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Published in the Ghana

<http://kadint.net/our-journal.html>

RESEARCH ARTICLE



ISSN 2410-4981

TRIPS Agreement, International Technology Transfer and Least Developed Countries

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Abstract

The author examines the role of the trade-related aspects of intellectual property rights (TRIPS Agreement) in facilitation the international technology transfer to least developed countries (LDCs). The primary purpose of this study is to investigate the new conditions of technology development of LDCs connected with TRIPS adoption. Special attention is paid to the potentials of Article 66.2 for solving the problem of LDCs capacity building. The article presents detailed analysis of the discussions on the impact of the TRIPS provisions concerning the strengthening of the intellectual property rights (IPRs) and the protection of technology transfer to LDCs. An important finding of this study is the recognition of the need to take urgent measures for the transition unto a new model of partnership between developed countries and LDCs in area of technology transfer and IPRs protection. The study concluded that a new model needed to be elaborated at the international level should be based on the effective implementation of Article 66.2 of the TRIPS Agreement.

Keywords: International Technology Cooperation; Intellectual Property Rights; Developing Countries; Technology Transfer; Capacity Building.

Introduction

The careful attention that our contemporary society pays to the process of international technology transfer is caused by the fact that technologies are a deciding factor of economic, social and innovative development at both regional and global levels. The provision of access to technology for developing and more especially for least developed countries (LDCs) is a paramount item of global Agenda. The list of more sensitive technologies for LDCs is needed each day for development. Multiplicity of technological innovations may be needed for information technology, water treatment, waste management, renewable energy technology, biotechnology, marine technology and sustainable forest management and usage of forests.

With respect to all these, it should be stressed that international transfer of technology to LDCs is one of the most actively discussed issues of international economic relations and international relations in the area of aid to development in past fifty years. International technology transfer is considered to be significant tool that is able to reduce the remaining, permanently modifying knowledge and technology gap between developed and developing countries. Results of international technology transfer depend, at best, on modes of the latter

having, inter alia, some negative aspects such as conservation of technological dependence of LDCs on developed countries, i. e. technological colonialism. That is why various international instruments assign obligations of developed countries to carry out technology transfer to developing countries having the low technology and innovative capabilities. So, Article 66.2 of the Agreement on trade-related aspects of intellectual property rights (TRIPS Agreement) imposes some obligations on developed countries to create incentive for enterprises and institutions in their territory with the aim of increasing of transfer technologies to LDCs.

Issues on TRIPS Agreement, International Technology Transfer and LDCs

The problems associated with the transfer of technology to developing countries and particularly to LDCs had been discussed during the past five decades. Results of these discussions are numerous bilateral and multilateral initiatives at the international levels. These initiatives have become the basis for the elaboration of legal norms laid down in national legislation and international instruments, such as various sources of soft and hard international laws.

Concurrently, in a given international documents, the right of developing countries to access technologies has been recognised. I should stress that this right may be voiced as a consequence of extreme interest of developing and especially to LDCs in obtaining these technologies, particularly related to innovative technologies. Due to international technology transfer, developing countries globally could gain access to technologies that may be new to them.

More so, the right to access new technologies should be understood as one of the elements of right to development. Hence, the transfer of technology to developing countries is of a great concern. Discussions on setting up the New International Economic Order (NIEO), which is an integral part of the New International Technology Order (NITO) include the new order of international technology transfer. The relevant content and extent of intellectual property rights (IPRs), as well as regime of IPRs protection are as part of the latter.

The contemporary conception of international technology transfer goes beyond a purely economic approach [1, pp. 2-3]. The conception of knowledge and technology as public goods lays down the foundation of modern concept of international technology transfer [2 – 3; 4, pp. 1-3]. Hence, the idea that knowledge, information and technologies are both public and individual goods is the focus of the Draft of the Treaty on access to knowledge [5]. In seeking to promote the transfer of technology and knowledge to developing countries, the core objective of this project is to take into account the need for a balanced vector of development of IPRs and protection of them (part 3, part 4).

I want to underscore that, technologies are global public goods of intellectual nature. They enable us form appropriate conditions which are necessary for the realisation of human right and protection of life from one generation to the next generations. Hence, the core challenge for policy in international cooperation is to set up and maintain an effective access to technological information and knowledge. Another challenge is to devise the special mechanisms for deploying them effectively within an economy and other sectors of society. It is true for all range of countries, since the right to development in conjunction with the right to access to technology is universal.

The central theme of my paper is that the IPRs is necessary for the transfer and diffusion of technologies but do not factor their restriction. It implies that, there is a potential need to use the Intellectual Property (IP) international system to act as a horizon for national and international regulation for the technology transfer. This will thereby provide the path for implementing the provisions of international instruments on technology transfer with additional IPRs protection. However, patent security is a subordinate aspect of technology transfer and diffusion of technologies.

It is germane to understand that technologies are global goods, and the implicit aim of an international system of IPRs protection is to facilitate technology transfer to LDCs other than to restrict them. This paradigm articulated in conventional instruments concluding provisions on technology transfer covers international instruments in the sphere of IPRs protection. In effect, this demonstrates not only the TRIPS Agreement but also other instruments of the WTO.

Transferred technologies, including technology transfer for development goals, may also be proprietary, for example, biotechnologies. This moment is taken in consideration by international instruments. Consequently, international instruments referring to technology transfer imply protected and non-protected technologies. Un-proprietary technologies, namely technological knowledge as the public goods, are used freely. They are free of charge. This is a feature of access to them. Proprietary technologies, in essence, also are accessible, albeit their accessibility demands authorisation. One of key instruments regulating the transfer of proprietary technologies is the TRIPS Agreement setting up the congruent minimal standards of IPRs protection around the world.

International technology transfer, being a critical factor of sustainable rate of economic growth and development in whole, is very sensitive to implications of IPRs protection. At one time, it should be stressed that role of protection and enforcement of IPRs in international technology transfer is the issue of special global policy in the area that influences all countries, including LDCs.

This may be quite said that the concept of technology transfer also includes, viewing the IPRs, especially patent rights and trade secrets, and in certain degree, the copyright addressing the ICTs and software, in kind of its necessary aspect. Besides the approach to technology transfer as transfer of information and technical knowledge that are results of intellectual activity, the great significance has a specifying of issue on what IPRs do mean as regards technology transfer. With increasing of transnational trade flows, especially flows of sophisticated production and exclusive rights to it, linkage between patents and technology transfer has been getting an overarching recognition not only at the national but also at the international levels.

Intellectual Property Rights and International Technology Transfer

The protection of IPRs relevant to transferred technologies is one of most controversial aspects of policy in the sphere of international technology transfer and encouragement of the latter. There have been a rising in the global markets of IPRs in the world economy. As a result, the international system of IPRs protection and technology markets has become closely connected.

Being such 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. The commercialisation of technologies and their transfer makes the realization of such goals of technology transfer a very vulnerable facilitation tool for capacity building and development [6, pp. 17-66].

IPRs is both an integral part of technology transfer law and a major aspect of technological advancement. Examples include creation, adaptation, diffusion and usage of available and emerging technologies. Considering the issue of IP impact on ITT is an integral part of proceeding debates on the impact of IPRs on development in general [7 – 9], including economic development and growth [10 – 12; 13, pp. 181-182]. As a result, the empirical findings on different aftermaths of IPRs impact on economic growth in developed, developing and LDCs countries are the basis for understanding the tendency of impact for strengthening IPRs protection on perspectives of international technology transfer, especially to countries with lower middle income.

Indeed, technology transfer acts as an extremely broad concept, not only referring to IP aspects. Butler and Gibson highlight technology transfer as a dynamic area of study by examining such traditional topics like IP management, risk management, market identification, role of universities, as well as public and private labs [14, p. XIII]. However, protection and observance of IPRs is an utmost controversy. This is because of licensing agreements issues which are one of the main channels through which the transfer of technology can be carried out.

Review Analysis and Respective Implications

1. The role of the TRIPS Agreement for the development of an international technology transfer: concise analysis

Despite the fact that the TRIPS Agreement was inspired by pharmaceutical TNCs, it provides the scope and extent of IPRs disciplines that is unprecedented at the international level. The adoption of the TRIPS has become as starting point for globalization of IPRs as a new level of

development of an international system of IPRs protection. This protocol had made international standards to become the basis for an essential evolution for national systems in directing their convergence around the world [15 – 18]. It is well-known that the TRIPS as the first comprehensive agreement contains set of minimum standards covering IPR protection in main IPRs areas. These standards as a requirement should be provided by each Member of the WTO. Moreover, the TRIPS require the member countries to develop appropriate mechanisms to enforce protected IPRs.

The adoption of the TRIPS which was conditioned by the globalization of markets has been accompanied by dynamic growth of investment, trade of technology and high tech products (doubled between 1980 and 1994) [19, pp. 19-40]. Differences in IPRs protection having been conferred by national laws globally have restricted cross-boundary technology exchange. Thus, this had rendered weak the patent protection in many developing countries. Firms from developing countries with weak regime of IP protection have striven to obtain the access to foreign high tech products in order to copy it and also gain the benefits associated thereof. This demand has led firms which have heavily invested in Research and Development (R&D) to put pressure on their national governments to strengthen their international IPRs regime [20, pp. 3-4]. TRIPS as central part of global legal system in the area of IPRs, has had important implications for global economic growth. This global trend in economic growth had also significantly affected international technology transfer. Some analytics underscore emerging significant changes and specificity of international technology transfer after the adoption of the TRIPS in 1994 [21 – 23]. Indeed, the TRIPS encompasses majority of countries, therefore its implications for global economy and international technology transfer are certain.

It should be remembered that until the TRIPS in 1970-1980, the policy of ‘world society for development’ had focused on questions of imperfections in the transfer technology mechanisms and possible conditions for increasing their effectiveness. Some issues raised with this policy included how to reduce costs connected with transfer transactions and how to also remove negative obstacles of market character, for example, defects in international market.

It seems that the adoption of the TRIPS led to an increase in market. To be precise, trade approach to international technology transfer and departures from above mentioned coordinated paradigm of international technology transfer, taking into account the interests of developing countries. Before the adoption of the TRIPS, IPRs created artificial barriers instead of promoting the innovation. This practice made dissemination of the knowledge costly. Thus, the close connection between patents, trade and technology transfer was recognised in Articles 7, 8 and 66.2 of the TRIPS Agreement. For that reason, discussion on IPRs protection was displaced to focus on global policy on technology transfer. This shift rests on the basis that, IPRs protection is the vehicle for economic development through trade.

Nonetheless, this shift does not mean a negation approach to technology transfer as tool for the realization of the ‘right to access to technologies’ in the context of the ‘right to development’. It may be expounded by the fact that, the trade and trade aspects of IPRs as well as a new way posing technology transfer, continue to have the profound human rights foundation. Moreover, the TRIPS seek to invoke the setting of basic principles for the balance between protection and enforcement of IPRs. On the one hand, it also seeks the promotion of technology development as well as the transfer and dissemination of technologies. Under the preamble of this Agreement, there is a stipulation of terms due to the coordination between goals of national systems of IPRs protection and goals of development and technology progress.

In accordance with Article 7 of the TRIPS, protection and enforcement of IPRs should contribute to the promotion of technological innovation, transfer and dissemination of technology, mutual advantage of producers and users of technological knowledge. Also, it provides the balance between rights and obligations in a manner conducive to social and economic welfare. In the opinion of J. He, this balance as an objective is formulated ambiguously and, hence, cannot be actively considered by the WTO panels [24, p. 827]. I can agree with this suggestion in view of the complex content of the balance as a needed objective. It appears that the balance is an idea rather than a principle though, in reality, it is a principle rather than an idea. This is because, it materialises in a multitude of provisions in flexible mechanisms (so-called flexibilities).

The provisions in the preamble and Article 7 reflect a new paradigm of economic development. This paradigm postulates that economic development should be estimated in terms of human development. According to Dutfield and Suthersanen, supplements, in turn, should entail economic development by incorporating social welfare considerations and sustainable development [25, p. 272]. Also, the goals of welfare and development achieved through technology transfer, diffusion and application of technologies particularly meaningful for developing countries have been embodied in flexible mechanisms of the TRIPS. These include; compulsory licensing, parallel import, transitional period and so on. In respect to the international technology transfer depending on patent system, much can be noted in Article 29.1 - regarding the disclosure requirement, Article 30 and 31 - concerning exceptions and limitations to the exclusive rights, and Article 40 - with respect to control over anti-competitive practices in contractual licenses.

It is well-known that for developing countries, there is a desirable path to adopt technologies without paying monopoly rents through, for example, compulsory licensing. The TRIPS assigns legal principles in accordance with which the sovereignty and the independence of developing states to adopt decisions on exploiting the flexibilities enumerated in Agreement are respected. Flexibilities give developing countries the latitude to acquire technologies without paying the rights holders their full reward for using protected result of intellectual activity. Appropriate measures provided for, include the fact that, they are consistent with the provision of the Agreement, and may be needed to prevent the abuse of IPRs rights by rights holders or to resort to practices that unreasonably restrain trade, or adversely affect the international transfer of technology.

3. Article 66.2 of the TRIPS and problems of its implementation

The empirical generalizations of technology transfer to LDCs [26] show that technologies protected by patents are not reaching them. As a result, the TRIPS Agreement, in itself, is hardly capable to improve situation with technology acquisition for poor countries. However, the TRIPS have great potential reflected in its preamble.

This conclusion was recognized by negotiators and became the basis for introducing Article 66.2, which obligates the developed countries to encourage the technology transfer to LDCs. As Article 66.2 stipulates, "Developed country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base". It should mean that transferred technologies are protected by patents and other intellectual property rights. Concomitantly, developed countries are required not to be distressed concerning issues about the protection of IPRs to transfer technologies, but also to intend that these technologies would promote technical development of developing countries.

Clearly, LDCs are in want of more effective implementation of requirements of Article 66.2. The TRIPS Council in 1996 agreed that developed country members would provide annually information on the technical cooperation activities in order to facilitate the Article 66.2 implementation [27]. The WTO has shown up certain concern on the implementation of Article 66.2 in the Doha Decision on Implementation-Related Issues and Concerns that has been adopted by the WTO Ministerial Conference in November 2001. Reaffirming that the provisions of Article 66.2 of the TRIPS Agreement are mandatory, ministers agreed that the TRIPS Council shall put in place mechanism for ensuring the monitoring and full implementation of the obligations in question. In accordance with Para 11.2 of this Decision, developed country members shall submit prior to the end of 2002, detailed report on the functioning in practice of an activity to stimulate their enterprises for the transfer of technology in pursuance of their commitments under Article 66.2. These submissions shall be subject to review in the TRIPS Council and information shall be updated annually.

The TRIPS Council in 2003 also decided on the procedures for submission and reviewed the reports of developed country members, and agreed on the list of issues to be reported [28]. Following the Decision of 19 February, developed countries have to submit reports on their technology transfer incentives for implementation of Article 66.2 of the TRIPS Agreement on an annual basis. Decision has detailed the information that developed countries have to supply by the

end of the year on how their incentives are functioning in practice. This decision was reviewed in full when the TRIPS Council met in September and November 2003.

At the same times, various decisions of the TRIPS Council have raised the question of technology transfer and reiterated the commitment to implement Article 66.2. The WTO Declaration on the TRIPS Agreement and public health [29] also reaffirmed the commitment of developed country members to provide incentives to their enterprises and institutions to encourage and promote technology transfer to LDCs-members pursuant to Article 66.2. This will provide a permanent updating sequence in the monitoring mechanism of Article 66.2 implementation and equal performance of decisions passed by the WTO with regards to increasing effectiveness of technology transfer to LDCs [30, 31].

The implementation of the provision in Article 66.2 is in a critical focus of experts and international organizations, for example the WHO. As remarked by C. Correa, Article 66.2 does not provide assessment of nature and magnitude of the incentives that should be applied to enterprises and institutions in developed countries in process of fostering technology transfer to developing countries [32]. Some experts have questioned the effectiveness of Article 66.2 because its provisions are restricted by technology transfer to LDCs and are not applied to developing countries. S. Moon has stressed that the submissions concerning to Article 66.2 by developed countries to the Council of TRIPS were irregular and did not provide sufficiently detailed data to determine whether Article 66.2 led to any additional incentive beyond business as usual [33, p. 7]. In addition, as noted in Para 7 of Report of European Communities, there are two factors that limited the efforts of developed countries to encourage and promote transfer of technology to LDCs. These factors are; (a) they do not own the vast majority of such technologies and (b) they cannot force the private sector to transfer its technologies [34].

During the meeting of the Council for TRIPS on February 17, 2011 [35], some WTO Members made various proposals on how to streamline the notification process under TRIPS Article 66.2. Issues raised by WTO Members were related to underline the content and format of the Article 66.2 reporting mechanism, as well as to substantive aspects of the implementation of its provision. As a substantive aspect, Members raised questions about the scope and definition of transfer of technology in general terms in relation to Article 66.2 in itself, and in other specific contexts. Furthermore, attention was paid to the specificity of reported programmes provided for LDCs in particular, the nature of incentives for technology transfer, and the choice of appropriate technology in line with priority needs identified by the LDCs themselves. Moreover, WTO Members have held in focus, the sustainability in ensuring continued access to technology in a view of the distinction between incentives for technology transfer to be reported upon under Article 66.2 and the technical assistance activities to be reported upon under Article 67 [36].

Despite of lacks of Article 66.2 implementation, it is indispensable to state that the TRIPS have, in general, great potential for realization of purported benefits, specifically from technology transfer. As above-mentioned, definition of technology is enshrined in the convention concluding provisions on technological cooperation. In the framework of the implementation of Article 66.2 of the TRIPS Agreement, the lack of definition was viewed by some commentators as allowing reporting Member to stretch the definition of technology transfer to meet the obligations under that provision without making the necessary policy changes.

3. Impact of the TRIPS on international technology transfer to LDCs

After the adoption of the TRIPS, issues on impact of stronger IPRs on technology transfer, especially to developing countries and LDCs are largely in focus of attention by international organizations and experts [37]. As C. Correa explains, this interest arises from the continuing technology gap between the North and South that is growing since the TRIPS was been adopted. He stated that, the fear about the enhanced protection given to IPRs will not effectively promote the development process but will rather limit instead, the access to technology which has been voiced by many developing countries [38, p. 3].

The new circumstances of functioning concerning international technology transfer which is connected with the coming of TRIPS into force resulted in new content of discussion on the impact of IPRs on international technology transfer. It should be remembered that, developed countries

having initiated negotiation of the TRIPS have referred to arguments that stronger IPRs would entail some positive effects, for example, the increasing of FDI and technology flows in developing countries and the stimulating the domestic innovation. IPRs are the real vehicles of technology transfer that can foster the exchange of technology.

In a different way, stronger IPRs protection is expected to expand formal channels of transfer and diffusion of technology. At the same time, it is necessary to avoid overstating, insofar as pointed findings is applied only to recipient countries with good imitative potential. In other cases, an aftermath of such strengthening is zero. Most broadly, more strong IPRs protection is capable of increasing the formal channels of technology transfer via international trade, inflows of FDI and licensing but into countries imitating technologies and having certain technologic potential. Consequently, there seems to be a certain evidence for positive impact of IPRs on formal technology transfer, at least, at the bilateral level. Thus, results of stronger IPRs protection is ambiguous in theory and practice and depends on concrete conditions of different countries. R. Rasian having analysed an experience of India, NIEs, Pakistan, Sri Lanka and other countries has preferred to given conditions like the technological capabilities and IPRs infrastructure. He has induced that poorer economies are unlikely to enjoy a compliance with obligations under the TRIPS [39].

Like these conclusion R. Mashelkar indicated that impact of the TRIPS provisions on developing countries will be according to level of their economic and technology development. Middle-income countries, for example, Brazil and Malaysia are likely to benefit from spur to local innovation under stronger IPRs. Other countries, for example, India and China that are endowed with appropriate intellectual property infrastructure, can gain in the long term some benefits from stronger IPRs. He summarizes further that LDCs with their minimal level of innovative development will face higher costs without the offsetting benefits [40, p. 310].

Insofar as the modern world economy is the economy of IP, international technology markets are very sensitive to broadening of scope of IPRs protection, in particular to extension of patent duration. The significant broadening of scope and duration covered, for example, in the TRIPS Agreement may lead to difficulties in international transfer of technology. There are concerns about the impact of stronger IPRs protection on international technology transfer. As a result, the potential of increasing of IPRs protection is not always clear for developing countries [41].

The reforming of patent systems in developing countries in the direction of establishing stronger patent laws after the TRIPS adoption have positive impact on technology import to these countries. In addition, there was a reduction of possibilities to imitate the patented technologies. That has meant a strengthen position of foreign firms but have not resulted in solving the problem of capacity building. K. Maskus, for example, stressed that empirical evidence show that enforceable patents can increase inward flows of international technology transfer in middle-income and large developing countries but probably have little impact in LDCs. This conclusion is similar to B. Hall's viewing in accordance with which stringent patent rights protection. Indeed, it is believed that it encourages FDI and technology transfer to developing countries with middle level of development, though, very little evidence exists to the effect that stronger patent protection can encourage indigenous innovation in developing countries [42]. Accordingly, international technology transfer should lead not only to technologies influx but also to stimulate domestic innovation. Referring to previous quantitative researches, he reasoned that IPRs do not often contribute to economic growth and development of countries with threshold of GDP below US 3,400. Countries with low level of development have no possibility to make R&D, appropriate potential to imitate, absorb, assimilate foreign inventions in order to meet consumption needs and fulfil economic goals. Finally, the reinforcing of IPRs protection in accordance with global standards restricts free use of knowledge and technological public goods, as well as increases the cost of technology acquisition.

A positive impact of strengthening of IPRs protection on technology transfer and, accordingly, on economic growth and innovation depend on economic and technology level of concrete country. The demonstration of positive impacts in respect of non-innovative developing countries, including LDCs, is likely to be the foremost problem of global policy in area the of IPRs protection and of international technology transfer.

With regards to the poorest countries, stronger IPRs do not lead to all appearances of substantial benefits for innovation growth and technology diffusion. Moreover, high level of administrative cost for developing patent systems and potential abuse of market power in small closed markets along with enforcement of the TRIPS will result in losing out from acceding to the TRIPS. In addition, regime of stronger IPRs may create difficulties for technology imitation as significant lever designed to develop the innovative potential of various industries in LDCs with some slight technological potential. Into the bargain, the TRIPS restrict free use of technologies and knowledge but these restrictions are not absolute.

It should not be supposed that LDCs are absolute antagonists of any protection of rights to results of intellectual activity. As M. Islam stated, LDCs like Bangladesh could benefit from increasing demand of IPRs protection especially for patented agricultural and pharmaceutical goods [43, pp. 5-10]. With the aid of expert departures from that through appropriate rights, these countries can use their comparative advantage of reverse-engineering, thereby adding value through adaptation of existing technological goods accessed due to formal and non-formal channels. According to Islam, the TRIPS Agreement however obliges its Members, irrespective of their level of development, to strengthen IPRs protection, including comprehensive control over technology diffusion. Indeed, as I suppose, the TRIPS increase position of rights holders. In consequence, it must not be forgotten that this consolidation is balanced by provided flexibilities, being a repercussion of compromise between developed and developing countries. In consideration of these flexible mechanisms, the TRIPS should not be regarded as international instrument serving only the interest of one group of countries.

Unconditionally, the logic of development within the international system of IPRs protection is that protection is strengthening, but the latter includes development of regimes of limits and exceptions as a part of flexibilities. That is why the strengthening of IPRs protection may fully be consistent not only with interests of developing countries having succeeded in technology and industrial development and transforming now to technologic donors, but also with interests of LDCs. At the same time, regarding LDCs, indeed, there are many forthcoming problems. A similar conclusion has been made by Falvey *et al.* having investigated the effect of IPRs protection under the TRIPS standards on economic growth in 79 countries. These experts in their article have shown that such effect depends upon the level of development, although positive, significant effect took place not only in high-income countries but also in low-income countries. In the first case, economic growth was based on encouraging innovation by stronger IPRs protection. Additionally, change in relation of LDCs to IPRs protection led to enhancing the technology flows. Nevertheless, Falvey *et al.* proposed that, middle-income countries may have offsetting losses and reduced scope for imitation of technologies that a long period of time might have laid down in the background of their economic growth [44].

In spite of the TRIPS, definition of sufficiency expressly refers to stimulation of technology transfer which is rather concerned with the scope, use and enforcement of IPRs. Therefore, mechanisms for implementing the balance between the IPRs protection and the technology development stimulation through transfer of technology have not been provided. This had led at the level of international organizations to discussions about mechanisms of impact of IPRs upon technology transfer disciplines.

In contrast to LDCs, potential of the TRIPS for technologically and economically advanced developing countries, certainly, will be realized in positive manner. Stronger IPRs protection seems to be a key factor in order to foster the firms engaged in imitation of technology to shift their resources towards generation domestic innovation and their commercialization, as well as the development of high-tech business as a strategy for these countries. India, for example, sets itself a task to transit to high tech export structure. This is a task of state and business. A. Lal and R. Clement emphasised, among other things, that "India is posed to generate new business start-ups in the high tech area that can help it become a major competition in the world economy" [45, p. 96].

Countries having succeeded in innovative activities in recent years, for example China, may obtain the benefits from stronger IPRs. In contrast to poorest countries, advanced developing countries have possibilities to obtain the benefits from formal channels of technology transfer and

integration to R&D activities of developed countries. This had led to a track of age where the policy of IPRs protection was at the national level where various flexibilities have facilitated technology diffusion. The TRIPS Agreement has also shifted the bargaining on flexibilities from the national to the international levels, having uniformed these mechanisms within the international system of IPRs based on minimum standards of protection. Reality created by the TRIPS Agreement obviously drives at question that does benefit most from these changes. It is clear that developed countries, their innovators and right holders, or rather TNCs, have benefitted most from these changes. However, developing countries, in whole, continue to depend on either spill overs or formal technology transfer from signed countries and their R&D centers.

Increasing the strength of IPRs protection in pursuant to the TRIPS reduces the possibility of technology transfer via free of charge transmission from North to South. Thus, it restricts the means of obtaining technologies by channels of formal transfer that is associated with substantial costs. It means that there is a correlation between potential increasing of price and reduction of access to available technologies, on the one hand, and high tech production, on the other hand. An important element worth stressing is that, both advanced developing countries and LDCs need informal channels of transfer of technologies that provide development or create their innovative sector. This channel should not be diminished in its importance. According to C. Correa, LDCs policies 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 more advanced stage of technological development. In addition, the given policies should include mechanisms to expand acquisition and to ensure the exploitation of equipment and machinery, and should elevate bargaining capacity of the more advanced firms to obtain technologies through licensing agreements [46].

LDCs are more vulnerable to any strengthening of IPRs protection. Therefore, they are very interested in extension of the transition period in process of the TRIPS implementation. Article 66.1 clearly ascertains that the Council of TRIPS shall, upon duly motivated request by a least-developed country Members, accord extensions of this period. This provision is premise on the right of LCDs to extent transitional period. These countries are very interested in comprehensive stocktaking of technology transfer obligations that have been accepted by developed countries. They should demand the effective implementation of these obligations under Article 66.2 of the TRIPS. Nonetheless, S. Moon detailed that, there was almost no evidence of new incentives that had been put in place as result of Article 66.2 [47]. As the consequence of this problem, it is believed to be needed to develop the new models of partnership between developed countries and LDCs. This call of the times has been articulated by D. Foray brilliantly [48].

Conclusion

The problem of international technology transfer to LDCs gains in special importance in the context of transition to sustainable development. It is a clear that multilateral agreements on IPRs, especially the TRIPS Agreement, are implicitly oriented to sustainable development due to postulating the balance between interests of public and interests of rights holders. Continuing discussions within global policy in the area of international technology transfer to LDCs will continue to concentrate on adapting the TRIPS provisions to new tasks of international development. These are done with regard to the potential use of Article 66.2 and other TRIPS mechanisms to facilitate the transfer of sustainable/clear technologies to LDCs. In the end, there should be wider discussions of these issues.

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