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An analysis of the existing mechanism of transfer of technology from the developed to the developing countries under the trips agreement

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Abstract
This paper is an attempt to explore the existing mechanism of international transfer of technology from the developed countries to the least developed countries under the Agreement on Trade-Related Aspects (TRIPs) of the World Trade Organisation (WTO). It starts with tracing the origins of transfer of technology in relation to intellectual property rights for revealing the rationale behind the concept of 'international transfer of technology' as it is understood today under the WTO regime. It looks into the relevant provisions of TRIPs, primarily Article 66(2) and the super-structure built on it, during the last decade, by the TRIPs Council for facilitating international transfer of technology (ITT) to the Least Developed country Members of the WTO. With reference to this existing structure for ITT, this paper attempts identify the needs of LDCs and the measures taken by WTO's Developed country Members for addressing these needs or for purportedly fulfilling their obligations under TRIPs. On these two bases, an attempt has been made to judge the effectiveness of the ITT provisions of TRIPs. On the basis of the reports filed by LDCs before the TRIPs Council and this essay pinpoints the objections of LDCs on the existing set up of ITT. On the other hand it also looks into the concerns of the Developed country Members of WTO in relation to ITT. The essay ends with a few proposals for making out a case for improving the existing mechanism of ITT.

Keywords: Existing mechanism, TRIPs, ITT

Introduction
From the mediaeval ages to the last quarter of 20th century intellectual property protection went through three stages of evolution. First was the 'territorial period' in which the protection was limited to individual states or kingdoms in Europe. The second was the international period which started in the late 19th century during which the industrialized countries tried to break away from the concept of 'territoriality' while holding on to the basic principles of intellectual property protection. The third stage, prevailing today, is that of globalization of intellectual property rights. With each progression the protection of intellectual property rights improved. Especially, in the third phase of development the focus on intellectual property rights protection and enforcement at an international level was sharpened and its scope was greatly enhanced in terms of subject areas and jurisdiction [1]. Most significantly, it is in this globalization phase that the intellectual property rights have been recognized as part of the international trade. This globalization was an initiative of the world's most industrialized countries, most notably the U.S. and European Economic Community (now European Union), and was introduced in late 1970s and 1980s. For the first time international technology transfer (ITT) surfaced as an issue probably in the 1960s and was first addressed by the United Nations through the United Nations Conference on Trade and Development (UNCTAD). UNCTAD must also be credited with producing the first document on ITT i.e. 'International Code of Conduct on the Transfer of Technology'.

International Transfer of Technology Provisions under WTO Agreements
During the 1970s and 80s the developed countries on one hand and the developing and least developed countries (LDCs) on the other were facing two different problems in relation to international intellectual property (IP) rights. The former, as producers of IP protected goods, services and knowledge, were concerned about weak enforcement of IP rights in the developing countries and LDCs [2]. In contrast, the developing countries and LDCs were concerned about improving their access to new technologies.

The developed countries successfully worked to place the issue of enforcement on the agenda of Uruguay Round of GATT [3]. During GATT negotiations, while the developed countries were pushing the developing and LDCs for agreeing on introducing provisions for IP rights enforcement, the latter pressed the issue of ITT [4]. Thus, in bargain for introducing minimum standards for protecting IP rights under WTO contained in Part III of TRIPs, provisions for encouraging ITT were also introduced. These provisions are contained in various WTO agreements. For instance, Agreement on Trade-Related Aspects of Intellectual Property (TRIPs) for IP, Agreement on the Application of Sanitary and Phytosanitary Measures (SPS), Agreement on Technical Barriers to Trade (TBT), General Agreement on Trade in Services (GATS), Agreement on Subsidies and Countervailing Measures, Agreement on Subsidies and Countervailing Measures (SCM) and Agreement on Trade-Related Investment Measures (TRIMs) [5]. It is an accepted fact that the possibilities available to countries in the last century for getting industrialized have been substantially narrowed down by WTO with its protectionist approach. In the entire WTO regime, ITT works as an exception to this general rule of protectionism which favours already industrialized economies and leaves little space for the aspiring economies. Due to this, there is a need to make rigorous efforts with well-defined objectives for increasing ITT to LDCs within the framework of WTO [6].

The scope of this paper is limited to TRIPs and the existing mechanism of ITT which has been founded on the basis of its provisions. TRIPs recognizes the special needs of the least developed countries in order to enable them to create a sound and viable technological base in its preamble and has transfer and dissemination of technology as one of its objectives [7]. TRIPs also acknowledges the need for measures to prevent practices which adversely affect the international transfer of technology [8]. In relation to ITT, the most important provision of TRIPs is Article 66(2) which states that the 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 [9]. This provision is apparently obligatory in nature, but it is not supported by a mechanism or guideline for its implementation and a scale on which the performance of the Developed country Members may be judged. Article 40 of TRIPs paragraph 37 of the Doha Declaration refers to the developing countries. In any case, Article 66.2 has been used by the developing and least developed countries alike for improving flow of ITT. See for instance foot note 6 above recognizes the fact that some competition restraining licensing practices or conditions may impede the transfer and dissemination of technology, but does not place any particular obligations on members.

Keeping in view the fact that provisions for ITT were introduced in bargain for provisions on IP rights enforcement, apparently former are simply no match for the latter. ITT provisions do not set any minimum threshold of obligation nor provide any guideline or mechanism of their implementation, unlike the IP enforcement provisions of TRIPs. Due to apparent ineffectiveness of these provisions, during 2000 and 2001 the developing and LDCs raised their concerns on the issue of ITT under the WTO regime [10]. Because of these concerns, ITT was one of the major issues in the Fourth WTO Ministerial Conference [11] which was held in 2001 in Doha, Qatar.

During the conference a number of developing and LDCs proposed to establish a 'working group' under the umbrella of the WTO General Council for studying the inter-relationship between international trade and ITT and making recommendations on the measures for facilitating and improving the flow of ITT to the developing countries. The proposal was accepted and the Working Group on Trade and Transfer of Technology (WGTTT) was established [12]. The Doha Declaration only refers to the 'developing countries' in relation to improving ITT, but it does not make a material difference as the developing and LDCs participate in the group's proceedings. WGTTT holds 3 or 4 meetings every year and has been submitting yearly reports to the General Council since 2002. Another significant step taken in the Doha Declaration was the decision that the developed country members shall submit reports on the functioning in practice of the incentives provided to their enterprises for the transfer of technology in pursuance of their commitments under Article 66(2) of TRIPs [13]. This decision added some value to Article 66.2 of TRIPs by placing a relatively tangible obligation on the developed country members of WTO for ITT.

What do Least Developed Countries need?

Identifying the needs of LDCs is of fundamental importance for addressing the issue of ITT. For this purpose, in November 2005 the TRIPs Council announced its decision in which it asked the LDCs to give as much information as possible on their individual priority needs for technical and financial cooperation for assisting them to take steps necessary to implement TRIPs [14]. That fact that this decision came 4 years after the Doha Declaration and establishment of WGTTT makes WTO structure look unpromising. However, the inefficiency cannot be solely attributed to WTO, TRIPs Council or the Developed country Members. The WGTTT reports and notes on its proceedings show that from 2002 to 2010 the LDCs and developing countries kept stressing the need for ITT and did little to actually identify their actual needs which could then be put on the agenda of the TRIPs Council for being addressed. Here it is also worth mentioning that in the November 2005 decision of the TRIPs Council LDCs were required to provide information preferably by 1 January 2008, but out of 48 countries identified by the United Nations as LDCs until today only 5 have submitted their reports to the TRIPs Council. These LDCs are Sierra Leone (in 2007 and 2008), Uganda (in 2007-2008), Tanzania (in 2010), Rwanda (in 2010) and Bangladesh (in 2010). The reports filed by these countries are a good source for identifying the needs of LDCs and an overview of these reports is given below.

Sierra Leone and Uganda were the first to make submissions before the TRIPs Council in 2007.

In its report Sierra Leone [15] identified very low technological base, institutional weakness, pressing needs for human social and economic development and limitations in all levels of education system as its major problems. The report also tells that Sierra Leone's government is working in close co-operation with ICTSD-Saana Consulting and UK Department for International Development (DFID) for addressing these issues. The report also makes some specific proposals in relation to ITT which include, (i) a scoping study for examining how domestic creativity, innovation

and transfer of technology can be stimulated through domestic measures and external help from developed countries under Article 66.2 of TRIPs; (ii) technical and financial assistance to design implement and evaluate system of education and conduct campaigns for raising awareness in IP management for SMEs and using IP for development; (iii) development of a Patent Information System (PIS) to support innovation and technology transfer. PIS, the report proposes, should have the facility for advanced searching of global patent databases for identifying technologies and technological information of importance for innovation and technology transfer to Sierra Leone for its key sectors like mining, fishing, forestry and agriculture; and (iv) financial and technical help for human resource capacity building and building infrastructure of administrative and judicial forums for IP. Ugandan report identified almost similar problems and proposed solutions as contained in the report of Sierra Leone [16]. The most important solutions suggested in the Ugandan report are (i) improving business education and awareness about IP for small and medium sized enterprises (SMEs) and targeting in particular the creative industries, agricultural and manufacturing sector; and (ii) development of a patent information service (PIS) to support innovation and technology transfer. Apart from these, the Ugandan report also generally stresses on the need for financial and technical support for capacity building at all levels to support and indigenously develop IP and also for being able to identify potentially transferable technologies and use them.

The Tanzanian report portrays a similar dismal picture of its lack of technological base, but does not clearly identify the measures which can help the country in ITT [17].

Like Sierra Leone and Uganda, submissions made by Rwanda identify the financial and technical support for capacity building and infrastructural development in all areas related to IP and education [18]. Specifically, it mentions the support which its IP institutions need for (i) helping firms to identify relevant technologies from patent information, identify protectable subject matter and address issues relating to licensing; (ii) providing patent information service about patents in Rwanda and internationally; (iii) assisting Rwandan industry in identifying relevant public domain technologies; (iv) setting up IP management and ITT help desks; and (v) for supporting patenting and dissemination of patented technical information. Despite facing tremendous economic and social problems in recent past [19], Rwanda has taken impressive measures for improving its economy. For ITT, the country has established a Science, Technology and Innovation for Results Programme under which it a knowledge transfer programme has been initiated.

On the basis of these reports the needs of African LDCs may be summarized as follows: 'a scoping study to examine how, inter alia, domestic creativity and ITT can be stimulated', 'system of education, campaigns for raising IP management awareness and using IP for development', 'development of PIS with the facility for searching global patent databases for identifying transferable technologies', 'building administrative, judicial and research infrastructure for managing IP and promoting ITT'.

Against this background of the needs of LDCs and proposed solutions to fulfil them, it is essential to examine the efforts which have been undertaken by the Developed country Members of WTO in pursuance of their obligations under Article 66(2) of TRIPs. This essay will only focus on the measures taken by the European Union for LDCs in Africa.

As per the 2010 Report on the Implementation of Article 66.2 of the TRIPs Agreement, filed by the European Union (EU) [20], a large number of projects have been undertaken for the African LDCs under many different heads. These projects cover a number of fields which are crucial for poverty alleviation, addressing the issue of 'food security', transfer of scientific knowledge, technological management for conducting research, mining, environmental protection etc. In addition to the EU projects, the 2010 Report mentions a number of initiatives being undertaken by at least 10 individual European countries in the areas mentioned above. For instance, Belgium alone is running projects under 12 different heads. The report is drawn pretty much in conformity with the format agreed upon in the TRIPs Council's decision dated 19 February 2003 [21] and the number and kinds of initiatives mentioned in it portray a very positive picture from EU's side and will now be subjected to a review by TRIPs Council under the annual review mechanism [22].

As such, the EU report does not show that it is following a structured plan, whereas that is probably what is needed. According to Gervais and Reichman (2004) the process of developing a technological base starts with imitation which is followed by adaptation and finally a country starts innovation in its own right. Success stories of Brazil, China, India and Russia confirm the workability of this formula. However, in order get to the first step, i.e. imitation, it requires a critical mass of technological knowledge and human resource [23] which did exist to some extent in these 4 developing countries. For the African LDCs, as their reports to TRIPs Council show, probably a different approach will have to be adopted with more precision in planning in case of each LDC. Despite a huge spending and a large number of projects, EU initiatives do not seem to address, at least satisfactorily, the basic needs identified by LDCs in their submissions to the TRIPs Council [24]. Since there is no mechanism in place for assessing the success of developed countries' efforts, it would be appropriate to see how LDCs themselves feel. Rwanda, which is specifically mentioned as a beneficiary in at least 8 different projects in 2010 EU report, said in its submission (of June 2010) that there is no evidence of its benefitting from specific programmes from the developed countries [25]. Another important aspect of EU report is that the initiatives it mentions were not initiated particularly for fulfilling obligations under Article 66(2).

For instance, 6th and 7th Framework Programmes. EU's research policy on an international level is a part of its agenda since 1950s and the First Framework Programme for Research and Technological Development was introduced in early 1980s. Thus, it is not a set of concerted and systematic efforts for effectively fostering ITT to LDCs as was the actual intention behind introducing ITT provisions in WTO.

Non-mandatory nature of ITT provisions

Since before the adoption of February 2003 decision of the TRIPs Council on Implementation of Article 66(2), LDCs have been raising their concern about its non-consequential nature. For instance, in June 2002 Uganda proposed changes to Article 66(2) [26] for improving monitoring of measures taken under it by the developed countries. One of the

suggestions proposed by Ugandan Mission was that there should be measures to take against Developed country Members if they fail to comply with the reporting mechanism and if such failure would amount to a breach of WTO obligations. Naturally, this proposal faced resistance from the developed country members [27].

Problems of the Developed Countries

As per United Nations Development Programme, Human Development Report 2000 (2000) [28], industrialized countries of the world hold 97 per cent of all patents. However, 90 per cent of all technology and product patents are owned by multinational enterprises. On these bases, the developed countries argue that in most of the cases it is not possible for them to transfer technologies. It would not be in vain if the developed countries, and also the LDCs, could at first identify such IP protected knowledge, especially patents, which is not in private hands and is owned by public institutions or non-commercial organizations. This could be done through a scoping study or PIS, the two measures which have been proposed in the submissions made by some LDCs to the TRIPs Council. This and other similar approaches can be adopted, but it will be again more beneficial if the LDCs are first provided with support for infrastructure development. With that the technologies can be transferred more effectively, retained and with a local IP protection regime in place can pave the way for further innovation indigenously and ultimately generate marketable goods and services or address pressing needs of LDCs, like agriculture and public health etc.

For tackling the argument that most of IP protected technology is in private hands, LDCs could put forward a proposal for imposing a fee under an international treaty, e.g., on patent applications under Patent Cooperation Treaty. The revenues collected from this could be earmarked for purchasing privately owned IP protected technology for LDCs. Such a remedy was actually proposed by Hoekman, Maskus and Saggi (2004) for improving IP rights administrative systems in developing countries [29].

Goal of ITT

ITT is a process which involves the successful learning of information by one party from another party, and the effective application of that information in generating marketable goods and services [30]. This definition includes the process of ITT in its first part and also aptly defines its goal in the latter part. From what has been discussed above, it appears that the LDCs first need to establish the institutions through which ITT can be systematically and continuously fostered. On the basis of such institutions which can play the role of a foundation, it is more probable that LDCs can get to a stage at which the goal of ITT, i.e. to indigenously generate marketable goods and service, can become achievable. However, as stated above, this requires a systematic effort.

As long as the international statutory provisions on ITT are of 'best endeavour nature' and lack mandatory character [31], the developed countries will continue to make efforts as they deem appropriate as per their own agendas and for ostensibly fulfilling their obligations. This will probably give little, if no, help to LDCs in making a viable technological base.

Possible Solutions

Bearing in mind the spirit in which IP enforcement provisions were bargained for ITT, TRIPs Council's decision of 19 February 2003 and the Doha Development Agenda, the issue of ITT needs to be addressed more systematically for the ultimate objective of socio-economic and technological development. The LDCs need to make a joint effort, along with the developing countries, for proposing amendments in the ITT provisions which at present are far from perfect in placing any enforceable obligations on the Developed country Members. For making out a case for amendments LDCs need to stress the idea with which ITT provisions were introduced in the WTO regime i.e. in barter with the provisions on minimum standards for enforcement of IP rights. Even with all the flexibilities available in TRIPs and other WTO agreements, there is at least a timeline for LDCs within which they need to transpose IP enforcement provisions of TRIPs in their laws. As against this, the ITT provisions do not have any such conditions.

Moreover, as pointed out in Rwanda's submissions to the TRIPs Council a central purpose of the transition period is to provide flexibility for these countries to build their technological base through innovation, creativity and transfer of technology and not simply to put in place TRIPs-compliant laws [32]. It is on the basis of this correlation between IP enforcement and ITT under WTO, that a case for appropriate amendments in ITT provisions can be made out. LDCs could consider introducing provisions containing a mechanism for ITT. Such provisions could include a set of obligations (possibly starting with conducting scoping studies for each LDC), mechanism for determining timelines for fulfilling obligations and consequence of failure to perform. This could be done through the existing mechanism involving TRIPs Council or through a new agreement under WTO. It goes without saying that obligations and any consequences of their non-performance would be subject to active and responsible participation of LDCs as well.

A basic change which needs to be made in the ITT provisions under WTO is ending of segregation between the developing countries and LDCs. For instance, Agreement on the Application of Sanitary and Phytosanitary Measures does contain provisions for technical assistance from the developed countries, but recognizes only developing countries as potential candidates at the receiving end. It will be only fair to argue that all ITT provisions, existing anywhere in any form should be amended for the benefit of LDCs.

Another measure, proposed by Barton and Maskus (2003) and Hoekman, Maskus and Saggi (2004), is to initiate dialogue on a new treaty on 'Access to Basic Science and Technology' under the WTO is also worth considering for this purpose. With the help of such a treaty public funded research can be placed in public domain and global commons in science and technology can be preserved and enhanced. In any case, the changes to the existing provisions or the new provisions in a new treaty should provide for effective monitoring of measures taken by the developed countries and consequences for their failure. As mentioned above, these areas have already been identified by the LDCs in their communications to the TRIPs Council.

As mentioned above LDCs may also consider proposing levying of a special fee under international treaties which

could be used for purchasing privately owned IP protected technology for them. Such a system will be free from problems like monitoring of efforts.

Conclusion

In the ultimate analysis, it appears that for ITT from the developed world to LDCs the two sides need to harmonize their efforts and this can be better done under the auspices of the WTO. To begin with, the LDCs need to make concerted efforts in identifying their individual needs and for making well defined proposals with precise aims and objectives. The first such proposal could be to conduct a scoping study in case of each LDC. A study on these lines has been done for Rwanda by ICTSD and Sanaa Consulting (2007) [33] and has been mentioned in Rwanda's submissions to TRIPs Council. However, it is difficult to identify that whether any projects have been initiated on the basis of that ICTSD report. On the basis of such proposals the LDCs can persuade WTO and its Developed country Members to fulfil their obligations under Article 66(2) of TRIPs and other ITT related provisions in WTO agreements. Seriousness of LDCs in pursuing ITT could play an instrumental role for them, but they need to work a lot more for bringing about any substantial change in the existing ITT mechanism. The present situation appears to be very bleak. Out of the total 48 LDCs in the world, in 6 years only 5 of them have submitted reports on their needs in ITT and technical assistance. LDCs need to work hard to change this situation and preferably work jointly for improving their negotiating power in the WTO.

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