COMMENTS

THE TRIPS AGREEMENT, INTERNATIONAL TECHNOLOGY TRANSFER AND DEVELOPMENT: SOME LESSONS FROM STRENGTHENING IPR PROTECTION

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The article focuses on the impact of the TRIPS Agreement provisions on further development of international technology transfer (ITT) mainly to developing countries. The authors review the critical specificity of ITT connected with the adoption of TRIPS. Much attention is paid to an analysis of what is most discussed among international experts in the area of the issues on the dual results of stronger intellectual property rights (IPRs) concerning various groups of developing countries. Their study also examines a number of problems with implementation of the TRIPS provisions, conducive to ITT, in the context of the TRIPS-plus era as a new stage in strengthening IPR protection. Bearing in mind the fragmentation of the international regime of IPR protection because of the adoption of numerous regional free trade agreements, the authors outline the possible position of advanced developing and least developed countries with respect to using TRIPS potentials for development of ITT under reasonable and just terms, with the aim of overall prosperity.

Keywords: intellectual property rights, patents, TRIPS Agreement, developing countries, technology transfer, proprietary technology.

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Abbreviations

ESTs – Environmentally Sound Technologies
FDI – Foreign Direct Investment
FTAs – Free Trade Agreements
GATs – General Agreement on Trade in Services
ICTs – Information and Communication Technologies
IP – Intellectual Property
IPL – Intellectual Property Law
IPRs – Intellectual Property Rights
ITT – International Technology Transfer
LDCs – Least-Developed Countries
R&D – Research and Developments
TNCs – Transnational Corporations
TRIPS – Agreement on Trade-Related Aspects of Intellectual Property Rights
UN – United Nations
UNCTAD – United Nations Conference on Trade and Development
WHO – World Health Organization
WIPO – World Intellectual Property Organization
WTO – World Trade Organization

1. Introduction

In today's conditions of the dynamic development of global processes in the research and development (R&D) sphere and of economic globalization, there is an increasing significance of international technology transfer (ITT) by which the exchange and diffusion of technologies, innovation and knowledge are occurring around the world. The attention of the contemporary world community given to ITT is caused by those circumstances that technologies, be they information and communication technologies (ICT) or environmentally sound technologies (EST), are a deciding factor of economic and social development, and, of course, of different problems in need of solutions at the regional and global levels. ITT, being a necessary tool for speeding up the pace of economic, technological and social development, is one of the instruments for arriving at the Millennium Development Goals and, especially, the goals of sustainable development, as those have been assigned in the Agenda XXI and other international documents pertaining to so-called international law on sustainable development.

As a rule, national technology transfer (NTT), occurring within countries, and ITT, occurring between countries, in this era of economic and technological globalization are in intersection, while both maintain a certain specificity. The providing of access to

technology, especially for developing and least developed countries (LDCs), is a very important item on the agenda of global policy in the area of aid to development. The catalog of more sensitive technologies for developing countries includes technologies for sustainable forest management and use of forests, ICT, technology for water treatment and waste management, clear and renewable energy technology, biotechnology, marine technology and health technology, among others.

Additionally, it is true to say that the transfer of technology to developing countries is one of the most actively discussed issues of international economic relations in the area of development aid in the last fifty years. Developing countries hold in this matter a very active position. Since 1970, they have expressed – at various international forums – their intentions to improve access to foreign technologies with the aim of enhancing their technological capabilities. Technology transfer at the international macro-level was and is a focus of negotiations between developed and developing countries in the contexts of technical cooperation, trade liberalization and protection of the environment. This has resulted in elaborating the macro-level political bargaining model of ITT.

Obviously, technology transfer due to the abovementioned significance of technologies for the economy and development has become one of the sectors of modern global economics, science and technology policy – including its development component. Interestingly, ITT, being the separate subject matter of the global agenda on world economic policy at large and world development aid policy in particular, as testified by P. Roffe very reasonably,[1] is one of the major concerns of global policy on intellectual property rights (IPRs) and their protection. It is fully clear that ITT as a critical factor of a sustainable rate of economic growth and development is very sensitive to protection of IPRs, that is to say, protection of the *exclusive rights,* and especially to increasing their protection.

It may quite rightly be said that the contemporary concept of technology transfer includes within its broad view IPRs, especially exclusive patent rights and trade secrets, and, to a certain degree, copyright addressing ICT and software in a kind of integrated perspective of technology transfer. Besides the approach to the transfer of technology as a transfer of technical information and technical knowledge that are the results of intellectual activity, a great significance has been placed on specifying the issues on what IPRs mean as to technology transfer. Hence, there is reason to say that the complex global policy in the areas of ITT and intellectual property (IP) intersects with the global policy on development aid.

With the widening of transnational trade flows, especially flows of sophisticated production, technology and exclusive rights to it, the linkage between patents and technology transfer has received overarching recognition, not only at the national

[1] Pedro Roffe, *Comment I: Technology Transfer on the International Agenda*, in International Public Goods and Transfer of Technology under a Globalized Intellectual Property Regime 257–281 (Keith E. Maskus & Jerome H. Reichman, eds.) (Cambridge University Press 2005).

level, but also at the international level. Because the consequences of the impact of IPR protection on technology transfer are contradictory, the protection of IPRs relevant for and conducive to internationally transferred technologies is one of the most controversial aspects of policy in the sphere of technology transfer and its encouragement, and is, naturally, a focus of global policy on development aid. Thus the ambiguous impact of IPRs on technology transfer at the national and international levels is one of the issues not only of global cooperation in the area of science, technology and innovation, but also of global economic cooperation and facilitation of development.

From this viewpoint, the provisions of the TRIPS Agreement[2] and the experience of their implementation is an important subject, because TRIPS is one of the key instruments regulating the transfer of proprietary technologies. This Agreement which set out the harmonized minimal standards of IPR protection across the world has given rise to strengthening IPR protection that has affected ITT inconsistently. The outcomes of the impact of strengthening IPR protection on ITT connected directly with the development agenda are the issues to be addressed specially and in detail in this study.

2. Methodological Background of Study

The contemporary conception of the systemic triad of ITT, IPRs and development is based on the conviction that technology transfer goes beyond a purely economic approach. In this connection, the approach to knowledge and technology as a public good[3] is a valid foundation of the modern concept of international technology transfer and, accordingly, of the triad as such. The idea that knowledge, information and technologies are public and individual goods are a significant focus of the Draft of the Treaty On Access to Knowledge.[4] Seeking to promote the transfer of technology and knowledge to developing countries is a core objective of this project, taking into account the need to balance the development of IPRs and their protection (Part 3, Part 4 Draft Treaty).

We would want to underscore that technologies, being global public goods of an intellectual nature, make possible the forming of appropriate conditions indispensable for the exercise of human rights. Hence, a core challenge for the

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[2] Agreement on Trade-Related Aspects of Intellectual Property Rights (1994).

[3] Keith E. Maskus & Jerome H. Reichman, *The Globalization of Private Knowledge Goods and the Privatization of Global Public Goods*, in International Public Goods and Transfer of Technology under a Globalized Intellectual Property Regime 3–45 (Keith E. Maskus & Jerome H. Reichman, eds.) (Cambridge University Press 2005); Joseph E. Stiglitz, *Knowledge as a Global Public Good*, in Global Public Goods 308–325 (Inge Kaul, Isabelle Grunberg & Marc A. Stern, eds.) (Oxford University Press 1999).

[4] Draft of the Treaty on Access to Knowledge (2005), available at <http://www.cptech.org/a2k/a2k_treaty_may9.pdf> (accessed Dec. 12, 2015).

policy of international cooperation in the area of technological aid is to set up and maintain effective access to technological information and knowledge, and to devise the special mechanisms for deploying it effectively within the economy and other sectors of society. This is true for all countries, since the right to development in conjunction with the right to access to technology is universal. In our opinion, the right to access to technology should be understood as an element of the right to development. Therefore, the transfer of technology to developing countries is a matter of discussion in setting up the New International Economic Order (NIEO), an integral part of which is the New International Technology Order (NITO), including unconditionally the new order of ITT. The relevant content and extent of IPRs, as well as the regime of IPR protection, are part of the new order of ITT.

In light of this, the central hypothesis of this study is that global integrated policy in the area of protection of IPRs, technology transfer and development starts from the recognition of IPRs, especially patents and trade secrets, *as a necessary condition of effective transfer and diffusion of technologies, but no factor of their restriction*. We think that this paradigm – articulated in various international legal instruments concluding provisions on technology transfer – covers, *inter alia*, international instruments in the sphere of IPR protection and international scientific and technological cooperation, and instruments of international trade law as well. This is demonstrated by the TRIPS Agreement and by other instruments of the World Trade Organization (WTO). The General Agreement on Trade Services (GATS), for example, refers in its Annex on telecommunications to specific issues on ensuring the access of developing countries to information on advanced ICTs and their transfer. The objectives of appropriate international instruments have to identify not only the objectives of real processes of international technology transfer, carried out through various channels, especially licensing, but also the goals of protection of transferred technologies.

However, patent security is a subordinated aspect of technology transfer and diffusion of technologies having the aim of aiding development, including capacity building. It is important to understand that technologies are global goods, and the implicit aim of the international system of IPR protection is to facilitate technology transfer rather than to restrict it. Therefore, the protection and enforcement of IPRs should contribute to promoting technological innovation, transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge, social and economic welfare, as well as the balance between rights and obligations. This hypothesis is the horizon of our analysis of the impact of the TRIPS Agreement on the transfer and dissemination of technologies designed for aid to development.

And yet, this impact, often contradictory, demonstrates a consideration building in the thinking of scholars and experts on the interrelation between law and technology. For example, G. Pascuzzi expressly notes an active role of legal rules in providing the availability of new technology: 'The advent of new technologies may lead to the

creation of new rules. Looking at the evolution of law in a diachronic perspective it is easy to see that the most important turning points occurred whenever mankind had access to new technology.'[5] In this context, we think intellectual property law is reasonably called upon to promote access to transferred and disseminated technologies as assets of development, noting the dual-sided impact IPRs pose as has been showcased by the example of the experience of the TRIPS Agreement implementation in practice.

3. IPRs, International Technology Transfer and Development

Protection of IPRs and their enforcement within ITT aimed at aiding technological development and capacity building influence all countries, but especially developing countries, as the possible and the real beneficiaries of transferred technologies. Aligning IPRs, ITT and development in view of the interests of all involved countries is a very difficult task. However, as practice demonstrates, accomplishing the task is appropriately at the level of global policy in the triad sphere of IPRs, ITT and development. This policy is an evolving phenomenon of modern international relations. P. Sampath and P. Roffe, for example, have successively, and in concise form, demonstrated the evolution of technology transfer discourse, beginning with the 1960s, moving on to discussion of the United Nations Conference on Trade and Development's (UNCTAD) Draft International Code of Conduct on the Transfer of Technology, the impact of TRIPS, debates on a TRIPS-plus era and, finally, current initiatives of the Word Health Organization and the World Intellectual Property Organization (WIPO), as well as new approaches to technology transfer in the climate change technology mechanism. We think these stages of developing technology transfer discourse are markers of the evolution of the appropriate global policy.

The clear result of this policy is multilateral agreements signed between countries that are at different levels of development, including different levels in the development of national patent systems, and their containing provisions on protection of IPRs within technology transfer. It should be noted that provisions on protection of IPRs with regard to technology transfer have been included in various international instruments relating to different ranges of instruments of international law, for example environmental law, maritime law, trade law and economic law.[6] There are other important factors to be considered. The efforts of the international community over the last fifty years to establish an international

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[5] Giovanni Pascuzzi, *Cognitive Techniques of Legal Innovation*, in Law, Development and Innovation 18 (Giuseppe Bellantuono & Fabiano T. Lara, eds.) (Springer 2015).

[6] UNCTAD/ITE/IPC/Misc.5. Compendium of International Arrangements on Transfer of Technology. Selected Instruments. Relevant Provisions in Selected International Arrangements Pertaining to Transfer of Technology (2001), available at <http://www.unctad.org/en/docs/psiteipcm5.en.pdf> (accessed Oct. 12, 2015).

regime of technology transfer on fair and equitable terms presume that this regime is in conjunction with IPR issues. Therefore, in various documents, having different international legal essence, appropriate attention is devoted to issues on protection of transferred technologies. The certain role of this aspect arises from the legal nature of technology transfer that gives up the exclusive right to use various technical and technological innovations. This aspect has been widely given in instruments of both hard and soft international environmental law.[7]

Transferred technologies, including technology transfer for development goals, may be proprietary, for example biotechnologies, and this aspect taken into consideration in instruments, for instance in the UN Convention on Biodiversity. Additionally, international instruments referring to technology transfer can imply protected and non-protected technologies; examples of the latter include nonproprietary technology, or technological knowledge, as the public good is freely available for use and they are free of charge. That is a feature of access to them. Proprietary technologies, in essence, also are accessible; however, their accessibility demands authorization. Therefore, another array of international instruments, especially instruments of international intellectual property law, has chiefly underscored the aspect of the transfer of protected technologies. One of the key instruments regulating the transfer of proprietary technologies is precisely the TRIPS Agreement, which sets up the harmonized minimal standards of protection of IPRs around the world.

The policy under study carefully keeps its attention focused on the impact of IPRs on ITT and development, because IPRs are both an integral part of technology transfer law[8] and a major aspect of technological advancement, namely, the creation, adaptation, diffusion and use of existing and emerging technologies. The consideration of the impact of IPRs on ITT is an integral part of the continuing debates on the impact of IPRs on development in general,[9] including economic development and growth in particular.[10] Therefore, IPRs are seriously under discussion

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7 See, e.g., Irina V. Shugurova & Mark V. Shugurov, *International Technology Transfer: Controversial Global Policy Issues,* 45(3/4) Env. P. and L. 133–139 (2015). DOI: 10.3233/EPL-453403.

8 Alan S. Gutterman & Jacob N. Erlich, *Technology Development and Transfer* 17–66 (Quorum Books 1997).

9 Daniel J. Gervais, *TRIPS and Development*, in Intellectual Property, Trade and Development: Strategies to Optimize Economic Development in a TRIPS-plus Era (Daniel J. Gervais, ed.) 3–60 (Oxford University Press 2007); Intellectual Property and Development: Lessons from Economic Research (Carsten Fink & Keith E. Maskus, eds.) (Oxford University Press 2005), available at <http://siteresources.worldbank.org/INTRANETTRADE/Resources/Pubs/IPRs-book.pdf> (accessed Feb. 17, 2016).

10 Rod Falvey, Neil Foster & David Greenaway, *Intellectual Property Rights and Economic Growth*, 10(4) Rev. of Dev. Ec. 700–719 (2006). DOI: 10.1111/j.1467-9361.2006.00343.x; Nagesh Kumar, *Intellectual Property Rights, Technology and Economic Development: Experience of Asian Countries*, 38(3) Ec. and P. Weekly 209–226 (2003), available at <http://infojustice.org/download/gcongress/globalarchitectureandthedevelopmentagenda/Kumar%20article.pdf> (accessed Apr. 17, 2016).

in respect of international cooperation in the area of technology transfer and aid to development. As a result, empirical findings and theoretical conclusions regarding different outcomes of this impact on technology transfer to developed, developing and LDC countries are a basis for understanding the one significant tendency, namely, strengthening the protection of IPRs and how that affects the perspectives on international technology transfer, especially to countries with lower-middle income economies.

As stressed by A. Aurora, while the literature on international technology transfer has been growing over recent years, there remain numerous gaps in investigating the role of IPRs in technology transfer, particularly to developing countries and to countries with economies in transition.[11] Issues related to the outcomes of strengthening IPRs are real in this context, and there is the need to identify ways in which the gaps mentioned by Aurora could be filled through further studies, so as to be able to better understand the impact of IPRs on ITT and to elaborate appropriate suggestions. All the more, the fact of the matter is that during the last fifty years the protection and enforcement of IPRs have tended towards increased standards. That may be taken implicitly as diverging with the logic of technology transfer. This has clearly been shown by discussions at the level of international organizations and experts.

The potentials of technologies can be realized on the global scale only with the effective regulation of the transfer of the different technologies, especially high technology, and the observance of fundamental principles such as justice, equality, mutual advantage and reasonable terms. All countries are interested in compliance with these principles, but especially developing countries, most of which face the problem of overcoming the technological gap between them and developed countries. It is clear that the implementation of these fundamental principles and the realization of the positive impact of technology on development depend on strategies of protection of IPRs, because they directly affect the accessibility of technologies, their diffusion and their follow-up usage.

Therefore, regulation of IPRs in the process of technology transfer also refers to the fundamental problem of the perspectives of the interests of developed and developing countries, and whether their interests coincide. Developed countries, having an effective system of innovation and numerous innovators, tend to set up strong IPR protection for the world as a whole through the creation of appropriate standards to be implemented in national legislation. It is notable that a handful of developed countries dispose the real political and economic power necessary and

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[11] Ashish Arora, *Intellectual Property Rights and the International Transfer of Technology: Setting out an Agenda for the Empirical Research in Developing Countries*, in The Economics of Intellectual Property. Suggestions for Further Research, in Developing Countries and Countries with Economies in Transition 55 (WIPO Pub. 2009), available at <http://www.wipo.int/freepublications/en/economics/1012/wipo_pub_1012.pdf> (accessed Mar. 3, 2016).

sufficient to set up these standards. Other countries – developing and LDCs – have largely focused on imitation of technology innovations as a valid source of their domestic technological development and tend to have weak protection regimes for IPRs through the adoption of numerous flexible policies. Many developing countries perceive the increasing protection of IPRs as a threat: it shifts benefits from domestic imitation firms to foreign innovative firms, and reduces the output of the domestic economy. As underlined convincingly by A. Deardorff, increasing the protection of IPRs was not done with the aim of encouraging domestic innovative activity in developing and LDC countries.[12]

Protection of IPRs as an essential facet of cooperation between these two parties has significant public impact related to establishing a balance between the interests of the possessors of exclusive rights to technologies and public interests. This balance is provided by the regimes of limitations on and exceptions to exclusive rights in modern intellectual property law. The balance related directly to issues on world development has, therefore, public international aspects. Obtaining a balance of interests is a serious matter for the world community, one that focuses on how to harmonize the right of developing countries to access to technology in the context of the right to development, on the one hand, and IPRs as a safeguard to protect the interests of the possessors of rights, on the other. Due to the character of IPR owners, and protection of IPRs in general and patent rights in particular, access to the use of technology is possible only through authorization (beyond that which may be given by rights holders, i.e. that which is permitted by legal instrument, such as international agreements).

In principle, the asymmetrical relations between technology sellers and technology buyers derive from the IP regime which prohibits the use of protected IPRs in technology without the permission of the rights holders. Consequently, IPRs pose as a medium for access to technology. This medium may present itself in different manners, at times acting as an impediment to technology transfer. The foundation of this problem in its international aspects is the problem of the contradiction between the interests of developing and developed countries in the area of the global knowledge-based economy. This is one of the problem sectors of international cooperation in the sphere of IPRs, technology transfer and development. As far as different interests are concerned, the relation between technology transfer, protection of IPRs and effective technological assistance is under discussion at the level of global policy.

In other words, differently directed interests as to IPR protection may cause troubles for technology transfer aimed at providing developing countries with the normal help to develop their technological potential. In this case, provisions

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[12] Alan V. Deardorff, *Welfare Effects of Global Patent Protection*, 59(223) Economica 35–51 (1992), available at <http://ssc.wisc.edu/~munia/467/deardorffeconomica.pdf> (accessed May 4, 2016).

admitting the needs of developing countries (Article 4.2. of the Vienna Convention for the Protection of the Ozone Layer, Article 16 of the Convention on Biological Diversity, Article 66.2 of the TRIPS Agreement, and so on) are far from fulfilling. The impacts of such collision between different groups of countries block the realization of the creative potentials of technologies. Accordingly, nowadays this collision also impedes the transfer of environmentally sound technologies and puts off to some unknown future time the realization of the goals of sustainable development.

From the perspective of economics and development, ITT is an important sector of the contemporary world economy, the regularities of which are regularities of technology exchange. If proprietary technologies are transferred, IPRs are fundamentally involved, for in essence the transfer of proprietary technologies is a transmission of exclusive rights at the national and international levels. Thus there has arisen a global market of IPRs in the world economy. Therefore, the international system of IPR protection and the technology markets are closely connected. Indeed, due to the placement of IPR disciplines on technology transfer, technologies – understood as inventions and other protected results of intellectual activity, and purchased for goals of goods manufacturing or supporting manufacture processes – are commodities. Being commodities, technologies may be transferred through commercial transactions, i.e. they may be bought, leased or sold, and thus have utilization and diffusion facilitated through investment, licensing or other transfer arrangements. In our opinion, the commercialization of technologies and their transfer make the realization of such goals of technology transfer as the facilitation of capacity building and development very vulnerable.

Thus IPRs and technology transfer proceed in great tension. This shows that the international regime of ITT still remains a work in progress and is far from completion. Certainly, the abovementioned set of international instruments in the area of technology transfer are an attempt to decrease this implied contradiction and thus effect a balance between IPR protection and technology transfer. Generally, it may be stressed that the implementation of provisions on technology transfer means not only effective financial cooperation, but also cooperation on IPR protection, namely, the realization of a coordinated approach. This is possible if and only if all countries adhere to minimum standards of protection of transferred technologies. The readiness of states to take into account issues on IPR protection is set out in instruments of 'hard'and 'soft' international law. This is reflected also in the provisions on IPR protection under different agreements in the field of scientific and technological cooperation. These provisions consolidate the approaches harmonized at the level of global policy in the field of IP and are enshrined in appropriate IPR protection instruments that – in coordinated standards they contain – attempt to provide the balance between rights and obligations of creators, on the one hand, and rights and obligations of users of technologies, on the other. As we consider, stipulated balance is a broad basis for the balance of interests between developed and developing

countries concerning benefits from technology transfer. Unfortunately, this balance, in practice, is more wish than reality.

Nowadays, the global policy on IP and technology transfer is integrated with the global policy on encouragement of ITT. This sets the principled horizon of viewing the character of, and forming perspectives on, the impact of IPRs on international technology transfer, especially with respect to developing and LDC countries. Because of the significance of technologies for economies and development, technology transfer has become one of the sectors of modern global economics, science and technology policy, as well as development policy. Over the years, the international policy in the field of encouragement of technology transfer for developing countries has grown, and it continues to evolve today. This policy is a part of the world policy on ITT and is connected with policy in the sphere of aid to development. Acknowledgement of the technology gap and recognition of the right of developing countries to access to technologies have demanded the generation of numerous policy steps be undertaken nationally and internationally as a response to the problem. The encouragement of technology transfer to developing countries has been a recurrent issue within a variety of international economic forums, forums on aid to development and at the level of international organizations.

In addition to the foregoing, the policy of transfer encouragement is closely connected with the broad treatment of proprietary technological knowledge through intellectual property legislation. It is clear that the adopted package of international instruments not only regulates international technology transfer, but also includes provisions on promotion of technology transfer to developing countries. The promotion of technology transfer to this group of countries is the subject of provisions of international soft law, as well as of bilateral and multilateral international agreements on science and technology cooperation, on protection of the environment, and also of agreements on trade and investment.

While developing countries have the right to benefit from the generation, transfer and diffusion of the best available technologies as one of the central factors of their development, the reality is that most advanced technologies are generated privately by transnational corporations (TNCs) and pertain directly to them. Moreover, the main R&D activity in this field is located, as a rule, in developed countries. This fact creates the well-known asymmetry between technology possession and the location of technology need. As a result, there is a global technological gap that leads to a number of other gaps in all sectors of development. That is why international instruments, simultaneously, accord obligations beneficial for developing countries which have low capabilities. So, Article 66.2 of the TRIPS Agreement provides for a number of obligations imposed on developed countries that they provide incentives to enterprises and institutions within their territory with the aim of

technology transfer to LDCs.[13] The TRIPS Agreement implies transfer of technologies of any kind but, certainly, of a proprietary nature.

However, the specificity of provisions of international instruments consists in that, in most cases, they contain recommendations to 'make best efforts', 'promote', and 'encourage', rather than strong commitments. In any event, international policy on encouragement of technology transfer departs from these provisions and looks instead to their effective implementation.

We remark here that several basic theoretical approaches as regards how the protection of IPRs affects incentives for ITT can be singled out, and they reveal affects that are even contradictory. Additionally, we postulate that the global policy in the sphere of the international system of protection of IPRs essentially determines the trends in the global policy in the area of ITT and development, and that it is a sphere of collision between the different approaches to the role of IPRs for technology transfer and its perspectives. The basic theoretical approaches presented shortly reflect the different political positions of developed and developing countries with regard to viewing the role of IPRs for economic development. Developed countries insist on the positive effects of IPRs on economic development. In contrast, developing countries prefer to stress the negative effects of IPRs on economic development.[14] Like these collisions, there are different – at times opposed, colliding – approaches of these states to understanding world development and the character of promoting it.

Some experts focus attention on the possible benefits that developing countries can obtain from stronger IPR protection. As we deem, the policies of developing countries intended to satisfy their technological needs by technology imitation resting on weak IPR protection do not orient towards a long-term perspective of technology capacity building. For example, K. Maskus argues that, in spite of the dual impact of IPRs on economic development, stronger IPR protection 'can help reward creativity and risk-taking even in developing economies, with those countries that retain weak IPR protection remaining dependent on dynamically inefficient firms that rely on counterfeiting and imitation.'[15]

Unlike that position, the maximalist approach on the role of IPRs is expressed by some experts from developing countries and is motivated by economically oriented goals and the weak connection of the system of IPRs with the international system of human rights. In this light, IPRs are viewed as an erected wall against technology transfer, preventing the exercise of the right of developing countries to access to technologies. As K. Gopakumar considers, the complex web of IPRs, trade and

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[13] See more broadly, e.g., Mark V. Shugurov, *TRIPs Agreement, International Technology Transfer and Least-developed Countries*, 2(1) J. of Adv., Res. and Ed. 74–85 (2015), available at <http://kadint.net/pdf.html?n=1430116707.pdf > (accessed Mar. 19, 2016).

[14] Rami M. Olwan, *Intellectual Property and Development: Theory and Practice* (Springer-Verlag 2013).

[15] Keith E. Maskus, *Intellectual Property Rights in the Global Economy* 160 (Peterson Institute for International Economics 2000).

investment has vitiated all efforts by developing countries to develop the international regime of technology transfer on fair and equitable terms.[16] While this view reflects the interests of developing countries, it should be recognized that IPRs, in fact, are not something perfectly odious. They are indispensable aspects of the international regime of technology transfer and have certain potential for encouragement of that regime. Their potential demands appropriate coordination of international efforts to overcome the imbalance between IPRs and technology transfer, when exclusive rights prevent equitable and fair terms of technology transfer.

An exhaustive analysis of both comprehensive theory and actual practice concerning how the protection of IPRs impacts the encouragement of international technology transfer is presented in the Maskus Report. This author reviewed various forms of technology transfer, such as market-mediated ITT through trade, foreign direct investment (FDI), licensing and personnel movement. Maskus also provided an analysis of the informal means of ITT through imitation, reverse engineering and spillovers. The Report stressed that patent rights can promote increases in international technology flows to middle-income and large developing countries, but patent rights have little impact on LDCs. Maskus's study contains numerous suggestions for updating the incentives for encouragement of technology transfer to developing countries by policy changes in recipient and source countries, as well as in the global trade system.

Maskus's findings have been reproduced in a collective research paper by experts at the World Bank.[17] There they noted the capacity of IPRs to support the technology market and technology transfer. The authors of the paper further pointed out that absent IPRs firms would decrease their engagement in technology transactions. In other words, patents and trade secrets are legal bases for revealing the proprietary characteristics of technologies and entering into licensing contracts, promoting increasing technology flows to countries with appropriate technological capacity and shifting the incentives for investors between foreign direct investment and licensing agreements.

Stated briefly, there are two main approaches to encouraging technology transfer that consider relations between ITT and IPRs. The first approach is regulatory, the second is a market approach. In addition, one range of experts traditionally focuses on market-mediated ITT through trade, FDI, etc., along with informal means through, for example, imitation and reverse engineering. Others very justly point out inherent shortcomings of the technology market.

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[16] Keam M. Gopakumar, *Transfer of Technology and IPRs: A Development Perspective*, 269/270 Third World Resurgence 6–10 (Jan/Feb 2013), available at: <http://www.twn.my/title2/resurgence/2013/269-270/econ1.htm> (accessed Mar. 1, 2016).

[17] Bernard M. Hoekman, Keith E. Maskus & Kamal Saggi, *Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options*, 33(10) W. Dev. 1587–1588 (2005). DOI: 10.1016/j.worlddev.2005.05.005.

Generally speaking, methodological relativism remains a serious problem in the scientific background of global policy in the sphere of IPRs, ITT and development. This creates various difficulties for the success of international technology transfer and for achieving the goals of development. We postulate that the stress on methodological relativism derives from the objective dual role of IPRs for international technology transfer.[18] Thus patent licensing agreements, while in many cases playing an important role, can call access to technology into question. However, the positive effects of patent protection of technologies on international technology transfer, and respectively generating innovation, demand that relevant jurisdiction as a developed system of IP law at the national and international levels must exist. It goes without saying that enforcement and use of IPRs should promote technology as global goods to be the basis for overall prosperity. In other words, the protection of IPRs relevant to transferred technologies is one of the most controversial aspects of policy in the sphere of technology transfer and its encouragement at the national and international levels. It is therefore determined that IPRs, on the one hand, have never been so economically and politically significant and, on the other hand, so controversial as now.

4. International Technology Transfer before TRIPS

For a better systemic understanding the results of increasing IPR protection connected with the TRIPS Agreement, it should be useful to review the situation before the adoption of TRIPS in 1994. There were a number of international initiatives on ITT from the 1960s to the 1980s. The international policy on technology transfer was guided by a paradigm of ITT which had been coordinated between developed and developing countries. This paradigm was reflected in numerous multilateral agreements that provided for technology transfer from developed to developing countries and predicated that ITT was one of the key mechanisms generating convergence in a global rate of economic development. This paradigm, in turn, rested on the neoclassical model of economic growth and development.

According to this model, technology is embodied within capital moving from rich countries to poor countries through a process keen to earn higher returns that might be found in poor countries, on account of diminishing returns to capital in developed economies with the highest capital stock. The convergence of growth rates is expected as a result of free technology transfer through FDI that enables developing countries to imitate and adopt the technology obtained from developed

[18] As pointed out in one of the WIPO documents, the 'relationship between patents and technology transfer is generally understood to have both positive aspects, namely where useful technology is indeed transferred to the recipient, and a negative component, namely where patent rights or an abuse of such rights, may equally hinder a transfer of technology.' WIPO, Report on the International Patent System, prepared by the Secretariat, para 101 (Geneva, 2008), available at <http://www.gtwassociates.com/alerts/WIPOTechnologyDiffusionandthePatentSystem.pdf> (accessed Nov. 18, 2015).

countries without having to duplicate the process of innovation. Nonetheless, a number of indicators of global growth in the post-World War II period did not support these expectations.

It has been acknowledged that the notion of IPRs embraces different types of IPRs, such as rights with regard to patent, copyright, trade secrets, trademarks, industrial designs and so on. All types of IPRs, in any event, affect ITT understood in a broad sense as the flow of technologies, knowledge, skills and equipment. However, some of these IPRs, namely patent rights and rights to trademarks, have the most influence on technology dissemination. In conclusion, ITT broadly depends on the state of affairs in international systems of rights of industrial property and world policy in this sphere.

Patents and their affects on technology transfer have been one of the critical issues in international debates from the beginning. In the 1960s, the United Nations undertook a study on the role of patents in respect of technology transfer.[19] As the initial starting point, General Assembly Resolution 1713 (XVI) required a study on the effects of patents, including foreign patents, on the economies of under-developed countries.[20] Reaffirming that access by developing countries to patented and unpatented technology and managerial know-how is essential to their economic development and industrialization, the General Assembly in its Resolution 2091 (XX) welcomed a series of international initiatives to facilitate the transfer of appropriate technologies to developing countries.[21] UNCTAD and WIPO further continued and extended this study in 1975.[22] The second issue of concern was anti-competitive provisions in licensing agreements on technology transfer concerning patent licenses: it had become clear that abuses of patent monopoly were impeding the free flow of technology.

There was much evidence that economic growth was not quite based upon the predictions of the neoclassical model. Before the advent of the TRIPS era, technology transfer from developed to developing countries was not costless. It required payment at monopoly rates created by IPRs in developed countries. One of the fundamental barriers to the dissemination of technologies before TRIPS was restrictive business practices, such as the abuse of patent monopoly. This was manifested in that rights

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19 United Nations, The role of patents in the transfer of technology to developing countries. Report of the Secretariat General, 65.II.B.I (New York: UN Publication, 1964).

20 United Nations General Assembly Resolution A/1713(XVI)) 'The role of patents in the transfer of technology to under-developed countries.'

21 United Nations General Assembly Resolution A/2091(XX) 'Transfer of technology to development countries' (Dec. 20, 1965), available at <http://www.worldlii.org/int/other/UNGA/1965/92.pdf> (accessed Jan. 14, 2016).

22 UNCTAD, WIPO and United Nations Department of Economic and Social Affairs. The role of the patent system in the transfer of technology to developing countries. Report of the Secretariat General (1975), available at <http://www.wipo.int/cgi-bin/koha/opac-detail.pl?bib=21106> (accessed Mar. 1, 2016).

holders could refuse technology licensing to firms from developing countries. Holders of rights in technologies strived to include in licensing agreements additional conditions that were far from delivering all the advantages of technology to its acquirers. Aside from this, patent holders could include in licensing agreements very onerous provisions that complicated the creation of innovation on the ground of already transferred technologies. The upshot was that patent monopoly existed on the wave of strong IPR protection, which had a chilling influence on R&D in the field of protected technologies, especially related to reverse engineering.

Restrictive practices were widely displayed in transfer relations between developed and developing countries. As a result, because of these practices, technology transfer did not tolerate broad technology diffusion in developing countries and was far from observant of the principles of justice and reasonable terms. Therefore, in the 1970s and 1980s many developing countries kept to a policy of control over restrictive practices and the rates of royalties. It is sufficiently clear that such a model of technology transfer built on strong and unbalanced monopoly of rights holders does not serve to promote meeting the needs of developing countries in technologies, and makes impossible consideration of technology transfer as a means for capacity building. In this situation, IPRs are turned against the right to development, including the right to access to technology in the context of the right to take part in ITT.

On the basis of what has just been said, certain conclusions can be drawn, including that developing countries are interested in the development of a system of safeguards at the national and international levels to prevent abuse of monopoly rights. A significant step in international cooperation in the area of technology transfer was negotiations on rules relating to restrictive business practices in licensing agreements. In 1980, the United Nations General Assembly adopted Resolution 35/63 in which the 'Set of Multilaterally Equitable Agreed Principles and Rules for the Control of Restrictive Business Practices' was endorsed.[23] However, it did not become the background of a binding international legal instrument in which developing countries have been interested. Despite the failure of the adoption of the International Code on Technology Transfer, its Draft[24] remains a source of best practice for international technology transfer. The Draft addresses the issue of technology transfer from various perspectives, such as legitimization of specific domestic policies on promoting the transfer and diffusion of technology, the rules governing the contractual conditions of technology transfer transactions, the special measure on differential treatment for developing countries and measures that would strengthen international cooperation.

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[23] United Nations General Assembly Resolution 'Restrictive business practices' (Dec. 5, 1980), available at <http://www.un.org/documents/ga/res/35/a35r63e.pdf> (accessed May 2, 2016).

[24] See: UNCTAD, 'Transfer of technology.' UNCTAD Series on Issues in International Investment Agreements (UNCTAD Pub. 2001), available at <http://unctad.org/en/docs/psiteiitd28.en.pdf> (accessed Nov. 17, 2015).

The approach of developing countries to the evolution of the international system of IPR protection reflects a striving for the promotion of the flexibility of IPRs that is conditioned by their needs for technological development and capacity building. Development of a system of guarantees that are regimes of limits and exceptions is a tool for the facilitation of technology transfer, and is necessary because of its complex nature. At the same time, incorporated into international instruments are the provisions that the facilitation of technology transfer cannot be implemented without appropriate development of the international system of IPR protection as such.

5. The TRIPS Agreement and New Trends in International Technology Transfer

Despite the fact that the TRIPS Agreement was inspired by pharmaceutical TNCs, it provides for the scope and extent of IPR disciplines that are unprecedented at the international level. The adoption of TRIPS became the starting point for the globalization of IPRs as the new era of development of the international IPR protection system where international standards have become the basis of the essential evolution of the national IP systems in the direction of convergence around the world.[25]

Before the TRIPS Agreement, the international IP system was grounded on conventions adopted, *inter alia*, under the auspices of WIPO, established in 1967 and administering twenty-four multilateral IP agreements at the present time.[26] It is well known that TRIPS, the first comprehensive agreement of its kind, comprises a set of minimum standards covering IPR protection in the chief areas of such rights. These standards and their enforcement must be implemented by each member of the WTO. Moreover, TRIPS requires each member to develop the appropriate mechanisms necessary to enforce protected IPRs.

Adoption of the TRIPS Agreement in 1994 was conditioned by the globalization of markets that was accompanied by the dynamic growth of investment and trade in technology and high-tech products (which doubled between 1980 and 1994). A significant difference in IPR protection – having been conferred by national law – restricted cross-border technology exchange, because of weak patent protection in many developing countries. Firms from developing countries with a weak regime of IPR protection had striven to obtain access to foreign high-tech products in order to copy them and obtain illegitimate benefit. That is why firms heavily investing in R&D put pressure on their national governments to strengthen the international IPR regime. As C. Correa has stressed: '[T]he increasing importance

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[25] Daniele Archibugi & Andrea Filippetti, *The Globalization of IPRs: Four Learned Lessons and Four Theses*, 1(2) Global Policy 137–149 (2010).

[26] WIPO-Administered Treaties, available at <http://www.wipo.int/treaties/en/> (accessed Dec. 1 2015).

of technology for international competition, the emergence of new technologies (e.g. computer programs or biotechnology) associated with high externalities and limited appropriability [sic] and the perception of developed countries that their technological lead has been diminished by countries that have caught up by imitation also contributed to this pressure.'[27]

The globalization of IPRs, connected with the adoption of TRIPS as a proper central part of the global legal system in the area of IPR protection, has resulted in various implications for global economic growth and affected ITT as one of its factors. Some analytics underscore the emergence of significant changes in and specificity of ITT after the adoption of TRIPS.[28] Indeed, the TRIPS Agreement encompasses almost all of the countries of the world, therefore there is no doubt as to its implications for the global economy and ITT. It should be remembered that before TRIPS the policy of the 'world society for development' in 1970–1980 was focused on questions of the imperfections of transfer technology mechanisms and possible conditions for increasing their effectiveness. On the whole, the issues raised concerned how to reduce the costs linked with transfer transactions and remove negative obstacles of a market character, for example defects of the international market.

It seems that the adoption of TRIPS has led directly to increasing the market, namely, the trade approach to ITT. However, TRIPS departs from the coordinated paradigm of ITT when taking into account the interests of developing countries. Before the adoption of TRIPS, there were practices whereby IPRs created artificial barriers instead of promoting innovation and made the dissemination of knowledge costly. The close connection between patents, trade and technology transfer have been confirmed by Articles 7, 8 and 66.2 of the TRIPS Agreement. Accordingly, discussions on the effects of the new era of IPR protection shifted to center stage of the global policy on technology transfer. This shift rests on the fact that IPR protection is a vehicle of economic development through trade. As a result, a change has occurred in the world debate on technology transfer.

We consider this shift does not negate the approach to technology transfer as a tool for realization of the right to access to technology in the context of the right to development. This may be expounded by understanding that trade and trade aspects of IPRs, as well as technology transfer – posing in a new way – continue to have a profound human rights foundation. Moreover, TRIPS seeks to invoke the set of basic principles of balanced relations between IPR protection and enforcement, on the one hand, and promotion of technological development, as well as transfer and dissemination of technology, on the other. For example, under the Preamble

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[27] Carlos M. Correa, *Intellectual Property Rights, the WTO and Developing Countries: The TRIPS Agreement and Policy Options* 3–4 (Zed Books 2000).

[28] Ahmed A. Latif, *From the UNCTAD Code of Conduct to the WTO's TRIPS Agreement: global efforts for technology transfer. WIPO Regional Consultation on Technology Transfer* (Algeria: ICTSD, 2010).

of this Agreement there is stipulated the due coordination between the goals of national systems of IPR protection and the goals of development and technological progress.

6. Basic Provisions of the TRIPS Agreement Regarding International Technology Transfer: Brief Analysis

In accordance with Article 7 of the TRIPS Agreement, IPR protection and enforcement should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge, and to the balance of rights and obligations in a manner conducive to social and economic welfare. As many know, the high standards of IPR protection are regarded by developed countries as needed conditions for scientific and technological progress. Developed countries justify this position by arguing that the proportional reward for creators and rights holders provides the incentives for further R&D. However, the high standards of IPR protection as a tool, firstly, for scientific and technological progress and, secondly, for the satisfaction of needs, is questionable for developing countries.

We think that Article 7 consolidates the principle of balance, or the principle of balanced interests, not only of rights holders and the public, but also of developed and developing countries. Developed countries are producers of technology, while developing countries are users of technology. Concurrently, Article 7 stipulates in unobvious form one of the core principles of ITT, namely, the principle of mutual advantage. More so, in the opinion of J. He, this balance as an objective that should be achieved is formulated ambiguously and, hence, cannot be actively considered by WTO panels.[29] We can agree with this suggestion in view of the complex nature of balance as objective. It appears from this that balance is the idea rather than the principle. However, in fact it is the principle rather than the idea, because of its appearance in a multitude of provisions on flexible mechanisms provided for by TRIPS.

Provisions of the Preamble and Article 7 reflect the new paradigm of economic development postulating that economic development must be assessed in terms of human development that, as shown by G. Dutfield and U. Suthersanen, supplements, in turn, economic development by incorporating social welfare considerations and considerations of sustainable development.[30] The goals of welfare and development, achieved through transfer, diffusion and application of technology, particularly

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[29] Juan He, *Developing Countries' Pursuit of an Intellectual Property Law Balance under the WTO TRIPS Agreement*, 10(4) Ch. J. of Int'l L. 827 (2011). DOI: 10.1093/chinesejil/jmr044.

[30] Graham Dutfield & Uma Suthersanen, *Global Intellectual Property Law* 272 (Edward Elgar Publishing 2008).

meaningful for developing countries, have been embodied in the flexible mechanisms of TRIPS in, for example, compulsory licensing, parallel import and transitional period.

In respect of ITT as dependent on the patent system, we may also mention Article 29.1 regarding the disclosure requirement, Articles 30 and 31 concerning exceptions to and limitations on exclusive rights, and Article 40 with regard to control over anti-competitive practices in contractual licenses. For developing countries, there is the desirable path of adopting technologies without paying monopoly rents through, for example, compulsory licensing. The TRIPS Agreement assigns legal principles in accordance with which the sovereignty and independence of developing states to adopt decisions on exploiting the flexibilities, enumerated in this Agreement, are respected. The flexibilities give developing countries the latitude to acquire technology without paying full reward to rights holders for use of the protected results of their intellectual activity. Insofar as the TRIPS Agreement is the result of compromise between two groups of states, it does not provide for single-step transition to minimum standards of IPR protection and enforcement. This is premised on the fact that development of national IP legislation has been absent in many countries. Therefore, the Agreement provides for a transitional period.

Pursuant to paragraph 1 of Article 8 'Principles', members of the Agreement may, in the process of formulating or amending their laws and regulations, adopt "measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their social-economic development, provided that such measures are consistent with the provisions of this Agreement". It is interesting that paragraph 2 of Article 8 recognizes that IPRs may be barriers to technology transfer and, accordingly, to technological development, such as, for instance, the abuse of IPRs, and connected with it restrictive practices that negatively affect trade and technology transfer at the national and international levels. Appropriate measures consistent with provisions of the Agreement may be needed to prevent the abuse of IPRs by rights holders or to prevent practices that unreasonably restrain trade or adversely affect ITT.

An effective remedy to restrictive practices in the sphere of technology transfer is antitrust mechanisms, which lead to reducing the cases of the abuse of exclusive rights. Developing countries, understanding this, have, since the 1980s, taken control over restrictive practices by seizing the opportunities afforded them by their national antitrust legislation and the provisions of the Draft International Code of Conduct with regard to technology transfer. Antitrust mechanisms contribute to the equilibrium of the system of IP law by allowing resolution of the conflict between IPRs and the right to access to technology, as well as the right to other results of the human mind. The great role for the successful process of ITT belongs not only to the flexibilities, but also to the antitrust mechanisms that are compatible with each other. Both developed and developing countries are likely to debate the flexibilities.

Article 40 of the TRIPS Agreement acts as a premise for appropriate discussions and adoption of concrete measures. In particular, Article 40.1 reads: 'Members agree that some licensing practices or conditions pertaining to IPRs which restrain competition may have adverse effects on trade and may impede the transfer and dissemination of technology.' Article 40.2 continues:

> Nothing in this Agreement shall prevent members from specifying in their legislation licensing practices or conditions that may in particular cases constitute an abuse of IPRs having an adverse effect on competition in the relevant market. As provided above, a Member may adopt, consistently with the other provisions of this Agreement, appropriate measures to prevent or control such practices, which may include for example exclusive grantback conditions, conditions preventing challenges to validity and coercive package licensing, in the light of the relevant laws and regulations of that Member.

We can fully see that the TRIPS Agreement is notable not just due to the lists of flexibilities concerning IPRs, but also due to admitting the possibility to use the antitrust mechanisms at the domestic level. As a result, as shown by T. Nguyãën, having focused on the competition flexibilities of the TRIPS Agreement in the context of technology transfer, developing countries have the right to use their domestic competition law to promote access to technology so as to protect national interests and consumer welfare.[31]

7. The Impact of the TRIPS Agreement on International Technology Transfer: Most Controversial Issues

In the light of the abovementioned reasons, the emergence of the new circumstances with regard to the functioning of ITT connected with the coming into force of TRIPS resulted in a new content to the discussions on the impact of IPRs on ITT, including debates in the WTO's Working Group on technology transfer issues.[32] It should be remembered that developed countries that had initiated negotiations on TRIPS referred to the argument that stronger IPRs would entail some positive effects, for example increasing FDI and technology flows to developing countries and stimulating domestic innovation. The explanation for this is that since the nineteenth century for developed countries there has been a historically significant regularity in the relationship between

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[31] Tan Nguyãën, *Competition Law, Technology Transfer and the TRIPS Agreement: Implications for Developing Countries* 7–8 (Edward Elgar Publishing 2010).

[32] Pedro Roffe, *Revisiting the Technology Transfer Debate: Lessons for the New WTO Working Group*, 6(2) Bridges 7–10 (2002) <http://www.iprsonline.org/ictsd/docs/RoffeTesfachewBridgesYear6N2February2002.pdf> (accessed Apr. 17, 2016).

stronger IPRs, balanced with public interest, economic growth and development.[33] This is why particular countries, especially the USA and the UK, consider IPRs to be means for promoting economic development through the creation of technological innovations and for transferring them through formal channels.

Beyond that, the noted regularity cannot manifest itself in equal positive manner in all countries. As L. Angels shows, results of the strengthening of IPR protection in developed countries (the North) and in developing countries (the South) depend on the general level of economic development of these regions.[34] However, TRIPS, when still not yet in force, brought serious fears for the practical realization of a tempting perspective to be put in place supposedly without delay. After the adoption of TRIPS the issues on the connection between stronger IPRs and technology transfer, especially to developing countries and LDCs, are largely the focus of attention of international organizations and experts. This question is similar to the question about the influence of stronger IPRs on international trade. As C. Correa explains, it emerges from the continuing technology gap between North and South that has been growing since TRIPS was adopted. He states that the fear that the enhanced protection given to IPRs will not effectively promote the development process but will, in contrast to initial expectations, limit it, instead of opening access to technology, is something that has been voiced by many developing countries.[35]

The TRIPS Agreement expressly refers to the stimulation of technology transfer, but nonetheless is mainly concerned with the scope, use and enforcement of IPRs. Therefore, mechanisms of implementing balanced relations between IPR protection and stimulation of technology development through technology transfer have not been provided for. That has led, at the level of international organizations, to discussions on mechanisms of IPR influence on technology transfer disciplines.

The prime attention of TRIPS is given to technology transfer that reflects the commercial approach, while bearing in mind some development implications. As L. Yueh remarks, this priority contradicts the adopted prediction that technology transfer will be one of the factors of convergence within the global economy and not an addition to other factors that inhibit the absorption and transfer of technologies.[36]

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[33] Mohammad T. Islam, *TRIPS Agreement and Economic Development: Implications and Challenges for Least-developed Countries Like Bangladesh*, 2(1) Nordic J. of Com. L. 5–10 (2010), available at <http://njcl.utu.fi/2_2010/islam_mohammad_towhidul.pdf> (accessed Apr. 17, 2016).

[34] Luis Angeles, *Should Developing Countries Strengthen Intellectual Property Rights?* 5(1) Berkley Elec. J. of Macroec. 1–25 (2005). DOI: 10.2202/1534-5998.1327.

[35] Carlos M. Correa, *Review of the TRIPS Agreement: Fostering the Transfer of Technology to Developing Countries* 3 (Third World Network Trade & Development Series) (2001), available at <http://www.twn.my/title2/t&d/tnd13.pdf> (accessed Apr. 30, 2016).

[36] Linda Y. Yueh, *Global IPRs and Economic Growth*, 5(3) Northwestern J. of Tech. and Int. Prop. 441–447 (2007), available at <http://scholarlycommons.law.nortwestern.edu/njtip/vol/5/iss3/3> (accessed May 8, 2016).

Based on evidence on income dispersion in the global economy and the evolution of the global system of IPR protection, this expert argues that the IPR regime under the TRIPS provisions is contributing to the divergence of growth rates among countries by making technology costly, which is closely connected with increasing the cost of developing countries' production and, thus, inhibits their ability to 'catch up'. In a kind of countervailing effect, there are the acts of the international rules-based system of facilitation of FDI for developing countries. Another expert – G. Samad – argues that increasing the level of IPR enforcement encourages licensing, reducing imitation, but enhancing royalties and license fees. That has negative impacts, not only on technology transfer to developing countries, but also on FDI.

It should also not go unmentioned that the prevailing trend in global IPR policy is, indisputably, the strengthening of IPR protection. This is a result of the approach that is being conducted and implemented by developed countries, or rather by their TNCs. Insofar as the modern world economy is an economy of IP, international technology markets are very sensitive to the broadening of the scope of IPR protection, in particular to extension of the patent duration. The significant broadening of the scope and duration covered in the TRIPs Agreement may lead to difficulties in ITT. Therefore, there is concern about the impact of stronger IPR protection on ITT.

In spite of what has been said, the potential benefits from increasing IPR protection are not always clear for developing countries.[37] As P. Janjua and G. Samad have concluded, IPRs are a factor of productivity influencing developed countries rather than middle-income developing countries.[38] While developing countries have no particular enthusiasm regarding this matter, developed countries and their firms, to say nothing of TNCs, are keen to strengthen IPRs around the world, because they believe that IP protection has a positive impact on a country's economic development, including that of developing countries, through the positive impact of IP on FDI, innovation and technology transfer.[39]

Furthermore, they even strive to enter onto the list of patentable innovations the broader variety of new technologies, for example biotechnologies. The possibility of that is laid down in Article 27.1 of the TRIPS Agreement, but under several restrictions in accordance with Articles 27.2 and 27.3. In addition, Rule 27 of the instructions on application of the European Patent Convention widens, in the light of Directive

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[37] Phillip McCalman, *Who enjoys TRIPS abroad? An Empirical Analysis of Intellectual Property Rights in the Uruguay Round,* 38(2) Can. J. of Ec. 574–603 (2005). DOI: 10.1111/j.0008-4085.2005.00293.x.

[38] Pervez Z. Janjua & Ghulam Samand, *Intellectual Property Rights and Economic Growth: the Case of Middle-income Developing Countries*, 46(4) The Pak. Dev. Rev. 720 (2007), available at <http://www.pide.org.pk/pdf/PDR/2007/Volume4/711-722.pdf> (accessed Mar. 18, 2016).

[39] Peter Magic, *International Technology Transfer & Intellectual Property Rights* (University of Texas 2003), available at <http://www.cs.utexas.edu/~fussell/courses/econtech/public-final-papers/Peter_Magic_International_IP_Rights.pdf>, (accessed Feb. 14, 2016).

98/44/EC,[40] the list of patentable inventions, including biotechnological inventions, determined by Rule 26.2 as a product or a process 'by means of which biological material is produced, processed or used.' Developing countries are not interested in widening the list of patentable inventions, because that leads to difficulties in access thereto. In effect, as C. O'Regan induces, it would be arrogant to presume that a one-size-fits-all approach to IPR protection would work for developing countries.[41]

The reforms to the patent systems undertaken in developing countries towards establishing stronger patent laws after the adoption of TRIPS has had a positive impact on technology imported into those countries. As a result, there was a reduction in the possibilities to imitate patented technologies. But, on the other hand, this has meant the strengthening of the position of foreign firms and it has not resulted in a solution to the problem of capacity building.

A study by the UN Industrial and Development Organization (UNIDO) has shown the adverse effect of patent monopoly on technology transfer. The experience of the Republic of Korea argues that stronger IPR protection will hinder rather than facilitate technology transfer and indigenous learning activities at the early stages of industrialization. Also in this reasoned study, this time with the experience of Lebanon addressed, it was stated that 'research findings indicate that the static effects of stronger IPR protection on prices, employment and output are likely to be negative for most industries' there.[42] With regard to middle-income countries, the same study recognized that the beneficial impact of stronger IPR protection on domestic innovation and technology diffusion to a certain extent are offset by the growth-enhancing benefits otherwise obtained from imitation and now precluded by the stronger IPR regime.

In addition, empirical evidence testifies that enforceable patents can increase inward flows of ITT in middle-income and large developing countries, but probably have little impact in LDCs. This conclusion is similar to B. Hall's view that stringent patent rights protection, indeed, encourages FDI and technology transfer to mid-level developing countries, but there is very little evidence that stronger patent protection can encourage indigenous innovation in developing countries.[43] Moreover,

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40 Directive 98/44/EC of the European parliament and the Council of 6 July 1998 on the legal protection of biological inventions. Official J., L 213 13–21 (July 30, 1998).

41 Cecily A. O'Regan, *Is Intellectual Property a Hurdle for Transfer Technology to Developing Countries? If so, How High of a Hurdle?* 1(1) Hasting Sc. and Tech. J. 1 (2009).

42 United Nations Industrial Development Organization (UNIDO) and World Business Council for Sustainable Development (WBCSD), Developing Countries and Technology Cooperation: an Capacity-Building Perspective (UNIDO Pub. 2002), available at <http://infohouse.p2ric.org/ref/40/39496.pdf> (accessed May 1, 2016).

43 Bronwyn N. Hall, *Does Patents Protection Help or Hinder Technology Transfer?* in Intellectual Property for Economic Development: Issues and Policy Implication 11–32 (Sanghoon Ahn, Bronwyn H. Hall & Keun Lee (eds.) (Edward Elgar Publishing 2014).

ITT should lead not only to technology inflows, but also to stimulating domestic innovation. Referring to previous quantitative research, M. Islam concludes that IPRs do not often contribute to the economic growth and development of countries with thresholds of GDP below US$3,400. Countries with a low level of development have no possibility to engage in R&D, and thus appropriate the potential to imitate, absorb or assimilate foreign inventions in order to meet consumption needs and fulfill economic goals.[44] As a result, the strengthening of IPR protection as per global standards restricts free use of knowledge and technological public goods, as well as increases the cost of technology acquisition.

The real and possible perspectives of ITT in the context of stronger IPR protection remain under discussion in the realm of experts where there is critical assessment of the claimed welfare consequences of implementing global standards of IPR protection in developing countries. The point is that some experts underscore that the minimum standards enshrined in TRIPS can bring various benefits to developing countries in respect of creating appropriate structures for encouraging the generation, diffusion and transfer of technologies, including the attraction of private investment flows at the national and international levels. Protecting IPRs in the TRIPS framework has welfare implications for developing countries (the South) by way of the impact on innovation, markets and transfer of technology. Furthermore, a stringent IPR regime is optimal for the South because it triggers technology transfer by inducing FDI in less R&D-intensive industries. According to A. Naghavi, a stringent IPR regime can also stimulate innovation by pushing the multinationals to deter entry into the high-tech sector. Additionally, G. Samad and M. Nasir in their new study conclude that IPR protection does encourage technology transfer (in this case) to Pakistan, India and Bangladesh, concurrently recognizing the positive impact on economic freedom and GDP of technology transfer.

In this regard, B. Pandey and P. Saha's approach is also quite optimistic. They recognize the skepticism surrounding TRIPS capacity to be basic for technology inflows to developing countries. Nonetheless, they argue that the Agreement contains provisions on flexibility that should be exploited by developing countries to achieve the purposes of their technological development.[45] In other words, developing countries need the optimum model of IPRs so as to further economic growth via internal and external (international) technology transfers.[46]

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[44] Mohammad T. Islam, *TRIPS Agreement of the WTO. Implications and Challenges for Bangladesh* (Cambridge Scholars Publishing 2014).

[45] Bishambhar N. Pandey & Prabhat K. Saha, *Technology Transfer in TRIPS Agreement: Implications for Developing Countries*, 3(1) Dehradun L. Rev. (2012).

[46] Yongmin Chen and Thitima Puttitanun, *Intellectual Property Rights and Innovation in Developing Countries*, 78(2) J. of Dev. Economics 477–479 (2005). DOI: 10.1016/j.jdeveco.2004.11.005.

So the positive influence of stronger IPRs on ITT continues to be a matter of discussion.[47] To draw general and unambiguous conclusions on the results of the impact of increasing IPR protection on ITT is difficult, because ITT is carried out in different forms. That is why most experts prefer to analyze the impact in regard to concrete forms of technology transfer, for example trade, FDI and licensing. In other words, most studies considering taking up one of the channels by which technologies may be transferred and diffused choose to examine the impact of IPRs on ITT activity in this concrete channel. These studies act as background for policy-making in special areas of global policy in the sphere of IP and ITT.

8. Different Results of Stronger IPR Protection Regarding Various Groups of Countries

Given the remarks just made, increasing IPR protection raises many problems concerning the difficulties of access to technologies. Stronger IPRs are, nonetheless, closely connected with possible growth in FDI, trade and licensing flows. They are real vehicles of technology transfer and can foster technology exchange. As some experts have shown, strengthening IPR protection allows shifting ITT from exports towards licensing. This positively affects inflows of technological knowledge measured as R&D expenditures undertaken on behalf of affiliates.[48] In a different way, stronger IPR protection is expected to expand the formal channels of transfer and diffusion of technology. At the same time it is necessary to avoid, to a certain extent, overstating these positive effects, insofar as these findings are applied only to recipient countries with good imitative potential. In other cases, the impact of strengthening IPR protection is zero.

Most broadly, stronger IPR protection is capable of increasing the formal channels of technology transfer via international trade, inflows of FDI and licensing, but mainly into countries imitating technologies and having certain technological potential. As premised by L. Kim, Korea is one of these countries. There seems to be certain evidence on the positive impact of IPRs on formal technology transfer, at least, at the bilateral level.

The results of stronger IPR protection are ambiguous in theory and in practice, generally, and depend on the concrete conditions of different countries. R. Rasian, having analyzed the experiences of India, NIEs (newly industrialized economies),

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[47] Lee G. Branstetter, Raymond Fisman & Fritz C. Foley, *Do Stronger Intellectual Property Rights Increase International Technology Transfer? Empirical evidence from U.S. firm-level panel data*, 121(1) The Quart. J. of Ec. 320–350 (2006). DOI: 10.1093/qje/121.1.321.

[48] Pamela J. Smith, *How Do Foreign Patent Rights Affect U.S. Exports, Affiliate Sale, and Licenses?* 55(2) J. of Int'l Ec., 411–440 (2001). DOI: 10.1016/S0022-1996(01)00086-1.

Pakistan, Sri Lanka and other countries, prefers to give conditions of technological capabilities and IPR infrastructure. He induces from his analyses that poorer economies are unlikely to enjoy compliance with the obligations under the TRIPS Agreement.[49] Similarly, R. Mashelkar states that the impact of TRIPS on developing countries will be consistent with the level of their economic and technological development. Middle-income countries, for example Brazil and Malaysia, are likely to benefit from the spur to local innovation under stronger IPRs. Other countries, for example India and China, endowed with IP infrastructure, can gain in the long term some benefits from stronger IPRs. Mashelkar summarizes further that LDCs with their minimal level of innovative development will face higher costs without the offsetting benefits.[50]

Generally speaking, the positive impact of strengthening IPR protection on technology transfer and, accordingly, on economic growth and innovation depends on the economic and technological level of the particular country. The demonstration of positive impacts as regards non-innovative developing countries or LDCs are likely to be the foremost problem of global policy in the area of IPRs, ITT and development. With regard to the poorest countries, stronger IPRs do not lead to the appearance of all the substantial benefits in view of supporting innovation growth and technology diffusion. Additionally, the high level of administrative cost for developing patent systems and the potential abuse of market power in small, closed markets along with enforcement of TRIPS will give rise to losing out by acceding to the Agreement.

Moreover, a regime of stronger IPRs may cause some difficulties for technology imitation, a significant lever designed to develop the innovative potential of various industries in LDCs with some slight technological capabilities. Besides that, TRIPS restricts free use of technologies and knowledge, but these restrictions are by no means absolute. It should be stressed that LDCs are no extreme antagonists of any protection of exclusive rights to the results of intellectual activity. But through limitations on exclusive rights, these countries can fully use their comparative advantage of reverse-engineering, thereby adding value through adaptation of existing technological goods accessed due to formal and non-formal channels. However, the TRIPS Agreement obliges its members, irrespective of their level of development, to strengthen IPR protection, including comprehensive control over technology diffusion. Indeed, as we believe, TRIPS consolidates the position of rights holders. It must not be forgotten that this consolidation is balanced with the provided flexibilities, being the outcome of the compromise between developed and developing countries. In consideration of these flexible mechanisms, TRIPS

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[49] Rajah Rasiah, *TRIPS and Industrial Technology Development in East and South Asia*, 14(1) The Eur. J. of Dev. R. 171–199 (2002).

[50] Raghunath A. Mashelkar, *Intellectual property rights and the third world*, 7(4) J. of Int. Prop. Rights 310 (2002), available at <http://nopr.niscair.res.in/handle/123456789/4927> (accessed Dec. 11, 2015).

should not be regarded as an international instrument serving only the interests of one group of countries.

Unconditionally, the logic of development of the international system of IPR protection is strengthening protection, but concurrently there is implied development of regimes of limitations and exceptions as a part of the flexibilities. That is why strengthening IPR protection may be fully consistent not only with the interests of those developing countries that have succeeded in technological and industrial development and are now transitioning to technology donors, but also with the interests of LDCs. Nonetheless, for LDCs there are many problems forthcoming. Similar conclusions have been suggested by R. Falvey, who investigated the effects of IPR protection under the TRIPS standards in the area of economic growth in seventy-nine countries.[51] In this study, he and other experts show that effects depend on the level of development, although positive and significant effects have taken place not only in high-income countries, but also in low-income countries. In the first case, economic growth is grounded on encouraging innovation by stronger IPR protection. Additionally, changes made in the relation of LDCs to IPR protection has led to enhancing technology flows. Falvey *et al.* furthermore suggest that middle-income countries may have offsetting losses in reduced scope for imitation of technologies, something which has long lain behind their economic growth.

Insofar as LDCs are more vulnerable to any strengthening of IPR protection, they are, therefore, very interested in extension of the transitional period in the process of TRIPS implementation. Article 66.1 of the Agreement clearly ascertains that the Council of TRIPS shall, upon duly motivated request by a least developed country member, accord extensions of this period. This provision is the premise of requests by LCDs to extend the transitional period. The LDCs are also very interested in comprehensive stocktaking of their technology transfer obligations that have been accepted by developed countries. In this light, the world community must envision measures on effective implementation of the obligations of developed countries under Article 66.2 of the TRIPS Agreement.

In contrast to LDCs, technologically and economically advanced developing countries are likely to experience positive effects from their exercise of the potentials of TRIPS. Stronger IPR protection seems to be a key factor in encouraging firms engaged in the imitation of technology to shift their resources towards production and commercialization of domestic innovation, since development of high-tech business is a strategy of these countries. India, for example, sets itself the task of transitioning to a high-tech export structure. This is a task of the state and business. A. Lal and R. Clement emphasize, among other things: 'India is posed to generate new business startups in the high-tech area that can help it become a major competitor in

[51] Rod Falvey, Neil Foster and David Greenaway, *Intellectual Property Rights and Economic Growth*, 10(4) Rev. of Dev. Ec. 700–719 (2006). DOI: 10.1111/j.1467-9361.2006.00343.x.

the world economy."[52] Countries that have succeeded in innovative activity in recent years, for example China, may benefit from stronger IPRs. In contrast to the poorest countries, advanced developing countries have possibilities to obtain benefits from formal channels of technology transfer and integration into the R&D activity of developed countries.

At the same time, advanced developing countries are also interested in the system of IPR protection in order to encourage technology transfer and diffusion through imitation. We consider that to be the track of the era when policy in the area of IPRs was at the national level. This admitted using various flexibilities that facilitated technology diffusion. The TRIPS Agreement shifted the bargaining on flexibilities from the national to the international level, having made these mechanisms uniform within the international system of IPRs based on minimum standards of their protection. The reality created by the TRIPS Agreement obviously drives the question, Who does benefit most from these changes? It is clear that the answer is the developed countries and their innovators and rights holders or, rather, their TNCs. Because the majority of results of intellectual activity are still produced in industrialized countries, despite essential changes, developing countries continue to depend on either spillovers or formal technology transfer from those countries and their R&D centers.

The strengthening of IPR protection pursuant to the TRIPS Agreement reduces the possibility of technology transfer free of charge from North to South, restricting obtaining the technology to channels of formal transfer that are associated with substantial costs. This means that there is a correlation between the potential increase in price and reduction in access to available technology, on the one hand, and high-tech production, on the other. There is a point to be stressed here that both advanced developing countries and LDCs need informal channels of technology transfer for use in developing or creating an innovative sector. These channels should not be underestimated as to their importance. As C. Correa suggests, the policies of LDCs in the field of technology transfer should be focused on mobilizing the informal modes of technology acquisition and should address the situation of firms at a more advanced stage of technological development.[53] Reasonably, the given policies should include mechanisms to expand the acquisition and ensure the exploitation of equipment and machinery, and they should elevate the bargaining capacity of the more advanced firms to obtain technologies through licensing agreements.

From all that has been said, it can be concretized that global policy on IPRs, ITT and development comprises the national and international policies on fostering

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[52] Anil Lal and Ronald Clement, *Economic Development in India: the Role of Individual Enterprise*, 12(2) Asia-Pacific Dev. J. 96 (2005), available at <http://www.unescap.org/sites/default/files/apdj12-2-5-lal.pdf> (accessed May 3, 2016).

[53] Carlos M. Correa, *Intellectual Property in LDCs: Strategies for Enhancing Technology Transfer and Dissemination.* Background Paper No. 4 (Geneva: UNCTAD, 2007).

formal and informal channels of technology transfer. The first are policies in the area of attracting FDI. Such policies serve all countries as means for developing their innovative technology basis. The second are policies in the area of education and R&D investment. At last, a variety of countries, including developed countries, will be interested in the diffusion of technology via patent applications and definition of "inventive step", making innovation patentable, as well as via the breadth of allowable patent claims.

9. TRIPS-plus v. TRIPS: the New Problems of International Technology Transfer

The compliance of developing countries with the provisions of the TRIPS Agreement that have increased IPR protection has been conditional on their seeking to gain access to the markets of developed countries. The higher level of IPR protection is a kind of price for this access. A key trend fully visible within the level of regional integration and bilateral trade and investment agreements is a further increasing of IPR protection. This will continue in the foreseeable future. It may reasonably be expected that economic integration achieved via bilateral and regional agreements will potentially and feasibly expand the exchange of technology. However, there are certain difficulties.

A new stage of global cooperation in the sphere of IPRs, ITT and development is the incorporation of provisions on IPR protection and technology transfer into trade and economic agreements at the bilateral and regional levels, and expansion of IPR protection beyond the level that has been set by TRIPS. Such agreements are numerous[54] and are being intently examined by experts.[55] It is possible to state that at the bilateral level there appear certain inherent standards of stronger IPR protection which are in addition to the international system of IPR protection. P. Drahos has named this appearance as a new bilateralism in intellectual property.[56] This bilateralism is, in essence, a fragmentation of the international IPR regulatory regime that may negatively affect ITT.

Provisions laid down in a myriad of bilateral and regional free trade agreements (FTAs) stipulate standards that are known as 'TRIPS-plus' provisions, which means the new wave of strengthening IPR protection. Thus, significant changes are occurring

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[54] USA Free Trade Agreements, available at <http://www.trade.gov/fta> (accessed Dec. 30, 2015); Free Trade Agreements. European Commission. Enterprise and Industry, available at <http://ec.europa.eu/trade/policy/countries-and-regions/agreements/> (accessed Nov. 23, 2015).

[55] Mark V. Shugurov, *Perspectives of International Technology Transfer in the TRIPs-plus Era: Problems and Solutions*, 5(1) Eur. J. of Soc. and Hum. Sc. 48–57 (2015), available at <http://ejshs.net/journals_n/1426244323.pdf> (accessed May 2, 2016).

[56] Peter Drahos, *BITs and BIPs: Bilateralism in Intellectual Property*, 4(6) The J. of W. Int. Prop. 793 (2001). DOI: 10.1111/j.1747-1796.2001.tb00138.x.

at the international, regional and bilateral levels that are based on strengthening minimum TRIPS standards through progressive harmonization of policies in accordance with standards of the technologically advanced countries. The world is experiencing the occurrence of the so-called TRIPS-plus era affecting IP, trade, economic development and, accordingly, international technology transfer.[57]

Testing the perspectives on the impact of these agreements on technology transfer and standards of IPR protection is left to the future. Yet, possible studies may include the logical continuation of the studies already made on the correlation between the level of IPR protection and technology transfer in general.

It is clear now that the likely influence of FTAs will be ambiguous, because the specificity of these agreements is that they comprise provisions of IPRs that go beyond multilateral agreements in the sphere of IPR protection. Additionally, they set out so-called TRIPS-plus standards aiming at reinforcement of the position of rights holders, while proclaiming the measures on prevention of the abuse of IPRs by rights holders. That may negatively influence the advancement of such chief goals of technology transfer as promotion of development and capacity building. Therefore, analysis of these provisions is a part of assessing the perspectives on ITT.[58]

The main problem accompanying the expansion of TRIPs-plus provisions is that the principle of balance assigned in the TRIPS Agreement and other agreements of the WTO is questioned. FTAs can include provisions in which the principle of balance is implemented, but this is, at least, an exception.[59] This alludes to the fact that the principle of balance between rights holders and users of technology may be considered a fad of the international IP law policymakers. The approach that stresses the principle as a fad undermines the regime of flexibilities postulated by TRIPS. Developed countries regard the balance as a superfluous detail in trade relations with developing countries, although they themselves exploit implemented flexibilities broadly, especially compulsory licensing, for providing the right of their citizens to access to medicines. We think that justification of the necessity of balance is a significant point of the current and future global policy in the sphere of IP and ITT, as the principle promotes technological advancement across the world. In turn, tensions between TRIPS and TRIPS-plus means an imbalance in the global system of IPR protection.

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[57] Intellectual Property, Trade and Development: Strategies to Optimize Economic Development in a TRIPS-plus Era (Daniel Gervais, ed.) (Oxford University Press 2007).

[58] Carsten Fink and Patrick Reichenmiller, *Tightening TRIPS: the Intellectual Property Provisions of recent US Free Trade Agreement*. Trade Note (February 7) 1–7 (World Bank Pub. 2005), available at <http://siteresources.worldbank.org/INTRANETTRADE/Resources/Pubs/TradeNote20.pdf> (accessed Nov. 23, 2015).

[59] Andrea Wechsler, *The Quest for Balance in Intellectual Property Law: an Emerging Paradigm or a Fad? A TRIPS Essay Competition* (2009), available at <http://www.atrip.org/Content/Essays/Andrea%20Wechsler.pdf> (accessed Sept. 19, 2015).

In other words, the TRIPS-plus era, also called the post-WTO regime, should be explicitly acknowledged as posing the problems of mutually beneficial ITT. This differs with the reasoning of this regime, rooted in the promise of mutual benefits from international trade and economic globalization. Therefore, the aim of establishing a fair international trade system firmly facilitating technology flows to interested countries is not achieved at the present time. Technologies are global public goods and they, therefore, should be transferred within the same global formal and informal channels. The international global trade system, as one of the major formal channels for technology transfer, should intend to foster prosperity around the world. This means that the international trade system should remain as a system of multilateral cooperation. Accordingly, FTAs should be compatible with the system and not lead to its fragmentation.

Additionally, FTAs should not distort the global system of IP set up on the principle of balance. This thesis is relevant to feedback relations between the bilateral and multilateral levels of technology transfer intersecting with bilateral and multilateral trade and also with investment relations. In this context, the role of multilateral international instruments and international organizations, including the WTO, remains and increases. Therefore, the TRIPS-plus era may be identified as a clear challenge to standards of technology transfer, including its IPR aspect, agreed at the global level. G. Cohen, who envisions the use of the potentials of the WTO and the TRIPS multilateral regime for international technology transfer, has remarked that the WTO plays a supportive role in setting up a just and balanced international trade system closely related with international technology transfer. As he further notes, 'this will require strengthening the provisions in WTO agreements that seek to promote developing countries' access to modern technology.'[60]

Moreover, the TRIPS Agreement continues to have significant potential. Its realization depends on the success of the adaptation of its provisions to the solution of new tasks connected with the intersection of IPR protection and enforcement with the transfer of environmentally sound technology and with new trends in the world economy and policy of aid to development, namely, stressing capacity building and facilitating national policy in the area of innovation. In this light, there arises the discussion on the framework conditions of an evolving interpretation of the TRIPS provisions that should be better situated for the new calls of the times.[61] In our opinion, indeed, there appears to be a very strong need for a multilateral framework that should secure the stable and predictable conditions of long-term FDI and for support of constructive mechanisms of technology transfer to developing countries

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[60] Goel Cohen, Technology Transfer: Strategic Management in Developing Countries 258–259 (SAGE Publications 2009).

[61] TRIPS plus 20. From Trade Rules to Market Principles 431–435 (Hanns Ullrich, Reto M. Hilty, Matthias Lamping & Josef Drexl, eds.) (Springer 2016).

with the accent on their engagement in generating innovation via the promotion of the development of their innovative policy in the areas of R&D and the economy.

10. Conclusion

The challenges ahead in forming and implementing global policy in the sphere of IPRs, ITT and development continue to be considerable. The processes taking place in the global system of IPRs and their protection reflect the conflict of a number of perspectives. We can point out, at least, the two ranges of perspectives on international technology transfer. The first views international transfer relations as instruments of world development and as means to reduce the technological gap and other gaps connected with IPR protection. The second views the stabilization of technology transfer as a powerful instrument of control over the technological development of developing countries and of its restraint. That is why the actors engaged in global policy in the area of IPRs, ITT and development should be concerned about ensuring the realization of the purported benefits from technology transfer for all countries.

The proper striving to realize these profound objectives of ITT demands that all participants of ITT (states, the private sector and international organizations) jointly elaborate systemic and innovative policy space regarding the protection of IP and technology transfer. The international policy space, undoubtedly, should aim at the implementation of a high threshold of IPR protection, simultaneously avoiding incremental patenting of innovations and extension of patent monopoly through abuse of evergreening or patent thicket strategies.

The facilitation of the transfer of technologies for purposes of their use should be provided by measures for timely, prompt disclosure of inventions after expiry of patents. That allows emulation of the technologies in a more accurate manner. Great significance adheres to facilitating the flow of technology information in order to make possible further innovation processes and to provide the possibilities for developing countries partly to catch up technologically to developed countries.

The positive perspectives of international technology transfer in particular and technology progress in general directly depend on the development of global policy in the sphere of IPRs and technology transfer. The further tendencies in the latter are issues to be especially addressed with a view to strengthening the effectiveness of technology transfer. In essence, we may soon see the appearance of the unprecedented situation in the international system of technology transfer which is closely connected not only with a new phase of international scientific and technological cooperation, but also with a new phase of development in world trade and investment. Matters of the paradigm of IPR protection gain in importance. In order to optimize the process of technology transfer, various groups of countries must undertake individual and collective actions.

Because developing countries are deeply interested in integration in technology flows, they must elaborate their strategic vision of actions for upholding the international and national regimes of IPR protection that correspond to their technological interests and development policy. That implies pushing for implementation of provisions of international instruments providing the facilitation of technology transfer and capacity building. Moreover, policy space of developing countries covers concerned realization of provisions of international instruments in the sphere of IPR protection that aim to facilitate technology transfer and technology development. These are, first of all, provisions of the TRIPS Agreement.

For developing countries it is also important to question the possibilities of TRIPS for facilitating technology transfer and for achieving their implementation. That should be accompanied by the setting up of forums in order to take stock of the possibilities in the context of a general assessment of how far the substantive provisions of TRIPS may contribute to attaining the goals claimed in its Preamble and Article 7. Developing countries should in a more coordinated manner discuss at the level of international organizations issues on the impact of IPRs on technology transfer, striving to achieve a concerted position and action, as well as pursuing the implementation of international instruments. Developing countries should deliberately take decisions on participation in FTAs and other international agreements containing any TRIPS-plus obligations. If they already are signatories to these agreements, there is need for active re-negotiations on their obligations. The forming of a favorable global order of technology transfer demands active attempts for implementation at the national level of the flexibilities of the TRIPS Agreement that facilitate technology emulation, innovation and invention.

LDCs are more vulnerable to any strengthening of IPR protection. They should engage in a comprehensive stocktaking of their technology transfer obligations that have been accepted by developed countries, when advantageous they should request extension of the transitional period under Article 66.1 of the TRIPS Agreement, and they should demand effective implementation of obligations beneficial to them under Article 66.2.

Developed countries have major responsibility for global technology development and use of technologies for development goals. The universal position of developed countries consists in that they believe that a well-designed system of IPRs is an essential tool for technology transfer and economic development. They must be made conscious concerning the negative effects that unbalanced strengthening of protection of IPRs has in respect of technology transfer and development.

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