The Complexity of Using the Patent Standards under TRIPS for the Promotion of Domestic Industrial Development in Developing Countries in the Absence of Local Working Requirements: Rethinking the Role of the World Intellectual Property Organisation in Intellectual Property Standard-Setting

Abstract

This article confronts the most basic question, which is whether in its traditional legislative intent the principle of patent working requirements would as an instrument of government policy in the mist of global value chains definitely guarantee industrial growth for developing countries and LDCs. The author argues that globalisation has promoted an increasing fragmentation of production, that is, in a dynamic economic efficiency and open trade environment, much of manufacturing today is trade in components from different sources, and seeking to produce all of them locally would be contrary to division of labour and undermines the very existence of the WTO's mandate to preserve the basic principles and to further the overriding objectives underlying the multilateral trading system, which is to reduce barriers to trade and to the elimination of discriminatory treatment in international trade relations. Therefore, a key distinction in thinking about policy is that as an instrument of government policy the patent working requirement is, on its own, insufficient, less prudence and not the smartest route to secure rapid socio-economic growth, as countries have more to lose from a confrontational scenario of implementing patent working requirements, and more to gain when they join the global supply chain to exploit its numerous opportunities.

I. Introduction

The grant and enforcement of patents are governed by national regimes,[1] and also by international treaties,[2] where those treaties have been given effect in national laws.[3] Some patent regimes impose certain independent conditions on patentees including patent working requirements.[4] The obligation to work the invention has two different meanings: generally, the first means that the patent owner has a duty to make the patented product or the product made with the patented process available to potential consumers; specifically, it means that the patent

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[1] Frederick Abbott, Thomas Cottier and Francis Gurry, *International Intellectual Property in an Integrated World Economy*, 2nd edn (Aspen Publishers, 2011) at 602, commenting that the sovereignty of each national government within its own territory is the paramount principle by which the international legal and political order was constituted.

[2] *See,* International Treaties and Conventions on Intellectual Property. Available at: <http://www.wipo.int/export/sites/www/about-ip/en/iprm/pdf/ch5.pdf> [Accessed 30 August 2016].

[3] *See,* Article 1 of the Agreement on Trade-Related Aspects of Intellectual Property Rights, 15 April 1994, Marrakesh Agreement Establishing the World Trade Organisation, Annex 1C, The Legal Texts: The Results of the Uruguay Round of Multilateral Trade Negotiations 320 (1999), 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994).

[4] Michael Halewood, "Regulating Patent Holders: Local Working Requirements and Compulsory Licenses at International Law" (1997) 35 *Osgoode Hall Law Journal* 2, 243, at 244.

owner is obliged to supply the national market with the patented product or the product made with the patented process that has been manufactured in the territory of the granting country.[5]

The second meaning is known as "the local working requirement" or "patent working requirements". It follows an industrial policy rationale, according to which patents are granted to promote the establishment of domestic industries by means of imports of foreign technology, and local invention and innovation.[6] According to this rationale, patents are not simply granted to promote invention and innovation, or in other words, patents are granted to promote national, rather than foreign invention and innovation.[7] Customarily, the obligation to exploit has actually meant the obligation to locally exploit the invention, which means that making the patented products available through importation would not satisfy that obligation.

Making the argument from the patent working requirement viewpoint, it follows that local manufacture of patented inventions can be deemed the most efficient way to transfer technology, which in itself has always been one of the primary objectives of the patent system.[8] By this implication, the exclusive rights granted to patentees come with an affirmative duty on the parts of patentees to manufacture their patented inventions or in a similar vein apply the patented processes locally, which will mean, by default, that the granting of compulsory licences will be justified.[9] These transfers may serve a number of the policy goals of less developed economies: employment creation, industrial and technological capacity building, national balance of payments, and economic independence.[10]

Bodenhausen settled the traditional legislative intent behind the granting of patent rights,[11] except that this was before the current patent regime under the Agreement on Trade-Related

[5] "Refusals to Licence IP Rights – A Comparative Note on Possible Approaches" (Geneva, World Intellectual Property Organisation (WIPO) prepared by the Secretariat, August of 2013) at 9, Box 2.
[6] *id.*
[7] *id.*
[8] Ulf Anderfelt, *International Patent Legislation and Developing Countries* (The Hague, Martinus Nijhoff, 1971) at 7, citing the [English Statute of Monopolies of 1623, Chapter 21, Jac. 1, c. 3 "An Act concerning Monopolies and Dispensations with Penal Laws, and the Forfeitures"] as mandating the working of the patent grant. Graham Dutfield and Uma Suthersanen, *"Global Intellectual Property Law"* (Cheltenham, Edward Elgar, 2008) at 24.
[9] Charles Twinomukunzi, "The International Patent System: A Third World Perspective" (1982) 22 *Indian Journal of International Law* 1, 31 at 42.
[10] Halewood, note 4 at 246.
[11] Georg Bodenhausen, "Guide to the Application of the Paris Convention for the Protection of Industrial Property, as Revised at Stockholm in 1967" (Geneva, WIPO Publication No. 611(E) BIRPI, 1969: WIPO reprinted, 1991) at 71.

Aspects of Intellectual Property Rights (TRIPS),[12] which appeared to usher in a new patent regime in accordance with trends in the globalisation of knowledge goods.[13] From this conceptual position, it is clear that critical perspectives on the patent working requirements emerged in the earliest patent regimes centuries ago and this was based strictly on the principles of direct industrial application of the patented inventions within the territory of the patent granting country's economy.[14]

However, contemporary analyses of the legal contours of the working requirements have echoed some arguments, which appear to render their validity wholly inconsistent with the general provisions in relation to standards concerning the availability, scope and use of patents within the current global patent regime under the TRIPS Agreement.[15] The argument follows that because of the inherent conflict of the patent working requirement with international free trade, if all World Trade Organisation[16] members were to impose that patent owners could only discharge themselves from the obligation to work their inventions by means of direct local manufacture, then international trade of patented goods would cease completely.[17]

The TRIPS Agreement has adopted language that accommodates the obligation to make the patented articles (or the articles manufactured with the patented process) available on the national market with national treatment of goods (rather than of inventors).[18] The relevant language of Article 27(1) of the TRIPS Agreement in part reads: '...patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced'. Actually, that language can be seen as transposing into the field of IPRs the principle of national treatment of goods, as set out by the General Agreement on Tariffs and Trade (GATT).[19]

[12] "The TRIPS Agreement", note 2.
[13] Molly Jamison, "Patent Harmonization in Biotechnology: Towards International Reconciliation of the Gene Patent Debate" (2015) 15 *Chicago Journal of International Law* 2, 688 at 690.
[14] Halewood, note 4 at 251, citing the English Statute of Monopolies, 1623 and the Venetian Patent Act of 1474.
[15] Enrico Bonadio, "Compulsory Licensing of Patents: The Bayer-Natco Case" (2012) 34 *European Intellectual Property Review* 10, 719 at 724, stating that was contrary to Article 27 of the Vienna Convention, which states that: 'a party may not invoke the provisions of its internal law as justification for its failure to perform a treaty'.
[16] The Marrakesh Agreement Establishing the World Trade Organization, 15 April 1994, the Legal Texts: The Results of the Uruguay Round of Multilateral Trade Negotiations 4 (1999), 1867 U.N.T.S. 154, 33 I.L.M. 1144 (1994).
[17] "Refusals to Licence IP Rights", note 5 at 9.
[18] *id.* Box 2.
[19] Article III.4 of the General Agreement on Tariffs and Trade (GATT 1947), 55 U.N.T.S. 194. Note that GATT 1947 is now incorporated in GATT 1994. 1867 U.N.T.S. 187.

This is, however, a matter of contention among WTO members, and this is worsened by the fact that the members considered the legal scope of the patent working requirements during the negotiation of TRIPS, but still, the Agreement failed to explicitly include any provisions on local working requirements.[20] In the absence of this, some scholars have crafted various arguments either in favour of, or against, the legality of patent working requirements pursuant to TRIPS.

Those in favour of the position that TRIPS allows for patent working requirements generally point to Article 2(1) of TRIPS, which incorporates Article 5(A)(2) of the Paris Convention for the Protection of Industrial Property of 1883,[21] which recognises failure to work as an abuse of the patent right and subject to Article 31 of TRIPS. They argue that such an abusive behaviour in the exercise of patent rights remains a substantive ground for granting compulsory licences.[22] This argument is further enhanced if one reads into it the interpretation provided by the members during the Doha Declaration on TRIPS and Public Health (Doha Declaration).[23]

While the members of the WTO maintained their commitment in the TRIPS Agreement, they settled that in as much as the national regime of the member taking this legislative action permits, 'Each member has the right to grant compulsory licences and the freedom to determine the grounds upon which such licences are granted'.[24] Arguably, this includes the patent working requirement grounds, although the jurisprudence under the WTO Dispute Settlement Understanding (DSU)[25] has also failed produce the true interpretation of the working patent requirements. The dispute between the United States (US) and Brazil[26] regarding the consistency of Article 68 of Brazil's Law No. 9279 of 14 May 1996 with TRIPS, was settled

[20] Thomas Cottier, Shaheeza Lalani and Michelangelo Temmerman, "Use It or Lose It: Assessing the Compatibility of the Paris Convention and TRIPS Agreement with Respect to Local Working Requirements" (2014) 17 *Journal of International Economic Law* 2, 437 at 451.
[21] The Paris Convention for the Protection of Industrial Property of 1883, 21 UST 1583, 828 UNTS 305 (as revised).
[22] Jayashree Watal, *Implementing the TRIPS Agreement on Patents: Optimal Legislative Strategies for Developing Countries*, in Owen Lippert (Ed.), Competitive Strategies for the Protection of Intellectual Property (Vancouver, Fraser Institute, Vancouver, 1999) at 111.
[23] *See* the full texts of the Doha Declaration on the TRIPS Agreement and Public Health at: <http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm> [Accessed 29 August 2016].
[24] *ibid.* para. 5(b).
[25] Dispute Settlement Rules: Understanding on Rules and Procedures Governing the Settlement of Disputes, Marrakesh Agreement Establishing the World Trade Organisation, Annex 2, the Legal Texts: The Results of the Uruguay Round of Multilateral Trade Negotiations 354 (1999), 1869 U.N.T.S. 401, 33 I.L.M. 1226 (1994).
[26] Request for Consultations by the United States, Brazil – Measures Affecting Patent Protection, WT/DS199/1, G/L/385, IP/D/23, Jun. 8, 2000.

by the parties.[27] India, expectedly invoked a patent working requirement under Section 84(1) of the Indian Patent Act, 1970[28] in 2012 as the basis for granting a compulsory licence to Natco,[29] and to date this decision remains unchallenged within the WTO DSU system.[30]

On the other hand, some scholars have already rejected this proposition.[31] They tend to refer to Article 27(1) of TRIPS, which unambiguously requires that patent rights shall be enjoyable on the basis of non-discrimination as to whether products are imported or locally produced.[32] The argument that follows is that the importation of patents can satisfy local working requirements either partially or fully.[33] This contention is reasonable if one considers the fact that the standard line in support of TRIPS stems from recognition of the contemporary significance of the knowledge economy, and private IP rights as a major component of international trade.[34] This is clearly an offshoot off globalisation.

A recent empirical exploration by Cottier, Lalani and Temmerman has confirmed this reasoning. They concluded that the tenets of modern international trade law requires equal conditions for trade.[35] Thus, promoting international trade and development for all countries is a fundamental objective of the WTO,[36] except that this notion is sometimes disputed.[37] Moreover, while TRIPS recognises the underlying public policy objectives of national systems for the protection of IP, including developmental and technological objectives, to compel foreign establishment operations in their national territories via the conduits of patent working

[27] Notification of Mutually Agreed Solution, Brazil – Measures Affecting Patent Protection, WT/DS199/4, G/L/454, IP/D/23/Add.1, Jul. 19, 2001).
[28] Act 39 of 1970.
[29] The Controller General of Patents and the Order: Mumbai-India. (Decision on Mar. 9, 2012). http://www.ipindia.nic.in/iponew/compulsory_license_12032012.pdf [Accessed 1 September 2016].
[30] Thaddeus Manu, "Building National Initiatives of Compulsory Licences: Reflecting on the Indian Jurisprudence as a Model for Developing Countries" (2015) 14 *Journal of International Trade Law and Policy* 1, 23 at 48.
[31] Daniel Gervais, *The TRIPS Agreement: Drafting History and Analysis* (London, Sweet & Maxwell, 4th Edn., 2012) at 433. Cottier, Lalani and Temmerman, note 20 at 460.
[32] Carlos Correa, "Public Health and Patent Legislation in Developing Countries" (2001) 3 *Tulane Journal of Technology and Intellectual Property* 1, 1 at 7. Graeme Dinwoodie and Rochelle Dreyfuss, A Neofederalist Vision of TRIPS (New York, Oxford University Press, 2012) at 43. Nuno Pires de Carvalho, *The TRIPS Regime of Patent Rights* (3rd Edn. Alphen aan den Rijn, The Netherlands: Kluwer Law International, 2010) at 174.
[33] Antony Taubman, *A Practical Guide to Working with TRIPS* (New York, Oxford University Press, 2011) at 104. Martin Adelman and Sonia Badia, "Prospects & Limits of the Patent Protection in the TRIPS Agreement: The Case of India" (1996) 29 *Vanderbilt Journal of Transnational Law* 3, 507 at 517.
[34] Understanding the WTO (Geneva, World Trade Organisation, Fifth Edition, 2015) at 39.
[35] Cottier, Lalani and Temmerman, note 20 at 459.
[36] "The Preamble and Article III of the WTO Agreement", note 19.
[37] William Cline, *Trade Policy and Global Poverty* (Washington DC., Peterson Institute, 2004) at 264, accusing the WTO of widening the social gap between rich and poor.

requirements may increase rather than reduce distortions and impediments to international trade, and such national measures may become barriers to legitimate trade.[38]

This is because the nature of what can be considered international trade has changed completely with the growing interconnectedness of production processes across many countries.[39] The fact is that the international fragmentation of production through global supply chains has been a commercial reality with the advent of globalisation and fundamental to this is the spread of international outsourcing of trade in parts and components of goods from different countries.[40]

Importantly, one of the stated goals of the TRIPS Agreement was "to reduce tensions arising from IP protection".[41] One of the tensions that existed prior to the inception of TRIPS into the international trading system was the failure of developed countries to transfer technology to developing countries.[42] In order to ease this tension, TRIPS includes a number of provisions on this, which perhaps form a significant part of the objects and principles of the Agreement.[43] This was in absolute satisfaction of developing countries' concerns, many of whom see technology transfer as part of the bargain in which they have agreed to protect IP rights.[44]

Now, one of the central purposes of TRIPS, as per its objective provision in Article 7, is that the protection of IP should contribute to technical innovation. The TRIPS Agreement also embodies an additional important objective, which is that the technological innovation generated as a result of IP protection should be disseminated and transferred. The intent expressed in TRIPS Article 7 is that both producers and users should benefit, and that socio-

[38] "The Preamble of the TRIPS Agreement", note 2.
[39] Paul Krugman, Growing World Trade: Causes and Consequences (Washington DC., Brookings Institute Papers on Economic Activity, 1995) at 334.
[40] Richard Baldwin, *Global Supply Chains: Why they Emerged, Why they Matter, and Where they are Going*, in Global Value Chains in a Changing World, (Eds.) Deborah Elms and Patrick Low (Fung Global Institute, Nanyang Technological University and World Trade Organisation, 2013) at 24.
[41] Carlos Correa and Duncan Matthews, The Doha Declaration Ten Years on and Its Impact on Access to Medicines and the Right to Health (Discussion Paper, United Nations Development Programme, Bureau of Development Policy, December 2011) at 7.
[42] Swaraj Barooah, "India's Pharmaceutical Innovation Policy: Developing Strategies for Developing Country Needs" (2013) 5 *Journal of Trade Law and Development* 1, 150 at 158, noting that developing countries were beginning to demand access to technology.
[43] The Preamble to the TRIPS Agreement, Articles 7 and 66(2).
[44] Frederick Abbot, "The WTO Trips Agreement and Global Economic Development - The New Global Technology Regime" (1996) 72 *Chicago-Kent Law Review* 2, 385 at 387. Thirukodikaval Nilakanta Srinivasan, *"Doha Round of Multilateral Negotiations and Development"* (Stanford, CA: Stanford Centre for International Development Working Paper No. 252, 2005) at 6. Nuno Pires de Carvalho, *"The TRIPS Regime of Trademarks and Designs"* (Alphen aan den Rijn, Kluwer Law International, 2011) at 134.

economic welfare should be enhanced for WTO members. However, many developing countries argue that access to technology is still an issue.

This complexity is compounded by the fact many of these countries may lack the proper economic structures to use technology to promote socio-economic growth.[45] Another issue that raises a number of questions is the adaptation of new knowledge and the application of such knowledge to further innovation after the knowledge has been accessed by a recipient. This question touches upon basic preconditions such as skills, inadequate capacity building, and incentives for further innovation.[46]

The Development Agenda (DA)[47] under the World Intellectual Property Organisation (WIPO)[48] was meant to provide technical assistance in building adequate capacity on this.[49] However, WIPO's technical assistance has been criticised for a variety of reasons including that the organisation lacks an understanding of the needs of developing countries and LDCs, and even direction in its own development-related agenda.[50]

Nevertheless, it is also the case that this argument ignores the fundamental view that the basic infrastructure necessary to put technology into real or result-oriented practice is generally lacking in LDCs, and notably, the idea of transferring technology that cannot be used to promote socio-economic growth may be pointless.[51] Failure to understand the complexities surrounding technology transfer may lead to inaccurate policy conclusions, which may potentially evaluate the patent working requirements as a critical part of the policy mix to promote socio-economic growth, and this may be deceiving.[52]

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[45] WIPO: Transfer of technology (Geneva, Standing Committee on the Law of Patents, Fourteenth Session, WIPO Doc. SCP/14/4 REV.2, 26 October 2011) at 52.
[46] *ibid*. at 58.
[47] The WIPO Development Agenda (WO/GA/31/11, 2007). Available at: <http://www.wipo.int/ip-development/en/agenda/recommendations.html> [Accessed 1 July 2016].
[48] Convention Establishing the World Intellectual Property Organisation 1976 (as amended in 28 September 1979. 21 UST. 1749, 828 UNTS 3).
[49] "An External Review of WIPO Technical Assistance in the Area of Cooperation for Development" (Geneva, Final Report submitted on 31 August 2011) at 90.
[50] Carlos Correa, *Formulating Effective Pro-Development National Intellectual Property Policies,* in Trade in Knowledge, Christopher Bellman, Graham Duffield and Ricardo Melendez-Ortiz (Eds.) (London, Sterling VA., Earthscan, 2003) at 214.
[51] "WIPO: Transfer of technology", note 45 at 53, emphasising the importance of the absorptive capacity of the recipient of the technology, that is, the ability of the recipient to evaluate and use the technology effectively.
[52] Keith Maskus, Encouraging International Technology Transfer (Geneva, UNCTAD-ICTSD Project on IPRs and Sustainable Development, Issue Paper No. 7, 2004) at 1, observing that some observers argue that technology objectives are best met by refusing to protect the rights of foreign firms to profit from such transfers, or at least to sharply restrict their exclusive right to exploit technology.

Therefore, this article confronts the most basic question, which is whether in their traditional legislative intent patent working requirements would in the midst of global value chains definitely guarantee socio-economic growth for developing countries and LDCs. A key distinction in thinking about policy is whether developing countries and LDCs should seek to invoke the patent working requirements more narrowly as an instrument of government policy to promote domestic industrial growth or the WIPO should assist developing countries to focus on joining the global value chain system and exploit its numerous opportunities.

Consequently, while the article advances a thesis in support of the validity of patent working requirements under TRIPS, it also draws from the concept of global value chains and confidently adds a new dimension to the argument, which brings into question the normative relevance of the legislative principle of patent working requirements in the age of globalisation as a definitive instrument of government policy in promoting domestic socio-economic growth like it did in the ancient patent regime.

This contention is founded on the evidence that globalisation has promoted an increasing fragmentation of production; that is, in a dynamic economic efficiency and open trade environment, much of manufacturing today is trade in components from different sources, and seeking to produce them all locally would be contrary to division of labour and undermines the very existence of the WTO's mandate to preserve the basic principles and to further the overriding objectives underlying the multilateral trading system, which is to reduce barriers to trade and to the elimination of discriminatory treatment in international trade relations.

The conclusion drawn from the hypothesis is based on the common sense position that imposing overall "closure rules", such as patent working requirements is, on its own, insufficient, less prudent and not the smartest route to secure rapid socio-economic growth in the global value chain-led global economy to promote socio-economic growth because developing countries have a lot more to gain from the exploitation of opportunities in the global value chain system, and they have more to lose from a confrontational scenario of implementing patent working requirements.

II. The General Objection to the Patent Working Requirements under TRIPS

There is considerable tension as far as the TRIPS Agreement is concerned when it comes to the general principles applicable to the working of patented inventions locally.[53] The confusion surrounding whether or not WTO members have the right to demand that patentees work their patented inventions or similarly apply the processes locally centres on the interpretation of certain substantive provisions within the TRIPS Agreement, such as Articles 27 and 28.[54] While the controversy in this area of law is not new,[55] it remains an unresolved matter.[56]

Although some scholars have in the past argued for the need for the TRIPS Agreement to be reviewed to clarify the misunderstanding surrounding the legislative principle of local working requirements,[57] a unique aspect of the WTO is that there already exists a dispute resolution mechanism,[58] the Dispute Settlement Body (DSB), established through Article 2 of the DSU, to resolve disputes regarding legal matters arising out of the WTO Agreements including TRIPS.[59]

The WTO's procedure for resolving trade disputes under the DSU is a central element that is vital for enforcing the rules and therefore for providing security and predictability to the multilateral trading system to ensure that trade flows smoothly.[60] Since the inception of the TRIPS Agreement, increasing numbers of IPRs disputes have been brought before the DSU system.[61] Nonetheless, one issue that has not been completely argued or decided before the DSB is that of WTO members' right to demand that patentees satisfy the legal obligation to work their patented inventions locally in the patent granting or protected country.

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[53] Michael Blakeney, *"Trade Related Aspects of Intellectual Property: A Concise Guide to the TRIPS Agreement"* (London: Sweet & Maxwell, 1996) at 3-6, examining disagreements over pharmaceutical patents between the US and Korea, India, Thailand and Brazil from 1987 through 1992.
[54] Review of TRIPS, International Trade Daily News (BNA) (International Trade Reporter, 9 June 1999) at D7.
[55] Theresa Beeby Lewis, "Comment, Patent Protection for the Pharmaceutical Industry: A Survey of Patent Laws of Various Countries" (1996) 30 *Journal of International Law* 4, 835 at 859, citing pharmaceutical patent disputes between the US and Singapore, Costa Rica, China, Egypt, Korea and Thailand.
[56] Sara Ford, "Compulsory Licensing Provisions under the TRIPS Agreement: Balancing Pills and Patents" (1999) *15 American University International Law Review* 4, 491 at 943. Drugs: United States, EU Resistance to Compulsory Drug Licensing Draws Health Care Fire, International Trade Daily News (BNA) (International Trade Reporter, 29 March 1999) at D8.
[57] Richard Marschall, Note, "Patents, Antitrust, and the WTO/GATT: Using TRIPS as a Vehicle for Antitrust Harmonization" (1997) 28 *Journal of Law and Policy International Business* 4, 1165 at 1190.
[58] WTO DSU, note 28.
[59] "World Trade Organisation", note 19, proclaiming in Article III, Section 3 that one of the functions of the WTO is to administer the dispute settlement.
[60] Article 3(2) of the DSU.
[61] Robert Hudec, "The New WTO Dispute Settlement Procedure: An Overview of the First Three Years" (1999) 8 *Minnesota Global Journal* 1, at 17.

While the members affirmed their adherence to the principles of the DSU in relation to disputes hitherto applied under Article XXIII of GATT 1947,[62] despite the fact that the legality of patent working requirements appears to be in dispute, there is no interpretation within the WTO DSU to clarify the legal position pursuant to TRIPS. As already stated, the WTO dispute between the US and Brazil would have provided us with the true interpretation;[63] however, the parties settled the matter.[64]

The most consistent argument is that patent working requirements would violate Articles 27 of TRIPS in respect of the non-discrimination standards relating to patents and covers both substantive principles as well as specific issues of enforcement that are generally applicable to patents.[65] At face value, reading the contextual part of Article 27(1) of TRIPS alone may suggest that the general context of TRIPS provides that members may not impose working requirements, which would seek to eventually discriminate against patents as to the place of invention, and whether products are imported or locally produced.[66]

The claim under this provision is that Article 27(1) of TRIPS subsequently redefined "working" to include the possibility of being adequately satisfied by importation.[67] In other words, the conclusion often drawn from this controversy is that Article 27(1) of TRIPS provides that local manufacture be defined as being made available in the country, including through imports, rather than through direct local manufacture in the territory of protection.[68] Moreover, with this understanding, a member state must establish a patent system that does not separate the place of invention and whether products are imported or locally produced.[69]

In addition, Article 28(1) of TRIPS establishes the basic right of the patent holder, which is to preclude others without consent from the acts of making, using, selling, offering for sale or

[62] Article 3(1) of the DSU.
[63] "Request for Consultations by the United States", note 26.
[64] "Notification of Mutually Agreed Solution", note 30.
[65] "The TRIPS Agreement and Developing Countries" (New York and Geneva: prepared by the UNCTAD Secretariat, UNCTAD/ITE 1, 1996) paras. 111−114.
[66] *ibid.* Pires de Carvalho, note 32, commenting that domestic discriminatory treatment of patents would generally conflict with Article 27(1) of TRIPS, which transposes the principle of national treatment of goods in GATT 1947 Article III(4).
[67] Kim Jordan, "International Application of a Domestic Intellectual Property Protection Strategy: Extending a Predatory Litigation Strategy to the European Community" (1995) 11 *Santa Clara Computer & High Technology Law Journal* 2, 373 at 400.
[68] Thiamanga Kongolo, *Unsettled International Intellectual Property Issues* (Kluwer Law International: Alphen aan den Rijn, The Netherlands, 2008) at 6.
[69] Pires de Carvalho, note 66.

importing the patented product, or using the patented process - including importing products made using the process.[70] Exclusivity ensures that the patent holder may fully exploit the invention and obtain a reasonable reward for the patented invention.[71] Article 28(2) further provides that patent owners shall have the right to assign or transfer the exclusive patent rights, or to enter into voluntary licensing arrangements.[72] The terms of licensing agreements are open to negotiation subject to domestic laws or international practices.[73]

Complementing the legal restrictions imposed by TRIPS on patent working requirements are Articles 3, 4 and 5 of TRIPS, which included the fundamental rules on national and most-favoured-nation treatment of foreign nationals. These obligations cover not only the substantive standards of protection but also matters affecting the availability, acquisition, scope, maintenance and enforcement of IP rights as well as those matters affecting the use of IP rights specifically addressed in the Agreement.[74] While the national treatment clause forbids discrimination between a member's own nationals and the nationals of other members, the most-favoured-nation treatment clause forbids discrimination between the nationals of other members.[75]

The inclusion of the foregoing principles within the TRIPS Agreement makes it unlawful for WTO members to discriminate against foreign nationals and products involved in trade, and the most restrictive interpretation of these provisions is that any form of differential treatment would be inconsistent with WTO members' obligation not to discriminate.[76] However, it is

[70] "Dispute Settlement: World Trade Organisation" (New York and Geneva, The United Nations Conference on Trade and Development, UNCTAD/EDM/Misc.232/Add.18, 2003) at 21, para. 2.6.4. *See*, USC Title 35 [Jul. 19, 1952], ch. 950, 66 Stat. 803; Pub. L. 97-164 (as amended) Section 271(d)(4), providing that: 'whoever without authority makes, uses, offers to sell, or sells any patented invention ... infringes the patent'. *See also,* In the US Supreme Court Decision in *Dawson Chem. Co. v Rohm & Haas Co.,* 448 US 176, 215 (1980) in which the judgment recognised the long-settled view that the essence of a patent grant is the right to exclude others from profiting by the patented invention.

[71] Laurence Helfer, *Pharmaceutical Patents and the Human Right to Health: The Contested Evolution of the Transnational Legal Order on Access to Medicines*, in Transnational Legal Orders, Terence Halliday and Gregory Shaffer (Eds.) (New York, Cambridge University Press, 2015) at 314.

[72] Cynthia Ho, "A New World Order for Addressing Patent Rights and Public Health" (2007) 82 *Chicago Kent Law Review* 3, 1469 at 1479.

[73] Jerome Reichman and Catherine Hasenzahl, "Non-Voluntary Licensing of Patented Inventions" (Geneva, UNCTAD-ICTSD Issue Paper No. 5, 2004) at 13.

[74] "Implications of the TRIPS Agreement on Treaties Administered by WIPO" (Geneva, WIPO Publication No. 464 (E), 1996) at 8. *See also,* "Guide to WTO Law and Practice" (Cambridge, WTO Analytical Index 2 Volume Set, Legal Affairs Division World Trade Organisation, Cambridge University Press, 2007) at 1026-1033.

[75] *Id.*

[76] Graeme Dinwoodie and Rochelle Cooper Dreyfuss, "Diversifying Without Discriminating: Complying with the Mandates of the TRIPS Agreement" (2007) 13 *Michigan Telecommunications and Technology Law Review* 2, 445 at 450.

worth emphasising that this controversy became an issue after the conclusion of the TRIPS Agreement.[77] Before that point, the idea or legislative practice of patent working requirements was rarely questioned or rejected.[78]

III. Patent Working Requirements under the Paris Convention 1883

The Paris Convention is the starting point for outlining the legal provisions that frame any discussion on the legality of patent working requirements in patent regimes. As part of the general principles of international law, the Paris Convention formally recognises the right of its members to demand as an affirmative duty that patented inventions be worked locally.[79] Under its Article 5(A)(2), members could grant compulsory licences to prevent any abuse that might result from the exercise of the exclusive rights conferred by the patent, expressly mentioning as an example "failure to work". The reason is straightforward: because abuse means the use of rights in a way contrary to the objectives of the law, the notion of abuse is symbiotically linked to the very objectives that the law sets out for patents.[80]

Article 5(A) of the Paris Convention does, however, place limitations on the extent to which members should grant compulsory licences to remedy failure to work. In other words, the possibility of granting compulsory licences under the Paris Convention is subject to a number of substantive conditions as set out in Article 5(A)(4).[81] For example, the patent holder must have sufficient time to work the patent (defined in Article 5(A)(4) as a period of four years from the date of filing of the patent application or four years from the date of the grant of the patent, whichever period expires last), and a compulsory licence will not be issued if the patent holder has legitimate reasons for not working the patent; however, the members' discretion in doing so is not limited inasmuch as these essential conditions are followed.[82]

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[77] Remarkably, the advent of the TRIPS Agreement has not led many countries to amend their local working provisions. In Europe, for example, as recently as 1997 only the Netherlands and Switzerland had changed their laws. *See*, Bernd Hansen and Fritjoff Hirsch, *Protecting Inventions in Chemistry: Commentary on Chemical Case Law under the European Patent Convention and the German Patent Law* (Berlin, Wiley-Vch: Weinheim, 1997) at 406-407.

[78] Brian Mercurio and Mitali Tyagi, "Treaty Interpretation in WTO Dispute Settlement: The Outstanding Question of the Legality of Local Working Requirements" (2010) 12 *Minnesota Journal of International Law* 2, 275 at 283.

[79] *id.*

[80] "Refusals to Licence IP Rights", note 5 at 9.

[81] Article 5(A)(4) of the Paris Convention.

[82] Mercurio and Tyagi, note 78 at 282.

This key provision is important, given that the immediate exploitation of the patented invention in all countries where patents are granted for the invention is generally impossible.[83] The idea of providing a space of four years was to allow patentees sufficient time to organise work or licence another to do so in the granting countries concerned. In addition, this is refused if the patentee justifies his or her inaction with legitimate reasons.[84]

Notably, the Paris Convention has been subject to several subsequent revisions over the years,[85] but throughout the history of the Convention its member states' freedom to take legislative measures such as compulsory licences to remedy failure to work have remained virtually unchanged.[86] More significantly, the Paris Convention is still in force today, and it is part and parcel of the TRIPS Agreement. The relevant provisions are to be found in Articles 2(1) of the TRIPS Agreement, which relate, respectively, to the Paris Convention. Article 2(1) of TRIPS incorporates by reference Articles 1 through 12 and 19, of the Paris Convention, 1967, stating that the Agreement "shall comply" with those Articles. Article 2(2) states that the TRIPS Agreement shall not 'derogate from existing obligations that members may have to each other under the Paris Convention'. Within this spirit, a returning question is whether TRIPS still forbids patent working requirements.

IV. Reconciling Article 5(A) of the Paris Convention with Article 31 of TRIPS

Compulsory licensing is one of the flexibilities built into the TRIPS Agreement. This instrument finds its legal basis in Article 31 of TRIPS. Complementing the language under Article 5(A) of the Paris Convention, the TRIPS Agreement does not use the term "compulsory licensing". However, in reference to patent usage Article 31 does allow for "use without authorisation of the right holder", thus allowing a compulsory licence to be issued.[87] The general purpose of Article 31 of TRIPS is to allow any WTO member state to grant a compulsory licence to protect the public interest.[88]

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[83] Bodenhausen, note 11 at 70. *See*, Samuel Oddi, "The International Patent System and Third World Development: Myth or Reality?" (1987) 1987 *Duke Law Journal* 5, 831 at 862.
[84] *id.*
[85] United Nations Conference on Trade and Development, "The International Patent System: The Revision of the Paris Convention for the Protection of Industrial Property" (Geneva, Switzerland, Report by the United Nations Conference on Trade and Development, (UNCTAD) Secretariat, Provisional Agenda Item 4 - U.N. Doe. TD/B/C.6/AC.3/2 (1977) at 4.
[86] Halewood, note 4 at 251.
[87] *ibid*. Ford note 56.
[88] Richard Hunter, "Compulsory Licensing: A Major Issue in International Business Today?" (2009) 11 *European Journal of Social Sciences* 3, 370 at 372. *See also*, Jon Matthews, "Renewing Healthy Competition: Compulsory

The TRIPS Agreement does not expressly refer to the right of member states to grant compulsory licences on the patent working requirement grounds. Nonetheless when Article 31 of TRIPS is read along with Article 5(A) of the Paris Convention in relation to Article 2(1) of TRIPS this allowance is implied. Moreover, there is no explicit evidence within the TRIPS Agreement that the content of Article 5(A) of the Paris Convention has been modified, except to say that where the law of a member allows for it, that member is free to grant compulsory licensing on any grounds.[89] As a simple example, TRIPS does not specifically stipulate what constitutes the abuse of IP rights unlike Article 5(A)(2) of the Paris Convention, which provides failure to manufacture as an example.

Put differently, Article 31 of TRIPS does not specifically pursue any grounds as the bases of which compulsory licences can be issued.[90] In fact, with the single exception of semiconductor technology, Article 31 of TRIPS does not limit the grounds on which WTO members can implement compulsory licences.[91] However, the provision describes two situations where compulsory licences can be used, but the two situations remain within the remit of national laws of member states - where the licence is required to address an overriding public interest, and where the patent rights are being used in an anticompetitive manner - although without limiting the possibility of, or WTO members' independence in, granting compulsory licences on any other substantive grounds.[92]

Notably, Article 31 of TRIPS contains a detailed set of substantive conditions and procedural requirements that must be satisfied when members are to grant compulsory licences.[93] Therefore, WTO members are left with a very broad scope of action in regard to the grounds on which they can grant compulsory licences.[94] These include the need to authorise such use

Licenses and Why Abuses of the TRIPS Article 31 Standards Are Most Damaging to the United States Healthcare Industry" (2010) 4 *The Journal of Business, Entrepreneurship and the Law* 1, 119 at 125.

[89] "The Preamble of Article 31 of TRIPS".

[90] Daniel Gervais, *The TRIPS Agreement: Drafting Analysis and Negotiating History* (London: Sweet & Maxwell, 1998) at 165.

[91] Article 31(c).

[92] Carlos Correa, *Trade Related Aspects of Intellectual Property Rights: A Commentary on the TRIPS Agreement* (Oxford, New York: Oxford University Press, 2007) at 311.

[93] *ibid.* Gervais, note 90.

[94] *German* Velasquez and Pascale Boulet, Globalisation and Access to Drugs: Perspectives on the WTO/TRIPS Agreement (Revised: Geneva, World Health Organisation, 1999 (Doc. Reference WHO/DAP/98.9) at 35.

on its individual merits;[95] the need to be non-exclusive;[96] the need for a prior request for a licence to the patent holder on reasonable commercial terms; and the obligation to pay adequate compensation.[97] Therefore, in as much as the procedural requirements and other substantive conditions are met, the TRIPS Agreement does not limit members' possibility to grant compulsory licences on any grounds, such as failure to work.[98] So, taking the Article 31 provision together with Article 5(A)(4) of the Paris Convention, it is obvious that the TRIPS Agreement leaves members with wider discretion as to the granting of compulsory licences and the grounds on which to do so.

VI. Compulsory Licensing as the Right of the State: The Objectives and Principles of TRIPS to Promote Public Interests

Importantly, Article 8, entitled "Principles", recognises the right of members to adopt measures to prevent the abuse of IP rights, provided that such measures are consistent with the provisions of the TRIPS Agreement, including to promote the public interest in sectors of vital importance to their socio-economic and technological development. Professor Correa shares this premise and while deploying the interpretative value of Article 8 of TRIPS, he argues that IP cannot be regarded in isolation from broader national development policies.[99] Article 8 of TRIPS confirms the broad and unfettered discretion that member states have to pursue public policy objectives, particularly the industrial application of patents to promote the development of sectors vital to members' economic orientation.[100]

Talking about technological development and national development policy, Article 7, entitled "Objectives", provides the validating mechanism for the protection of IP to generate technological innovations and for the transfer and dissemination of technology in a manner conducive to social and economic welfare. More importantly, the patent system rests on an instrument of domestic public policy as opposed to anything else. The Preamble to TRIPS

[95] Article 31(a) of TRIPS.
[96] Article 31 (d) of TRIPS.
[97] Article 31(h) of TRIPS.
[98] Carlos Correa, "Intellectual Property Rights and the Use of Compulsory Licenses: Options for Developing Countries" (Geneva, Trade-Related Agenda, Development and Equity (T.R.A.D.E.) Working Papers 5: South Centre, October 1999) at 9.
[99] Correa, note 92 at 12.
[100] "The Resource Book on TRIPS and Development by the UNCTAD-ICTSD" (Cambridge: Cambridge University Press, 2005) at 126-127. *See also,* Henning Grosse Ruse-Khan, "A Comparative Analysis of Policy Space in WTO Law" (Munchen, Germany, Max Planck Institute for Intellectual Property, Competition & Tax Law, Research Paper Series No. 08-02, 2008) at 36-38.

stipulates a straightforward notion that IP policymaking shall be member-driven taking into account different levels of development,[101] a consensus shared by the members during the 2007 World Intellectual Property Organisation's General Assembly, concerning IP norm-setting activities.[102]

Therefore, if the patent working requirement can be used to achieve the objectives of TRIPS and its principles regardless of the non-discrimination principle under Article 27(1) of TRIPS, this will be justified. Importantly, reasonableness as a matter of law favours an understanding that any interpretation of the term "discrimination"[103] pursuant to Article 27(1) of TRIPS should require greater attention as discrimination may not be the same as differential treatment.[104] In fact, under a normal meaning of the term "discrimination", treating different cases differently is not discrimination.[105] As this ambiguity came to a head in the *Canada - Patents Products* case,[106] the Panel acknowledged that: 'Article 27 does not prohibit bona fide exemptions to deal with problems that may exist only in certain product areas'.[107]

The Doha Declaration provides the relevant context that influences any reading of Article 27(1) of TRIPS in relation to the consistency of patent working requirements with the Agreement. Thus, the Doha Declaration has settled this controversy, and has provided the correct interpretation. In providing the true interpretation in relation to TRIPS and considering Article 27(1) – a provision that some refer to as limiting members' possibility of patent working requirements – the WTO members, without excluding any grounds, confirmed that: 'Each member has the right to grant compulsory licences and the freedom to determine the grounds upon which such licences are granted'.[108] This proves that patent working requirements are legitimate and consistent with TRIPS, and nothing in the light of the Agreement would, in fact, preclude the possibility of any developing country or an LDC demanding that patentees satisfy

[101] Peter Yu, "The Objectives and Principles of the TRIPS Agreement" (2009) 46 *Houston Law Review* 4, 979 at 1008.
[102] Available at: <http://www.wipo.int/export/sites/www/ip-development/en/agenda/recommendations.pdf> [Accessed 27 August 2016] Cluster B, para. 15.
[103] Canada – Patent Protection of Pharmaceutical Products (Report of the WTO Dispute Panel: WT/DS/114/R, 17 March 2000) para. 7.98. *Ibid.* Dinwoodie and Dreyfuss, note 76 at 450.
[104] *Compare Id.* at para. 7.94. *Ibid.* at 7.101, listing issues arising in cases of *de facto* discrimination.
[105] *ibid.* Dinwoodie and Dreyfuss, note 76.
[106] "Canada – Patent Protection of Pharmaceutical Products", note 103.
[107] *ibid.* at para. 17.92.
[108] *ibid.* para. 5(b).

the working requirements to manufacture the patented products or similarly apply the processes locally.

VII. Global Value Chain: A Dominant Feature of Today's Global Economy

As a matter of empirical logic, a handful of countries today maintain patent working requirements within their national regimes,[109] while a considerable number of countries have introduced legislation that accommodates a system of patent importation or permits a patent owner to import patented inventions from another country where the owner holds a patent on the same invention.[110] This is relevant, as the radical change in the nature of globalisation means that not all patented inventions can be practicably or economically manufactured locally. The "Global Value Chain" is the theory that will help us to understand the foregoing logic.[111] This concept teaches us that the production of goods and services has become "globalised".[112]

Importantly, the theoretical foundation of this concept, as advanced by Kaplinsky and Morris, holds the reasoning that there is a 'full range of activities that are required to bring a product from its conception, through its design, its sourced raw materials and intermediate inputs, its marketing, its distribution and its support to the final consumer, and final disposal after use'.[113] In the trade literature, this phenomenon will provide a logical understanding in thinking about manufacturing in today's global economy as an economic activity containing a series of value added stages, or steps where most organisations engage in hundreds, or even thousands, of activities in the process of converting inputs to outputs.[114]

In other words, today's global economy is characterised by global value chains, in which intermediate goods are traded in fragmented and internationally dispersed production

[109] Article 68 of Brazil's Law No. 9279 of 14 May 1996. Section 84(1) of the India Patent Act 1970.
[110] Cottier, Lalani and Temmerman, note 20 at 441, citing Ghana, Jordan, Mexico, Philippines, South Africa and Uruguay.
[111] Collaboration, Innovation, Transformation: Ideas and Inspiration to Accelerate Sustainable Growth - A Value Chain Approach (Geneva, The World Business Council for Sustainable Development, 2011) at 3 & 5.
[112] Dorothy McCormick and Hubert Schmitz, Manual for Value Chain Research on Homeworkers in the Garment Industry (Sussex, Institute for Development Studies, 2001) at 17.
[113] Raphael Kaplinsky and Mike Morris, *A Handbook for Value Chain Research* (Prepared for the International Development Research Centre, 2001) at 4.
[114] Michael Porter, *Competitive Advantage* (New York, The Free Press, 1985) at 11.

processes.[115] They are part of a new global economy in which connectedness matters more, and have become important end-markets, where trade in components as opposed to trade in finished goods is the commercial norm.[116]

The Business Guide to the World Trading System, published by the International Trade Centre and the Commonwealth Secretariat, placed this in a simple context by stating that, 'virtually all manufactured products available in markets today are produced in more than one country'.[117] The United Nations (UN) even acknowledges that the fragmented nature of 'international trade in manufactured goods is one of the factors underlying the changing geography of industrialisation'.[118]

The proliferation of internationally joined-up production arrangements, that is, global value chains, has changed our economic and political landscape in fundamental ways. Advances in technology and an enabling policy environment have allowed businesses to internationalise their operations across multiple locations in order to increase efficiency, lower costs and speed up production.[119] Businesses today look to add value in production where it makes most sense to do so; indeed, this has become a key element of corporate competitiveness.[120] For their part, some policymakers may recognise that participating in global value chains will bring value and opportunities to their people and economies, if they foster friendly policy frameworks.[121]

The global value chain has revolutionised development options, as several developing countries are increasingly participating in international trade,[122] and the volume of exchange goods between nations is contributing to the generation of wealth for all.[123] They can also be an important mechanism for developing countries and LDCs to enhance productive capacity,

[115] World Investment Report 2013: Global Value Chains: Investment and Trade for Development (Geneva, UNCTAD, United Nations Publication Sales No. E.13.II.D.5, 2013) at x.
[116] Cottier, Lalani and Temmerman, note 20 at 452.
[117] World Trade Report 2013: Factors Shaping the Future of World Trade (Geneva, World Trade Organisation, 2013) at 78
[118] Report of the World Commission on Environment and Development: Our Common Future, (Geneva, Official Records of the General Assembly. A/42/427, 4 August 1987) at para. 9.
[119] Victor Fung, *Governance through Partnership in a Changing World*, in Global Value Chains in a Changing World, (Eds.) Deborah Elms and Patrick Low (Fung Global Institute, Nanyang Technological University and World Trade Organisation, 2013) at xix.
[120] *ibid.* Krugman, note 39 and the accompanying text.
[121] *ibid.* Fung, note 119.
[122] P.S. Senguttuvan, *Fundamentals of Air Transport Management* (New Delhi, Excel Books, 1st Edn., 2006) at 11.
[123] *id.*

by increasing the rate of adoption of technology and through workforce skill development, thus building the foundations for long-term industrial upgrading.[124]

According to the UN, value-added trade contributes about 30 per cent to the Gross Domestic Products (GDP) of developing countries and LDCs, significantly more than it does in developed countries (18 per cent).[125] Global value chains thus have a direct impact on the economy, employment and income and create opportunities for development.[126] The fact is that globalisation has benefited the world economy despite much discontent about its potentially disruptive and disadvantageous consequences.[127]

Thus, notwithstanding the existence of a sizeable empirical study that investigates the opportunities in the global value chains, literature on trade in value-added from the global value chains can be quite technical, as complementarity relationships in wealth generation among countries from the global value chains system can complicate an economic analysis. For example, former WTO Director-General Pascal Lamy noted, 'the statistical bias created by attributing commercial value to the last country of origin perverts the true economic dimension of the bilateral trade imbalances. This affects the political debate and leads to misguided perceptions'.[128] To this end, many policymakers in developing countries and LDCs may lack an understanding of the importance of this field and how to take an advantage of the global value chain system to pursue domestic socio-economic growth.

This is where WIPO can come in to assist developing countries and LDCs to specifically develop productivity strategies and support structures to maximise the advantages of the global value chain system.[129] Although WIPO has done terrific work towards the creation of national networks of Technology and Innovation Support Centers targeting developing countries and

[124] *ibid.* "World Investment Report 2013", note 115.
[125] *id.*
[126] *id.*
[127] World Trade Report: Trade in a Globalising World (Geneva, World Trade Organisation, 2008) at xiv.
[128] Pascal Lamy, "Made in China' Tells us little about Global Trade" (Financial Times, 24 January 2011. Available at: <http://www.ft.com/cms/s/0/4d37374c-27fd-11e0-8abc-00144feab49a.html#axzz4IXFW1Puu> [Accessed 27 August 2016].
[129] Maskus, note 52 at 5, suggesting that international organisations can serve as a forum for negotiating additional rights and obligations at the international level in order to reduce impediments to international technology transfer.

LDCs,[130] and in presenting countries with practical examples and experience,[131] these projects are general in nature and do not purposely target the opportunities in the global value chain system.

VIII. WIPO Capacity Agenda: Joining the Global Value Chain System to Realise Socio-Economic Growth

As the global patent rules evolve, their impact must be properly understood if domestic policies are to be based on relevant public interests in order to implement IP regimes that serve local needs.[132] De-industrialisation is a pervasive trend among developed countries, as they attempt to delocalise certain production segments of firms in search of lower production costs.[133] This includes the movement of new technologies and know-how,[134] and this presents an opportunity for developing countries to industrialise.[135]

It is therefore imperative for developing countries and LDCs policymakers to develop a better appreciation of how the economy fits into global production chains.[136] The supply chain presents opportunities for shared learning, technology transfer, and minimisation of risk in investments and attracts foreign investment to drive efficiency in innovation, and more advanced operations such as research.[137] There is a place for every country. Now, developing

[130] Africa: WIPO Regional Conference on Technology and Innovation Support, Addis-Ababa, Ethiopia, 2-4 November 2010. Arab: Regional Workshop on Technology Transfer Based on the Strategic Use of Intellectual Property (IP), Casablanca, Morocco, 27-30 April 2010. Asia: WIPO Regional Conference on Technology and Innovation Support, Singapore, 19-21 May 2010. Latin America and the Caribbean: WIPO Regional Conference on Technology and Innovation Support, Buenos Aires, Argentina, 6-8 April 2011.
[131] Patents and Transfer of Technology: Examples and Experiences (Geneva, Standing Committee on the Law of Patents, Eighteenth Session, SCP/18/8, 25 April 2012). Patents and Transfer of Technology: Further Practical Examples and Experiences (Geneva, Standing Committee on the Law of Patents, Twentieth Session, SCP/20/10, 4 December 2013). Patents and Transfer of Technology: Further Practical Examples and Experiences (Geneva, Standing Committee on the Law of Patents, SCP/21/10, 30 September 2014).
[132] "WIPO Intellectual Property Handbook: Policy, Law and Use" (WIPO Publication No. 489 (E), 2nd Edn. 2004) para. 3.16.
[133] Baldwin, note 40 at 23.
[134] Global Value Chains: Challenges, Opportunities, and Implications for Policy (Report prepared for submission to the G20 Trade Ministers Meeting Sydney, Australia, OECD, WTO and World Bank Group, 19 July 2014) at 18.
[135] *id.*, observing that the shifts in manufacturing activities within China's textile sector are creating opportunities in new territories such as Vietnam.
[136] The Shifting Geography of Global Value Chains: Implications for Developing Countries and Trade Policy (Global Agenda Council on the Global Trade System, World Economic Forum, 2012) at 8.
[137] Tatyana Soubbotina and Katherine Sheram, Globalization and International Trade (Washington, DC., World Bank, 2000) at 68.

countries and LDCs can join the global value system rather than having to invest decades in building domestic industries from scratch.[138]

In other words, joining supply chains to promote socio-economic growth will be drastically faster and better than resting any hope on patent working requirements as a vehicle for building local industrial development.[139] In most instances developing countries and LDCs would find it cheaper and faster to acquire foreign technologies than to develop them with domestic resources.[140] This is because while technology transfer may be the primary goal of patent working requirements, local working is not the only means to achieving technology transfer.[141]

Technology transfer can be achieved through market channels other than local working through foreign direct investment, which may be expected generally to transfer technological information that is newer or more productive than that of local firms.[142] It can be achieved through non-market channels, including reverse engineering and imitation.[143] A third major channel is technology licensing, or joint ventures, which may be done either within firms or between unrelated firms at arm's-length.

In this context, international firms may provide technically superior production information through licensing.[144] This is where WIPO could play a key role in its DA mandate by helping developing countries and LDCs to first of all understand the opportunities in the global value chain system,[145] and secondly, to provide policymakers with the technical capacity in enacting complementary policies to leverage gains while enhancing their competitiveness, attracting investment, and inserting themselves into global value chains.[146]

[138] Baldwin, note 40 at 13.
[139] Maskus, note 52 at 12.
[140] *ibid*. at 7.
[141] Cottier, Lalani and Temmerman, note 20 at 450.
[142] *id. See also*, Maskus, note 52 at 2.
[143] *id.*
[144] *ibid.* at 10.
[145] Maskus, note 52 at 5, mentioning that international organisations can play a role in encouraging international technology transfer. One is to serve as a coordinating mechanism for overcoming problems in private technology markets.
[146] Christine MacLeod, "Inventing the Industrial Revolution: The English Patent System, 1660-1800" (Cambridge: Cambridge University Press, 1988) at 10, observing that FDI establishing subsidiary can generate employment, industrial capacity building and technology transfer.

Therefore, for reasons of technical economic inefficiency, critical thinking will teach us that the global value chain system can help developing countries to mitigate issues of socio-economic welfare by enhancing the ability of firms, in particular small medium enterprises, to have access to technology when they partner with foreign firms rather than unnecessarily implementing complex and confrontational patent working requirements as a shortcut to local industrial development.[147] Foreign firms may be expected, in principle, to deploy to their subsidiaries in recipient countries technological information that is newer or more productive than was the case with incumbent firms.[148]

This can be a more solid foundation for building socio-economic growth than patent working requirements, which will probably not generate sustainable economic benefits anytime soon. More importantly, commonsense shows that the goal of securing access to patented inventions solely for the purposes of use may outweigh the other goals of the working requirement, such as the development of a domestic industry, with the result that importation will be a sufficient form of the working requirement to satisfy this particular goal.[149]

In this situation, a country may also relinquish the prospect of local manufacturing if local manufacturing would result in higher prices for and therefore *de facto* less access to the patented invention in the country.[150] That is, where meaningful economies of scale were out of reach, it may be illusory if the implementation of the patent working requirement does not benefit countries where manufacturing may be technically feasible but not economically viable'.[151] For instance, the experiences of Brazil and India provide an illustrative example on this point.

In the case of pharmaceutical products, the Brazilian experience of providing universal access to HIV/AIDS treatment reveals that it is not feasible for any developing country to embark on

[147] Cottier, Lalani and Temmerman, note 20 at 454, mentioning that internationalisation makes technology transfer through a subsidiary more profitable.
[148] Maskus, note 52 at 10.
[149] Marketa Trimble, "Patent Working Requirements: Historical and Comparative Perspectives, 6 University of California Irvine Law Review" (2017 Forthcoming: UNLV William Boyd School of Law Legal Studies Research Paper) at 24.
[150] *id.*
[151] Carlos Correa, *Implications of the Doha Declaration on the TRIPS Agreement and Public Health* (Geneva, World Health Organisation, Essential Drugs and Medicine Policy, WHO/EDM/PAR/2002.3, 2002) at 21.

local manufacture.[152] Added to this logic is that better quality and cheaper import products can be obtained through imports than through local working.[153] Importantly, empirical evidence shows that in some developing countries imported products, such as medicines may be less expensive than locally manufactured ones.[154] More importantly, India currently provides the world with one-fifth of low-cost generics, of which about half are sent abroad to other developing countries and Africa is a major beneficiary.[155]

IX. Conclusion

This paper has examined the extent to which developing countries and LDCs could use the current patent standards under the legal landscape of TRIPS as tools for promoting socio-economic growth. The essential element of this analysis has been to confront the most basic question, which is whether, in their traditional legislative intent, patent working requirements would, in the midst of global value chains, definitely guarantee socio-economic growth for developing countries and LDCs.

A key distinction in thinking about policy is whether developing countries should focus on joining the global value chain system or seek to invoke patent working requirements more narrowly as an instrument of government policy to promote domestic industrial growth. The analysis of this paper has importantly demonstrated that economic inefficiency in developing countries and LDCs together with the altered structure of internationalisation supports the viewpoint that patent working requirements may not be the smartest option for securing domestic socio-economic growth. In other words, the way that patent working requirements are conceived in their traditional scope requires conceptual adjustment to reflect the modern trade reality.

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[152] Dirceu Greco and Mariangela Simao, "Brazilian Policy of Universal Access to AIDS Treatment: Sustainability Challenges and Perspectives" (2007) 21 *AIDS*, suppl. 4, 37 at 41, citing large market size.
[153] Friedrich-Karl Beier, "Does Compulsory Use of Patents Promote Technology Transfer to Developing Countries?" (1986) 8 *European Intellectual Property Review* 12, 363 at 363.
[154] Warren Kaplan, "Local Production and Access to Medicines in Low- and Middle-Income Countries: A Literature Review and Critical Analysis" (Geneva, prepared for the WHO Department of Public Health, Innovation and Intellectual Property, World Health Organisation, 2011) at 3, observing that local manufacture of pharmaceutical products in some developing countries might not be able to capture essential economies of scale, which remains an indispensable factor in realising cheaper prices.
[155] Available at:
<https://www.msfaccess.org/sites/default/files/MSF_assets/Access/Docs/ACCESS_briefing_PharmacyForDevelopingWorld_India_ENG_2007.pdf> [Accessed 14 August 2016].

The findings suggest that global value chains have become a dominant feature of today's global economy where much of the manufacturing of goods and trade is done in parts and components from different sources. It also facilitates the distribution of a wide range of manufactured goods that are produced in different parts of the world to global markets.[156] Therefore, seeking to produce them all locally would be contrary to the division of labour and undermines the very existence of the WTO's mandate to preserve the basic principles and to further the overriding objectives underlying the multilateral trading system, which is to reduce barriers to trade and to the elimination of discriminatory treatment in international trade relations.

[156] "Global Value Chains", note 134 at 8.