is. Hence, WTO Members may exclude from patentability products found in nature, features inherent in certain matters⁹¹, computer programs, and business methods which are, however, patentable in some jurisdictions (e.g. USA) under expansive rules on patentability.

- b) allows for different interpretations of the concept of novelty, inventive step and industrial applicability. For instance, under US law a double standard of novelty is applied depending on whether the disclosure of the invention has taken place within or outside the territory of the USA (35 U.S.C section 102 (a))⁹². The USA defended this flexibility at the Council for TRIPS arguing that there was ‘no prescription as to how WTO Members define what inventions are to be considered “new” within their domestic systems’ and, hence, that its legislation was ‘perfectly consistent with the provisions of the TRIPS Agreement’⁹³.

Of crucial importance for developing countries is the flexibility available to determine the existence of ‘inventive step’. As mentioned, some countries (such as the USA) apply lax standards of patentability thereby allowing for the proliferation of patents over very minor technical developments in various fields. Patents are growingly used as strategic instruments to block competition and third parties’ innovation rather than to recoup research and development costs. There is a significant increase in litigation costs, but most importantly, patents fail to perform its intended function as an incentive for innovation. In accordance to a recent study,

the net incentives provided by the patent system vary significantly across industries and other groupings. For example, the chemical and pharmaceutical

⁹¹ Such as the polymorphic forms of a chemical compound.

⁹² According to this section ‘A person shall be entitled to a patent unless the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States...’.

⁹³ See document IP/Q3/USA/1, May 1, 1998.

industries show substantially more positive incentives than do other industries. Second, although firms in the chemical and pharmaceutical industries have positive incentives, by the late 1990s the net incentives of the patent system became significantly negative outside of these industries⁹⁴.

A key point is that patent offices and courts can apply more or less lax or stringent criteria to determine non-obviousness/inventive step. Since the TRIPS Agreement does not define the concept of inventive step, is that Member countries are free to determine whether they want a system under which a myriad of incremental innovations are patentable, or one aimed at rewarding more substantive departures from the prior art.

Although it might be argued that a low standard of inventive step would permit patenting by local companies, there is no economic justification to grant patent rights over minor innovations, whether claimed by local or foreign companies, as patents would limit their diffusion without any significant gains in terms of the creation of a domestic technological capacity. Moreover, since patents are costly to obtain and, in particular, to enforce, a low threshold of patentability is likely to overwhelmingly favor foreign companies with sophisticated patenting strategies and well established and funded departments to manage intellectual property assets. In addition, incremental developments may be protected under utility models⁹⁵.

For a developing country willing to promote the absorption of foreign technologies and domestic innovation, the best policy would seem to keep the standard of inventive step high so as to facilitate the broad dissemination of minor/incremental innovations and

⁹⁴ Judges, p. 120-121. While this statement is applicable for a large economy like the USA, the finding about the incentives for the pharmaceutical industry needs to be qualified. As observed by the CIPIH, patents only work in sector for the development of products for profitable markets; they don't when potential consumers are poor.

⁹⁵ The requirements for acquiring a utility model 'are less stringent than for patents. While the requirement of "novelty" is always to be met, that of "inventive step" or "non-obviousness" may be much lower or absent altogether. In practice, protection for utility models is often sought for innovations of an incremental character' (WIPO at www.wipo.org/sme/en/ip_business/utility_models/). Utility models are generally granted without prior examination and the term of protection is shorter than that of patents.

induce local and foreign companies to make genuine contributions to the state of the art in order to gain the monopolistic position conferred by a patent.

Duration of rights

The TRIPS Agreement and some international conventions stipulate minimum terms for IPRs. Countries, as suggested above, may opt to extend such terms. From a development perspective, however, it would seem logical to keep the exclusive rights as short as possible in order to make available the subject matter available for use without authorization or compensation.

In the area of copyright, for instance, the rights last for a very long period *post mortem auctoris*. A sound option is to grant the minimum term required by the TRIPS Agreement and the Berne Convention⁹⁶. In the last twenty years, however, the term of protection has expanded in many countries. Prof. Boyle has noted in this regard that

copyright term limits are now absurdly long. The most recent retrospective extensions, to a term which already offered 99% of the value of a perpetual copyright, had the practical effect of helping a tiny number of works that are still in print, or in circulation. Estimates are between 1% and 4%. Yet in order to confer this monopoly benefit on a handful of works, works that the public had already “paid for” with a copyright term that must have been acceptable to the original author and publisher, they deny the public access to the remaining 96% of copyrighted works that otherwise would be passing into the public domain⁹⁷.

The minimum term for patents is, in accordance with article 34 of the TRIPS Agreement, 20 years from the date of filing. Some free trade agreements include provisions requiring the extension of such a term (generally for up to five years) to compensate the title-holder for delays in the examination of the patent application or in

⁹⁶ The general term of protection is the life of the author and fifty years after his death. In the case of works that belong to a juridical person, the term is fifty years (from the end of the calendar year of authorized publication, or, failing such authorized publication within 50 years from the making of the work, 50 years from the end of the calendar year of making the work). See article 7 of the Berne Convention and article 12 of the TRIPS Agreement.

⁹⁷ Boyle, J. (2004) ‘A Manifesto on WIPO and the future of intellectual property’, *Duke Law & Technology Review*, No. 9, available at <http://www.law.duke.edu/journals/dltr/articulos/PDF/2004DLTR0009.pdf>.

the marketing approval of a pharmaceutical product. These are clearly TRIPS-plus provisions that make the public pay for inefficiencies in the administration. The extension of the patent term for administrative delays may be abused since the title-holder, who will benefit from a longer monopoly, may deliberately delay the applicable procedures. For the same reasons, it may also favor corruption within the administration.

In the case of trademarks, the Agreement ensures that they would be indefinitely renewable, provided that they are used within given periods.

Exceptions to exclusive rights

Independently of how broadly or narrowly the subject matter of protection is defined, national laws may, consistently with the TRIPS Agreement, provide for various exceptions to the exclusive rights granted by IPRs.

All kinds of IPRs may be subject to the principle of international exhaustion of rights, in accordance to which parallel imports, that is, the importation of protected products without the consent of the title-holder, are permissible. Parallel imports may allow the acquisition of inputs for local production, as well as products for final consumption, at prices lower than those charged domestically by the patent owner or his licensees. Occasionally it has been argued that parallel imports may disadvantage local production and that a prohibition thereof would be consistent with policies encouraging local production. This reasoning is flawed, since when a product is patented in a given country only the patent owner (or the persons authorized by him)⁹⁸ has the right to commercialize it, including through local production or importation. Hence, prohibiting parallel imports only means that the patent owner is given the power to charge prices that may be higher than those applied in other countries for the same products.

In the area of *copyright*, the legality of possible exceptions to exclusive rights is controlled by the three-step test contained in article 9(2) of the Berne Convention and article 13 of the TRIPS Agreement. While the scope of the allowed exceptions is subject

⁹⁸ The case of compulsory licenses will be further discussed below.

to interpretation⁹⁹, there is no doubt that said provisions permit national laws to exempt a number of acts such as:

- use of a work for informational, scientific, and educational purposes;

-“minor” reservation in respect of performing, recitation, broadcasting, recording and cinematographic rights;

-the use of copyright works in broadcasts;

- reproduction of works

1. for personal use;

2. for quotations and citations;

3. by libraries and archives for storage and replacement;

4. for ephemeral recordings;

5.. on current events for informatory purposes by the press;

6. consisting of official texts and their translations, political speeches and speeches delivered in the course of legal proceedings¹⁰⁰.

Some exceptions to the exclusive rights conferred by a patent, allowed under article 30 of the TRIPS Agreement, may also be important to promote competition follow-on innovation, and transfer of technology.

⁹⁹ A group of experts (comprised of academics and practitioners) convened by the Max Planck Institute for Intellectual Property and the School of Law at Queen Mary (London) recently concluded that

the current definition and interpretation of the three-step test by European national courts and the WTO was incomplete or inaccurate. They suggested that the ‘Three-Step Test should be interpreted in a

manner that respects the legitimate interests of third parties, including

- interests deriving from human rights and fundamental freedoms;
- interests in competition, notably on secondary markets; and
- other public interests, notably in scientific progress and cultural, social, or economic development” (Uma Suthersanen 2008, A2K and the WIPO Development Agenda: Time to List the “Public Domain”, ICTSD, Policy Brief No.1 Series, Geneva, available at <http://ictsd.net/i/publications/37142/>).

¹⁰⁰ See, e.g., Ruth Okediji (2005), *The International Copyright System: Limitations, Exceptions and Public Interest Considerations for Developing Countries in the Digital Environment*, available at www.iprsonline.org/unctadictsd/docs/Okediji_Copyright_2005.pdf.

The exception known as 'early working' (or 'Bolar exception') allows a company to conduct the procedures for the approval of a generic version of a patented product before the expiry of a third party's patent. This exception is of particular importance for public health policies, as it permits the early entry of generic competitors that drives the prices of medicines down. The TRIPS validity of the exception, as provided for in Canadian law, was challenged by the European Communities. The Canadian government has expressed in this connection that

Finding the right balance between creators and users of IP, as the pace of technological change in Canadian and global marketplaces accelerates, has proven to be a continuing process of domestic consultation and legislative revision. Canada has utilised the flexibility provided for in the TRIPS Agreement to create an exception whereby a patent can be worked by anyone seeking regulatory approval for the product. This "early working" can only be in relation to that regulatory approval. Canada's successful defence of the "early working" or regulatory exception at the WTO Dispute Settlement Body validates a fundamental element of our patent regime. In the pharmaceutical industry, it has been demonstrated that this exception accelerates the market access of generic drugs by a period of 3 to 6.5 years (the average time required to prepare for and complete the regulatory approval process for a generic drug)¹⁰¹.

¹⁰¹ WT/WGTTT/2, 9 October 2002, Working Group on Trade and Transfer of Technology, Technology transfer - The Canadian experience. Communication from the Government of Canada, available at <http://www.international.gc.ca/trade-agreements-accords-commerciaux/assets/pdfs/WT-WGTTT-2-en.pdf>, para. 13.

Of more general application may be what is known as the ‘experimentation’ or ‘research’ exception¹⁰². It provides a defence to any person that uses a patented invention to test it, for instance, to establish the validity of the respective patent, to request a license or to improve on the patented technology. If broadly conceived, so as to include both commercial and non-commercial purposes, this exception creates a space for ‘inventing around’ patented inventions and follow-on innovations. Of course, countries with a developed innovation system may benefit more from this exception than those with weak innovative capacities, but even if the exception could be used in rare occasions in the latter, as the technological base of the country upgrades, increased use of the exception is likely.

Compulsory licenses

Compulsory licenses constitute an important flexibility for countries willing to address various public needs, such as access to cultural expressions, national emergencies, anti-competitive practices, excessive pricing and other abuses of IPRs holders. With the exception of trademarks¹⁰³, such licenses may be provided for in relation to any title of IPRs¹⁰⁴.

In the field of copyright, national laws provide for a broad range of compulsory licenses, for instance, for the public broadcasting of artistic performances. They can also be conferred (albeit under certain limitative conditions) for the translation or reproduction of copyrighted work in developing countries¹⁰⁵.

¹⁰² For an analysis of comparative law on the subject see C Correa, *The International Dimension of the Research Exception*, SIPPI Project, AAAS, Washington D. C., available at <http://sippi.aaas.org/intlexemptionpaper.shtml>, 2005 (last visited 30 November, 2007).

¹⁰³ Article 21 of the TRIPS Agreement bans compulsory licenses in the case of trademarks (‘...it being understood that the compulsory licensing of trademarks shall not be permitted...’).

¹⁰⁴ In the case of patents and designs (topographies) of integrated circuits ‘a compulsory license shall only be for public non-commercial use or to remedy a practice determined after judicial or administrative process to be anti-competitive’ (article 31, TRIPS Agreement).

¹⁰⁵ See the Appendix to the Berne Convention for the Protection of Literary and Artistic Works.

During the XIX Century and in line with the Paris Convention (as amended in 1925), many countries introduced the possibility of granting a compulsory license¹⁰⁶ in cases of lack or insufficient exploitation of a patent in the country of grant. This provision was in tune with the then dominant idea that patents had to be conceived as a vehicle for technology transfer and a tool to promote industrialization. In the negotiation of the TRIPS Agreement, developed countries tried hard to eliminate the possibility of granting compulsory licenses on those grounds, but a compromise deal around article 27.1 of the Agreement kept it open¹⁰⁷.

Although the USA¹⁰⁸ and some commentators have read article 27.1 in the sense that it precludes the grant of compulsory licenses for lack of exploitation of a patent, an interpretation in accordance with articles 31 and 32 of the Vienna Convention on the Law of Treaties suggests that such licenses are TRIPS consistent¹⁰⁹.

The USA is probably the country where the largest number of compulsory licenses has been granted, namely to remedy anti-competitive practices and in exercising government's power to use any patented invention for non-commercial purposes¹¹⁰. Moreover, the US Clean Air Act 1988 42 USC Sec. 7608)¹¹¹ specifically provides for

¹⁰⁶ Some patent laws, such as the French law of 1844, provided for more drastic remedies: a patent could be revoked in case of lack of local exploitation. The Paris Convention did not disallow revocation in these cases, but made it conditional upon failure of a prior compulsory license. See article 5A of the Convention.

¹⁰⁷ Article 27.1: "...patent rights shall be enjoyable without discrimination...whether the products are imported or locally produced".

¹⁰⁸ In January 2001, the US brought a complaint against Brazil arguing that the Brazilian law's authorization to grant compulsory licenses when patents were not worked was TRIPS-inconsistent (*Brazil – Measures Affecting Patent Protection*, Request for the Establishment of a Panel by the United States, January 9, 2001, WT/DS199/3). However, the US withdrew the complaint before a panel was established. Without prejudice to their respective positions, the United States and Brazil agreed to enter into bilateral discussions before Brazil makes use of Article 68 against a U.S. patent holder (*Brazil – Measures Affecting Patent Protection*, Notification of Mutually Agreed Solution, WT/DS199/4, G/L/454, IP/D/23/Add.1, July 19, 2001).

¹⁰⁹ See e.g., C Correa, Can the TRIPS Agreement Foster Technology Transfer to Developing Countries? in *International public goods and transfer of technology under a globalized intellectual property regime*, Keith E. Maskus and Jerome H. Reichman (editors), Cambridge Press, Cambridge, 2005.

¹¹⁰ See, e.g. Reichmann, J. and Hasenzahl, C. (2003) "Non-Voluntary Licensing of Patented Inventions: Historical Perspective, Legal Framework under TRIPS, and an Overview of the Practice in Canada", ICTSD, available at www.iprsonline.org/ictsd/Dialogues/2007-05-03/Section%20Final%20Toolkit/Annex%20D-%20

¹¹¹ § 7608. Mandatory licensing: Whenever the Attorney General determines, upon application of the Administrator— (1) that—

‘mandatory licensing’ when a patented invention is not available for the implementation of some of the Act’s requirements.¹¹² Further, the United States Energy Storage Competitiveness Act of 2007 created a system of compulsory licenses for energy storage technologies. In a number of decisions issued in the last five years, the US Supreme Court and lower courts have decided the judicial grant of compulsory licenses of patents based on equity considerations¹¹³.

Some developing countries (e.g., Thailand, Brazil, Indonesia, Malaysia) have granted in the last ten years compulsory licenses or authorized the government use of a number of patents relating to pharmaceuticals, notably anti-retrovirals¹¹⁴.

Technology transfer

Finally, transfer of technology and its impact on industrialization may be influenced by the contractual conditions under which such transfer takes place. As noted above, licensing agreements generally contain restrictive clauses. They may limit economies of scale (e.g. when exports are forbidden), discourage improvements on the technology received (e.g. grant-back provisions), limit the field of use of the technology (field-of-use restrictions) or otherwise constrain the productive, technical or commercial activities of the licensee. Article 41 of the TRIPS Agreement recognizes the States’

(A) in the implementation of the requirements of section 7411, 7412, or 7521 of this title, a right under any United States letters patent, which is being used or intended for public or commercial use and not otherwise reasonably available, is necessary to enable any person required to comply with such limitation to so comply, and

(B) there are no reasonable alternative methods to accomplish such purpose, and
(2) that the unavailability of such right may result in a substantial lessening of competition or tendency to create a monopoly in any line of commerce in any section of the country, the Attorney General may so certify to a district court of the United States, which may issue an order requiring the person who owns such patent to license it on such reasonable terms and conditions as the court, after hearing, may determine. Such certification may be made to the district court for the district in which the person owning the patent resides, does business, or is found.

¹¹² The US Atomic Energy Act 1988 (42 USC Sec. 2183) also provides for compulsory licenses in specific cases.

¹¹³ See *eBAY INC. et al v. MERCExchange* No. 05-130; 401 F. 3d 1323, available at <http://www.supremecourtus.gov/opinions/05pdf/05-130.pdf>.

¹¹⁴ See, e.g., Cecilia Oh, ‘Compulsory licences: Recent experiences in Developing Countries’, *International Journal of Intellectual Property Management*, vol. 1, No 1

right to control such practices but limits to some extent the governments' room in defining and condemning them¹¹⁵.

Many developing countries adopted specific regulations on technology transfer in the 1970's (imposing controls on restrictive practices, royalty payments, guarantees, law and jurisdiction) but most of such regulations have been derogated or significantly weakened. This is paradoxical, on the one hand, because developed countries apply their competition laws to restrictive practices in licensing agreements and, on the other, because such regulations seems more necessary now than in the past, when developing countries were able to apply more relaxed IPRs regimes and their bargaining position to obtain better terms and conditions with technology owners was eventually stronger¹¹⁶.

Limiting TRIPS flexibilities

While the TRIPS Agreement leaves, as examined above, a number of flexibilities that may be used by countries willing to upgrade their technological capabilities, a number of FTAs and other bilateral agreements have significantly limited the available options. Thus, in the area of copyright such agreements require the establishment of strict TPMs and anti-circumvention measures and extend the term of protection beyond the requirement under the Berne Convention and the TRIPs Agreement. In the area of patents, some agreements impose extensions of the patent term to compensate for administrative delays in the examination of patent applications and in the marketing approval of a pharmaceutical product, and limit the grounds for the grant of compulsory licenses¹¹⁷. They also significantly enhance enforcement obligations. These are only a few examples, as the number of TRIPS-plus provisions on different aspects of IPRs are

¹¹⁵ See P. Roffe and C. Spennemann (2008), Control of Anti-competitive Practices in Contractual Licenses under the TRIPS Agreement, in C. Correa and A. Yusuf, *Intellectual property and international trade. The TRIPS Agreement*, Kluwer Law International, London, second edition.

¹¹⁶ Royalty payments for foreign technologies have substantially increased in some countries. Thus, chinese royalty payments multiplied by ten between 1997 and 2005 (see http://www.nationmaster.com/time.php?stat=eco_roy_and_lic_fee_pay_bop_cur_us-fees-payments-bop-current-us&country=ch-china).

¹¹⁷ Such as in the case of Jordan and Sri Lanka. However, the FTAs signed after the Doha Declaration on the TRIPS Agreement and Public Health did not contain such a limitation.

numerous and substantially elevate the protection afforded in the signatory countries, in some cases even beyond what is available in the USA¹¹⁸.

Issues relating to innovation and transfer of technology have arisen in bilateral treaties involving IPRs. For instance, the Andean countries attempted to include certain provisions on transfer of technology in the FTA they negotiated with the USA. What they obtained is very modest. The US FTA with Peru, for instance, only contains in article 16.12 ('Promotion of Innovation and Technological Development') very general commitments about 'science and technology cooperation'. The commitment to identify areas for such cooperation and, as appropriate, engage in collaborative' projects is limited to 'scientific research' (paragraph 1), while '[A]ny such collaborative activities or transfer of technology shall be based on mutually agreed terms' (paragraph 2).

CARIFORUM countries obtained, in their negotiations with the EU of an Economic Partnership Agreement (EPA) a broader set of commitments on innovation and technology transfer. The objectives of the chapter on 'Innovation and intellectual property' are quite ambitious (see Box 2)

Box 2

CARIFORUM-EC Economic Partnership Agreement

Article 132. Objectives

The objectives of this Chapter are to:

- (a) promote the process of innovation, including eco-innovation, of enterprises located in _____ the _____ Parties;
- (b) foster competitiveness of enterprises and in particular micro, small and medium-

¹¹⁸ See Frederick Abbott (2006), *Intellectual Property Provisions of Bilateral and Regional Trade Agreements in Light of U.S. Federal Law*, UNCTAD - ICTSD Project on IPRs and Sustainable Development, Februar, Issue Paper No. 12), Geneva.

sized enterprises of the Parties;

(c) facilitate the production and commercialization of innovative and creative products between the Parties;

(d) achieve an adequate and effective level of protection and enforcement of intellectual property rights;

(e) contribute to the promotion of technological innovation and to the transfer and dissemination of technology and know-how;

(f) encourage, develop and facilitate cooperative research and development activities in science and technology between the Parties, as well as to develop lasting relations between the Parties' scientific communities.

(g) encourage, develop and facilitate cooperative production and development activities in the creative industries between the Parties, as well as to develop lasting relationships between the Parties creative communities.

(h) promote and strengthen regional cooperative activities involving the outermost regions of the European Community, so as to allow these regions and the CARIFORUM States to mutually benefit from their neighbourhood situation by developing an innovative and competitive regional area.

The CARIFORUM-EPA contains a number of commitments regarding the participation in 'framework programmes' (article 134), cooperation in the area of competitiveness and innovation (Article 135) and on science and technology (Article 136). Of particular interest is article 142 on 'Transfer of Technology'. Its paragraph 3 reads:

The EC Party shall facilitate and promote the use of incentives granted to institutions and enterprises in their territories for the transfer of technology to institutions and enterprises of the CARIFORUM States in order to enable the CARIFORUM States to establish a viable technological base. The EC Party shall endeavour to bring any known measures to the attention of the CARIFORUM EC Trade and Development Committee for discussion and review.

This provision extends the obligation to confer incentives for the transfer of technology to all CARICORUM States. It represents a step forward in relation to article 66.2 of the

TRIPS Agreement, as the latter only applies in connection with Least Developed Countries (LDCs)¹¹⁹.

4. International governance of the IPRs system

The birth and development of the IPRs system was marked by the principle of *territoriality*. This means that validity and enforceability of IPRs is, with some exceptions, limited to the territory of the country where the right is granted or recognized. That principle reflects the importance of the national dimension in the design of IPRs laws.

Notwithstanding the weight of the national dimension in IPRs policy making, in the last twenty years there has been a growing intervention of regional and international organizations in norm- setting in this area and some limited outcomes in the process of harmonization of IPRs laws.

As indicated in Table 1, a large number of conventions have been signed since the end of the XVIII Century.

Table 1
Main international conventions on IPRs¹²⁰

¹¹⁹ See Sisule Musungu, (2008), *Innovation and Intellectual Property in the EC-CARIFORUM EPA: Lessons for other ACP Regions*. A Study Commissioned by GTZ, p. 12-13.

¹²⁰ The IPRs treaties signed are the following:

1. Berne- Berne Convention for the Protection of Literary and Artistic Works as amended on September 28, 1979;
2. Brussels- Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite adopted at Brussels on May 21, 1974;
3. Budapest- Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure as amended, October 1, 2002)
4. Geneva Phonogram- Convention for the Protection of Producers of Phonograms against Unauthorized Duplication of Their Phonograms, of October 29, 1971;
5. Hague- The Hague Agreement Concerning the International Deposit of Industrial Designs of November 6, 1925;
6. Lisbon- Agreement for the Protection of Appellations of Origin and their International Registration of October 31, 1958, as revised at Stockholm on July 14, 1967, and as amended on September 28, 1979
7. Locarno- Agreement Establishing an International Classification for Industrial Designs, as amended on September 28, 1979

Period	Main international conventions
1880-1890	Paris 1883 Berne 1886 Madrid 1891
1960-1970	Rome 1961 UPOV 1961 Lisbon 1967 Patent Cooperation Treaty 1970 Geneva 1971 Brussels 1974 Budapest 1977

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8. Madrid - Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods, as of 1967;
 9. Madrid- Agreement Concerning the International Registration of Marks of April 14, 1891, as last revised at Stockholm on July 14, 1967 and amended on September 28, 1979
 10. Madrid Protocol- Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks, adopted at Madrid on June 27, 1989
 11. Nice- Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks of June 15, 1957, as amended on September 28, 1979
 12. Paris- Convention for the Protection of Industrial Property of March 20, 1883, as last revised at Stockholm on July 14, 1967, and as amended on September 28, 1979
 13. PCT- Patent Cooperation Treaty, as in force from January 1, 2004;
 14. Rome- International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations, October 26, 1961;
 15. Strasbourg- Agreement Concerning the International Patent Classification of March 24, 1971, as amended on September 28, 1979;
 16. TLT-Trademark Law Treaty adopted at Geneva on October 27, 1994
 17. UPOV- International Convention for the Protection of New Varieties of Plants of December 2, 1961, as Revised at Geneva on November 10, 1972, on October 23, 1978, and on March 19, 1991
 18. Vienna- Vienna Agreement Establishing an International Classification of the Figurative Elements of Marks, as amended on October 1, 1985;
 19. Washington -Treaty on Intellectual Property in Respect of Integrated Circuits, adopted at Washington on May 26, 1989
 20. WCT- WIPO Copyright Treaty and Agreed Statements Concerning the WIPO Copyright Treaty December 20, 1996;
 21. WPPT- WIPO Performances and Phonograms Treaty and Agreed Statements Concerning the WIPO Performances and Phonograms Treaty (adopted in Geneva on December 20, 1996);

1990-2000	TRIPS 1994 Trademark Law 1994 WIPO Copyright 1996 WIPO Performers-Phonograms 1996 Patent Law 2000
2001-2009	Free Trade Agreements

At the end of the XIX Century two ground-breaking international conventions were adopted: the Paris Convention on the Protection of Industrial Property (1983) and the Berne Convention for the Protection of Literary and Artistic Works (1886). The Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods was also adopted in that period (1891).

After several decades with little normative activity (except for the revisions of the Paris Convention) a new and strong impetus to the international IPRs system appeared in the 1960's and 1970s, with the adoption of several important instruments: the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (1961), the International Convention for the Protection of New Varieties of Plants (UPOV) (1961), the Lisbon Agreement for the Protection of Appellations of Origin and their International Registration (1967), the Patent Cooperation Treaty (1970), the Geneva Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms (1971), the Brussels Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite (1974) and the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (1977). Of particular relevance in the patent area was the adoption of the Patent Cooperation Treaty, which facilitates the international registration of patents in 136 countries.

During the seventies, and in the context of new perspectives on development, developing countries aimed at reversing the trend towards the expansion of IPRs and proposed a revision of the Paris Convention. One of the main goals of the revision was to amend article 5A in order to promote the use of patented inventions in the countries of registration¹²¹. However, not only this initiative failed, but developed countries took the offensive again and proposed a new and ambitious instrument in the framework of GATT which eventually led to the adoption of the TRIPS Agreement (1994), followed by the Trademark Law Treaty (1994), the WIPO Copyright Treaty (1996), the WIPO Performers and Phonograms Treaty (1996) and the Patent Law Treaty (2000).

¹²¹ See Roffe, P. and Tesfachew, T. (2001), International Technology Transfer. The origins and aftermaths of the United Nations Negotiations on a Draft Code of Conduct, Kluwer Law International, The Hague, p. 388

This new wave of international agreements confirmed, as noted by Coriat, that the move towards trade liberalization and an increasingly intensive usage of knowledge in all spheres of human activity was ‘accompanied by a heretofore unrecognized rise in “entry barriers” that impede access to knowledge’¹²².

From the early 1990s, various Directives have harmonized several areas of IPRs in the European Union, notably trademarks, and some aspects of copyright (mainly scope and duration of copyright protection) and design law. More recently agreements were reached in the area of enforcement¹²³. EU legislative activity in this area has shown how difficult has been to harmonize substantive or procedural IPRs rules at the European level. Thus, the establishment of an ‘European patent’ has not been agreed upon yet despite many years of negotiations, and two of the latest directives (on the Resale right 2001/84/EC and the Information Society, 2001/29/EC) took between 4 and 5 years to be approved.

There have also been processes of harmonization in other regions, such as in the case of the Andean Community, where ‘common regimes’ on industrial property, copyright and PVP have been adopted. French speaking African countries have harmonized patent law under the Organisation African de Propriété Intellectuelle (OAPI).

Interestingly, where harmonization has succeeded at the regional level, the principle of territoriality has been preserved. Even the most ambitious piece of international law on the subject, the TRIPS Agreement, has kept that principle.

With the adoption of the TRIPS Agreement, WTO has taken a central role in the governance of IPRs. Not only said Agreement has established minimum standards in most fields of IPRs, but the possible application of trade retaliations against non-compliant countries, in accordance with the Dispute settlement Understanding, has increased the enforceability of international obligations in a way that was unknown

¹²² Coriat, Benjamin (2002), The new global intellectual property rights regime and its imperial dimension. Implications for “North/South” relations, Paper prepared for the 50th BNDS Anniversary Seminar Rio de Janeiro, Brazil, September.

¹²³ Enforcement Directive 2004/48/EC.

under the pre-TRIPS conventions¹²⁴. The activities of the Council for TRIPS have allowed Members to monitor other Members' legislation on IPRs and address other issues, such as the relationship between the Convention on Biological Diversity and the TRIPS Agreement and the establishment of an international registry for certain geographical indications. The Council also addressed, upon instruction of the Doha Ministerial Conference¹²⁵, the use of compulsory licenses to supply medicines to countries without manufacturing capacity in the pharmaceutical sector¹²⁶. After a decision was adopted on this matter, the Council seems to have entered into a stage of quasi-paralysis. Disagreement on pending issues persists, while any new initiatives find considerable resistance from WTO Membership. In October 2005 the European Communities and their Member States proposed the TRIPS Council to review enforcement of obligations under the TRIPS to find ways to help fight problems of piracy and counterfeiting¹²⁷. While several developed countries such as the United States and Japan showed general support for this proposal, many developing countries voiced strong opposition¹²⁸. On their side, developing countries took the offensive in the WTO to amend the TRIPS Agreement¹²⁹ through the inclusion of a new provision requiring patent applicants to disclose the origin of genetic resources and associated traditional knowledge covered in patent applications¹³⁰. The USA has vehemently

¹²⁴ Several complaints have been submitted under the DSU in relation to TRIPS. See Mohamed Gad, (2008), TRIPS Dispute Settlement and Developing Country Interests, in C. Correa and A. Yusuf, *Intellectual property and international trade. The TRIPS Agreement*, Kluwer Law International, London, second edition.

¹²⁵ See paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health.

¹²⁶ See WTO Decision of 30 August 2003, and the proposed amendment (incorporation of article 31bis) to the TRIPS Agreement, still subject to approval by WTO Members.

¹²⁷ One of the main reasons why developed countries possibly brought to the TRIPS Council the enforcement issue, was developing countries' resistance against developing TRIPS-plus standards at WIPO's Advisory Committee on Enforcement. This Committee was created on the condition that norm setting would be excluded from its mandate.

¹²⁸ See 'TRIPS Council Issues Still Alive For WTO Ministerial', *Intellectual Property Watch*, 28 October 2005, available at <http://www.ip-watch.org/weblog/index.php?p=123> (last visited 2 March, 2008).

¹²⁹ The proposal (WT/GC/W/564/Rev. 2) originally made by India, Brazil, Peru and other developing countries has been formally endorsed by the Africa Group, the LDC Group and the ACP Group. See Martin Khor (2008), TRIPS: majority of WTO members now support disclosure proposal, *SUNS #6436* 17 March 2008, available at http://www.twinside.org.sg/title2/intellectual_property/info.service/2008/twn.ipr.info.080307.htm.

¹³⁰ See, e.g., Joshua Sarnoff and Carlos Correa (2006), *Analysis of Options for Implementing Disclosure of Origin Requirements in Intellectual Property Applications. A contribution to UNCTAD's response to the invitation of the Seventh Conference of the Parties of the Convention on Biological Diversity*, UNCTAD, New York and Geneva.

objected to this proposal which may still be subject to negotiation in the context of the Millennium Round.

Upon demand by developing countries, the WTO Doha Ministerial Conference (2001) established a Working Group on Trade and Transfer of Technology in order to address developing countries' concerns about the slow flow of technology to their economies. Developing countries noted, at the Working Group, that most provisions in WTO agreements relating to transfer of technology were of "best endeavor" nature rather than binding obligations, and that they should be made operational. Developed countries, however, have argued that the WTO provisions were underpinned by several priorities such as integrating countries into world trade, protecting IPRs, increasing the flow of investment and promoting sustainable development. They also observed that some of these provisions identified technical assistance, training, provision of information and other forms of developmental cooperation as the principle means of promoting Transfer of Technology TOT. They were reluctant to introduce any negotiating aspect into the Working Group¹³¹. Further, developed countries opposed to a discussion of transfer of technology issues in the context of the TRIPS Agreement, as there was a specialized Council (Council for TRIPS) to deal with that matter¹³². The Working Group has been unable to reach any of the objectives that motivated its establishment.

As indicated in Table 1, since year 2000 WIPO has been unable to bring to conclusion any new convention, in spite of the efforts made by the Secretariat and some developed countries. An important reason for this has been the growing unease of developing countries with the unqualified pro-IPRs approach adopted by WIPO Secretariat. Developing countries have blocked in the last five years at least two important IPRs-expanding initiatives sponsored by WIPO:

¹³¹ See Report of the Working Group on Trade and Transfer of Technology to the General Council. Geneva, World Trade Organization, WT/WGTTT/5, 14 July 2003.

¹³² A communication by a group of countries to the Working Group identified the following agreements as having an influence on transfer of technology: the TRIPS Agreement, the Agreement on the application of Sanitary and Phytosanitary (SPS) Measures, the Agreement on Technical Barriers to Trade (TBT), the General Agreement on Trade in Services (GATS), the GATS Annex on Telecommunications, and the Agreement on Subsidies and Countervailing Measures (SCM) (Provisions Relating to Transfer of Technology in WTO Agreements. Communication from Cuba, Egypt, Honduras, India, Indonesia, Jamaica, Kenya, Mauritius, Pakistan and Zimbabwe. Revision. Working Group on Trade and Transfer of Technology, WT/WGTTT/3/Rev.1).

-the Substantive Patent Law Treaty proposed by developed countries to harmonize critical aspects of patent law, such as the patentability requirements¹³³;

-a proposed new treaty on the protection of broadcasting and cablecasting organizations¹³⁴.

Developing countries have also been critical about the bias of the technical assistance provided by WIPO Secretariat, which has been generally delivered with a pro-IPRs approach and little or nothing of a pro-development dimension. On the basis of a proposal for a 'Development Agenda for WIPO' presented at the 2004 WIPO General Assembly¹³⁵, a first set of proposals to change the paradigm under which WIPO works was approved in September 2007 by the WIPO General Assembly. The proposals refer, *inter alia*, to technical assistance, access to knowledge, evaluation and impact studies and governance. A new WIPO Committee on Development and Intellectual Property (CDIP) has been established. One of the objectives of the Development Agenda is to implement the requirement that WIPO undertakes development impact assessments before engaging its members in new norm setting-initiatives.

In view of the situation in WTO and WIPO, developed countries and their business associations have opted to actively engage in bilateral dealings and in 'forum shopping' in order to pursue an agenda of expansion and strengthening of IPRs protection.

As mentioned, a number of free trade agreements (FTAs) that contain TRIPS-plus standards of IPRs protection have been negotiated or signed since 2000. Such agreements have allowed developed countries to obtain concessions on a bilateral basis

¹³³ See, e.g., Carlos Correa and Sisule Musungu (2002), *The WIPO Patent Agenda: the risks for developing countries*, Working Paper No. 12, South Centre, Geneva, available at <http://www.southcentre.org/publications/wipopatent/toc.htm>; Carlos Correa (2004), *The WIPO draft Substantive Patent Law Treaty: a review of selected provisions*, Working Paper 17, South Centre, Geneva, available at www.southcentre.org/publications/workingpapers/wp17.pdf.

¹³⁴ See Viviana Muñoz Tellez and Andrew Chege Waitara (2007), *A development analysis of the proposed WIPO treaty on the protection of broadcasting and cablecasting organizations*, South Centre, Geneva, available at <http://www.southcentre.org/publications/researchpapers/ResearchPapers9.pdf>.

¹³⁵ The proposal was submitted by Argentina and Brazil, and co-sponsored by Bolivia, Cuba, the Dominican Republic, Ecuador, Egypt, Iran, Kenya, Peru, Sierra Leone, South Africa, Tanzania and Venezuela, for the establishment of a development agenda for WIPO (WIPO document WO/GA/31/11).

that were unlikely to be reached in a multilateral framework where, as noted, developing countries have become increasingly reluctant to support a further elevation of IPRs standards¹³⁶.

In looking for more friendly fora than WIPO and WTO for a further expansion and strengthening of IPRs standards, developed countries have attempted to mobilize other international organizations with no mandate to work in the area of IPRs.

The World Customs Organisation (WCO) launched an initiative to issue norms that would expand the application of border measures beyond what is required under the TRIPS Agreement. WCO has promoted the adoption of Provisional Standards Employed by Customs for Uniform Rights Enforcement (SECURE). The WCO also elaborated ‘Model provisions for national legislation to implement fair and effective border measures consistent with the agreement on trade-related aspects of intellectual property rights’¹³⁷. The purpose of these ‘model provisions’ is

to provide national authorities in charge of the preparation and modernisation of customs and/or intellectual property legislation worldwide with recommendations for the implementation of border measures for the protection of intellectual property rights. This guide is intended both for authorities that are introducing border measures for the enforcement of intellectual property rights (IPR) for the first time as well as for those that are conducting or considering legislative reviews or reforms.

The WCO model provisions are deliberately aimed at surpassing the TRIPS standards. WCO argues that

¹³⁶ WIPO document WO/GA/31/11, 27 August, 2004, available at http://www.wipo.int/documents/en/document/govbody/wo_gb_ga/pdf/wo_ga_31_11.pdf.

¹³⁷ See William New (2008), World Customs Organization Recommends Far-Reaching New Rules On IP, *Intellectual Property Watch*, 28 February, available at <http://www.ip-watch.org/weblog/index.php?p=939>.

The experience of customs administrations in numerous countries has indicated, however, that only by granting certain powers and measures that go beyond the minimum requirement set forth in the TRIPs Agreement, Governments can provide an effective and efficient level of IPR protection and enforcement at their borders¹³⁸.

Interestingly, the intervention and effective coordination of developing countries prevented the adoption of the SECURE draft at the 2008 WCO Council; later, at the WCO Policy Commission in December 2008, it was decided to suspend the SECURE Working Group¹³⁹.

Another illustration of forum shopping is an initiative on counterfeiting channeled through the Universal Postal Union (UPU), a UN forum for the cooperation among postal authorities. As part of a global offensive by developed countries to enhance the enforcement mechanisms of IPRs, a draft Resolution was introduced for approval in 2008 urging postal authorities to act in cases of 'counterfeiting'. One of the operative paragraphs of the Resolution '[U]rges UPU member countries in the context of national legislation to encourage their postal administrations to...take all reasonable and practical measures to support Customs in their role of identifying counterfeit and pirated items in the postal network'. Based on a presentation by a number of developing countries, the draft resolution was amended in the sense the determination of counterfeit items was the responsibility of 'relevant national authorities, in accordance with national legislation'¹⁴⁰.

¹³⁸ See <http://www.wcoipr.org/wcoipr/gfx/ModelLawfinal.doc> (last visited 20 June 2008).

¹³⁹ However, the WCO Secretariat has recommended to the Policy Commission that a new body be set up under a Permanent Technical Committee or the Enforcement Committee to develop practical means of supporting customs administrations in conducting IPR-related controls. See Xuan Li, WCO SECURE: Lessons Learnt From the Abortion Of the TRIP-Plus-Plus IP Enforcement Initiative, South Centre Research Paper 19 - December 2008, available at http://www.southcentre.org/index.php?option=com_content&task=view&id=952&Itemid=67&lang=en.

¹⁴⁰ The original draft stated that "that the Customs and experts on intellectual property rights are primarily responsible for determining whether an item is counterfeit".

The World Health Organization (WHO) has also been actively engaged in discussions on IPRs following two different tracks.

On the one hand, in 2006 an ‘International Medical Products Anti-Counterfeiting Taskforce’ (IMPACT) was set up in the framework of WHO, upon an initiative of large pharmaceutical companies and some developed countries’ governments. The aim of IMPACT is to contribute to the fight against *counterfeiting* of medicines¹⁴¹. IMPACT has developed a problematic definition of ‘counterfeit’ products, which is currently under review, which confuses public health (e.g. substandard or spurious medicines) with IPRs violations.

On the other, pursuant to several resolutions of the World Health Assembly¹⁴², WHO engaged in the debate about the impact of the TRIPS Agreement on public health. The Commission on Intellectual Property, Innovation and Public Health (CIPIH), set up by the WHO Assembly in 2004, produced the already referred to report containing a number of recommendations, including on the use of TRIPS flexibilities. In order to implement such recommendations, an Intergovernmental Working Group on Public Health, Innovation and Intellectual Property (the “WHO IGWG”)¹⁴³ was subsequently established, which proposed a "Global strategy and plan of action on public health, innovation and intellectual property" adopted by Resolution 2008 (WHA61). Unlike the other interventions in international organizations mentioned above (including WHO-IMPACT), developed countries have not generally supported WHO involvement in

¹⁴¹ See www.who.int/impact (last visited 15 June 2008).

¹⁴² The following resolutions mandated WHO to monitor the implications of trade agreements on public health and requested other studies on innovation and public health:

1996 (WHA 49.14) requesting WHO to study and inform on the impact of WTO on medicines

- 1999 (WHA52.19): Revised Drug Strategy
- 2001 (WHA54.11): Revised Drug Strategy
- 2002 (WHA55.14): Ensuring accessibility of essential medicines
- 2003 (WHA56.27): Intellectual property rights, innovation and public health
- 2006 (WHA59.24): Public health, innovation, essential health research and IPR: towards a global strategy and plan of action
- 2007 (WHA60.30): Public health, innovation and intellectual property

¹⁴³ WHO Intergovernmental Working Group on Public Health, Innovation and Intellectual Property, A/PHI/IGWG/2/2 (31 July 2007).

deliberations on IPRs and public health¹⁴⁴. WHO, however, has made a number of publications and provides technical assistance and training on the subject¹⁴⁵.

The resistance by developing countries to engage in multilateral negotiations for the enhancement of IPRs protection has led developed countries to initiate the negotiation of an 'Anti-Counterfeiting Trade Agreement' (ACTA) outside WIPO and WTO, The envisioned ACTA would include commitments in three areas: (1) strengthening international cooperation; (2) improving enforcement practices; and (3) providing a strong legal framework for IP enforcement. Negotiations have been conducted in a secretive manner¹⁴⁶. A text of the draft ACTA is not publicly available yet.

5. Main conclusions

IPRs regimes have evolved in developed countries in harmony with their economic and technological progress. The arguments about the need for global and higher standards of IPRs protection tend to ignore the lessons from history and the instrumental nature of such rights. The recognition of IPRs is not a matter of natural justice or moral rewards. Those arguments often overlook that, by its very nature, knowledge is a public good, and that limitations to free access thereto need to be socially and economically justified in the particular context where they are bound to apply. The available evidence clearly suggests that the role of IP significantly varies according, *inter alia*, with per capita income, productive structures, levels of technological development and States' policies.

IPRs by their very design, reduce static efficiency and thereby society's welfare, in order to generate, in theory, dynamic efficiency through promoting future innovation. This is not, however, an automatic and inevitable outcome. The granting of exclusive

¹⁴⁴ For instance, the US opposed to discussions on TRIPS flexibilities in the context of the IGWG: "Accordingly, the IGWG should not consider Subsection (a) of Paragraph Six of the document. The WHO Secretariat should not expand its work on matters better addressed by another international organization. Therefore, the IGWG should not consider Subsections (f) and (i) of Paragraph Six of the document, because they more appropriately fit within the scope and mandate of the WTO and WIPO' (US COMMENTS to the WHO ELEMENTS OF A GLOBAL STRATEGY, 2006, p. 5).

¹⁴⁵ See <http://www.who.int/phi/documents/en/>.

¹⁴⁶ The European Parliament passed a resolution in March 2009 demanding more transparency to the EU Commission, including on the ACTA negotiation (see http://www.europarl.europa.eu/news/expert/infopress_page/019-51409-068-03-11-902-20090310IPR51408-09-03-2009-2009-false/default_en.htm).

rights, particularly if they are broad or prevent the use of early research results, may retard innovation. Society may benefit if competitors could rapidly imitate and improve on the innovation so as to make it available at competitive prices. Most importantly, IPRs may generate losses in poor countries (e.g. restricting access to drugs) that cannot be compensated by hypothetical gains through future innovations.

The TRIPS Agreement introduced a drastic change in IPRs design and implementation. It established minimum standards of protection that all WTO countries are obliged to comply with, thereby limiting the space available to developing countries for adapting their IPRs regimes to their own circumstances and needs. While such countries will not enjoy the freedom that developed countries had in their earlier stages of development to shape their IPRs regimes, they may use the flexibilities allowed by said Agreement to mitigate the possible negative implications of high standards of protection and to reap some potential benefits in specific areas (e.g. trademark protection, copyright of some local creations).

Despite the tremendous achievement that the adoption of the TRIPS Agreement represented for developed countries, they have continued to demand further increases in IPRs protection. As such demands are unlikely to be viable in the WTO and WIPO, developed countries have strategically moved to bilateral negotiations and to other international organizations. With a weaker negotiation position than in multilateral fora, many developing countries have consented to additional obligations that further limit their capacity to shape their IPRs regimes.

While a revision of the TRIPS Agreement based on development considerations would be desirable but difficult to achieve, as a minimum any further reform to international rules on IPRs should only be undertaken after a careful assessment of the development impact of the new proposed rules. This also applies, of course, to reforms envisaged in the context of bilateral or regional negotiations, which should ensure that they preserve the room available under said Agreement to introduce pro-development measures (including for the promotion of transfer of technology). Governments may be inclined to accept higher standards of IPRs in exchange for trade concessions in other fields. But they should be aware that IPRs rules may have an overarching impact on development,

and that the potential immediate trade benefits they may obtain may be offset by the long term impact of high IPRs standards of protection.