

Committee on Development and Intellectual Property (CDIP)

Fourteenth Session
Geneva, November 10 to 14, 2014

INTELLECTUAL PROPERTY-RELATED POLICIES AND INITIATIVES IN DEVELOPED COUNTRIES TO PROMOTE TECHNOLOGY TRANSFER

commissioned by the Secretariat

1. The Annexes to this document contain (i) a Study on Intellectual Property-Related Policies and Initiatives in Developed Countries to Promote Technology Transfer, undertaken in the context of the Project on Intellectual Property and Technology Transfer: 'Common Challenges – Building Solutions' (CDIP/6/4 Rev.), by Mr. Sisule Musungu, Partner, Sisule Munyi Kilonzo & Associates, Advocates, Nairobi, Kenya, and (ii) a Peer Review of the above Study by Dr. Walter Park, American University, Washington, DC, USA.

2. *The CDIP is invited to take note of the information contained in the Annexes to this document.*

[Annexes follow]

Note: The views expressed in this study are those of the author and do not necessarily reflect those of the WIPO Secretariat or any of the Organization's Member States.

INTELLECTUAL PROPERTY-RELATED POLICIES AND INITIATIVES IN DEVELOPED
COUNTRIES TO PROMOTE TECHNOLOGY TRANSFER

Study by Mr. Sisule Musungu, Partner, Sisule Munyi Kilonzo & Associates, Advocates, Nairobi,
Kenya

CONTENTS

ABBREVIATIONS

I. INTRODUCTION

II. DEFINITIONS AND SCOPE OF THE STUDY

II.A Technology Transfer

II.B Intellectual Property Rights (IPRs)

II.C IPR-related Policies and Initiatives

II.D Developed and Developing Countries

III. AN OVERVIEW OF EXISTING DEVELOPED COUNTRY IPR POLICIES AND INITIATIVES PROMOTING TECHNOLOGY TRANSFER

III.A General Developed Country IPR Policies

III.B Sector-Specific Initiatives

IV. REVIEWING THE PERFORMANCE OF DEVELOPED COUNTRY IPR POLICIES AND INITIATIVES PROMOTING TECHNOLOGY TRANSFER

IV.A Disclosure Standards

IV.B Application of Border Measures to Exports and Goods-in-Transit

IV.C Export of Goods Made under Compulsory Licenses

IV.D Licensing and Competition

V. CONCLUSION AND RECOMMENDATIONS

SELECTED BIBLIOGRAPHY

ABBREVIATIONS

CAS-IP	Central Advisory Service on Intellectual Property
CGD	Center for Global Development
CGIAR	Consultative Group on International Agriculture Research
CIS	Commonwealth of Independent States
COP	Conference of Parties
DA	Development Agenda
EC	European Community
EPO	European Patent Office
ESTs	Environmentally-Sustainable Technologies
FAO	UN Food and Agriculture Organization
FDI	Foreign Direct Investment
G8	Group of 8
GATT	General Agreement on Tariffs and Trade
ICT	Information and Communications Technology
IFPMA	International Federation of Pharmaceutical Manufacturers and Associations
IAs	International Investment Agreements
INPADOC	International Patent Documentation Centre
IP	Intellectual Property
IPRs	Intellectual Property Rights
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
LDCs	Least Developed Countries
MNCs	Multinational Corporations
NGOs	Non-Governmental Organizations
OECD	Organization for Economic Cooperation and Development
PCT	Patent Cooperation Treaty (PCT)
R&D	Research and Development
SMEs	Small and Medium-sized Enterprises
TECA	Technologies and Practices for Small Agriculture Producers
TORs	Terms of Reference

TRIPS	Agreement on Trade Related Aspects of Intellectual Property Rights
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
US	United States
WIPO	World Intellectual Property Organization
WTO	World Trade Organization
WHO	World Health Organization

EXECUTIVE SUMMARY

1. The relationship between intellectual property rights (IPRs) and technology transfer has animated international discussions for a long time. Indeed, the focus on technology transfer and intellectual property (IP) had a direct effect in the framing of the Agreement between the United Nations (UN) and the World Intellectual Property Organization (WIPO) when the latter became a specialized agency of the former in 1975. Under Article 1 of that Agreement, WIPO was recognized as a specialized agency whose responsibilities included facilitating the transfer of technology. The relationship between IP and transfer of technology was also a prominent issue in WIPO Development Agenda (the “DA”) recommendations. In particular, Recommendation 25 of the DA recommendations mandates WIPO, among other things, to *explore intellectual property -related policies and initiatives necessary to promote the transfer and dissemination of technology*.

2. Taking into account DA Recommendation 25 and the history as well as existing literature on the subject of IP and transfer of technology, this Study seeks to provide information on existing IPR-related policies and initiatives found in the public and private sectors of developed countries to promote technology transfer and research and development (R&D) capacity in developing countries, including relevant international IP standards and flexibilities. The Study was prepared in the context of the DA “Project on Intellectual Property and Technology Transfer: Common Challenges – Building Solutions” (hereinafter “the Technology Transfer Project”). It builds on and/or takes into account WIPO’s previous work in this area, including the Technology Transfer Project Paper (document CDIP/9/INF/4) and other work under other DA projects.

3. The study:

- Addresses definitional issues, particularly what is meant by key terms and phrases such as “technology transfer,” and IPR-related policies and initiatives;
- Provides an overview of existing IP-related policies and initiatives in developed countries promoting technology transfer in key development sectors in developing countries, including the health sector, the food and agriculture sector and the environment and energy sectors;
- Analyses and reviews the potential and performance of the identified policies and initiatives, to determine which are most favorable to promoting technology transfer; and
- Provides recommendations on what developed countries can do in the area of IP to enhance technology transfer as well as on future work at WIPO on this subject.

4. In reading the Study, it should be noted that unlike many of the previous studies and writings on the subject, this Study focuses on how the IPR environments and policies in developed countries affect or impact on technology transfer to developing countries and least-developed countries (LDCs). The findings in the Study show that there are a number of potentially important policy areas in developed countries that can be addressed in the efforts to promote technology transfer.

5. On the basis of the Study’s findings a number of tentative recommendations are made. These take into account the paucity of focused studies on IPR policies in developed countries to foster technology transfer to developing countries. The recommendations are as follows:

RECOMMENDATION 1: IPR POLICIES/LAWS WITH RESPECT TO DISCLOSURE IN DEVELOPED COUNTRIES:

6. Developed countries should do more to enhance the disclosure of inventions and the accessibility of patent data by developing countries, including requiring fuller disclosure of inventions, including disclosure of best mode or method. Those developed countries which do not have online repositories and/or which do not contribute to international patent databases should take measures to make their patent data available online and through international databases such as PATENTSCOPE.

RECOMMENDATION 2: IPR POLICIES/LAWS WITH RESPECT TO GOODS FOR EXPORT AND GOODS-IN-TRANSIT:

7. Developed countries that enforce patent rights with respect to goods destined for export and/or goods-in-transit should reconsider their policy/legal approach in the context of technology transfer needs in developing countries and LDCs.

RECOMMENDATION 3: IPR POLICIES/LAWS WITH RESPECT TO EXPORT OF GOODS PRODUCED UNDER COMPULSORY LICENSES:

8. Clarification of policies and a more pro-active approach with respect to export of goods produced under compulsory licenses should be considered by developed countries to enhance technology transfer.

RECOMMENDATION 4: IPR POLICIES/LAWS WITH RESPECT TO LICENSING AND COMPETITION

9. Where there is significant public sector involvement in the development and deployment of technologies in developed countries, specific IPR policies to facilitate technology transfer in respect of government-supported inventions should be implemented.

RECOMMENDATION 5: FUTURE WORK:

10. Further work, including empirical research, should be undertaken under the auspices of WIPO to enhance the understanding of how IPR policies of developed countries affect technology transfer and whether IPR-related changes in these developed countries could enhance the transfer of technology to developing countries and LDCs. In addition to the policy and legal issues covered in this study other areas, such as the implications of trade secret policies, practices and laws could also be considered.

I. INTRODUCTION

1. International transfer of technology in general and the inter-linkages between technology transfer and intellectual property rights (IPRs) have been an important, yet controversial, subject in the relationships between developed countries (the “North”) and developing countries (the “South”) particularly within the United Nations (UN) system, in the Bretton Woods institutions (the World Bank and the International Monetary Fund – IMF) and in the General Agreement on Tariffs and Trade (GATT) (now World Trade Organization - WTO) system. The importance given to the issue of technology transfer between developed and developing countries in key international institutions has been widely informed by the idea that technological progress is the engine of growth and that developed countries are more technologically advanced.¹ In the context of international negotiations and discussions, technology transfer is therefore seen as either a bargaining chip for developing countries and/or as a moral obligation of developed countries in support of development.

2. In the UN system, the discussions on technology transfer were initially most pronounced in the 1970s and 1980s in the context of drafting of the then proposed United Nations Conference on Trade and Development (UNCTAD) International Code of Conduct on the Transfer of Technology (hereinafter “the Draft Code on the Transfer of Technology” or “the Draft Code”).² The key motivation behind the push for the Draft Code was the belief that it would have effectively assisted developing countries in their selection, acquisition and effective use of technologies appropriate to their needs in order to develop improved economic standards and living conditions and that it would also create conditions conducive to the promotion of the international transfer of technology, under mutually agreed and advantageous terms to all parties.³ The role of intellectual property (IP) in the discussions was one of the key issues. Indeed, the focus on technology transfer and IP at that time had a direct effect in the framing of the Agreement between the UN and the World Intellectual Property Organization (WIPO) when the latter became a specialized agency of the former in 1975.⁴

3. Under the Agreement between the UN and WIPO, WIPO was recognized as a specialized agency whose responsibilities included “*facilitating the transfer of technology related to industrial property to the developing countries*”.⁵ In addition, WIPO was expected to co-operate within the field of its competence with the UN and its organs, including with UNCTAD, the United Nations Development Programme (UNDP) and the United Nations Industrial Development Organization (UNIDO) and other agencies in promoting and facilitating the transfer of technology.⁶ More recently, besides discussions in WIPO, the issue of technology transfer in the UN system has manifested itself most prominently in the context of the discussions on the role of technology in addressing climate change related issues under the United Nations Framework Convention on Climate Change (UNFCCC)⁷.

4. Within the Bretton Woods institutions the issue of technology transfer has been most discussed in the context of international investment agreements (IIAs) between developed and developing countries. In the GATT/WTO system, the issue of technology transfer has been most debated in the context of the negotiations and implementation of the Agreement on Trade-

¹ Arora, A., “Intellectual Property Rights and the International Transfer of Technology: Setting out an Agenda for Empirical Research in Developing countries”, in WIPO, 2009, p. 41.

² The 1985 version of the Draft Code on Transfer of Technology is available at <http://www.unctad.info/en/Science-and-Technology-for-Development---StDev/Science--Technology-on-the-UN-Agenda/UN-Programmes-and-Agencies/Compendium/Index/Themes/International-code/Transfer-of-Technology-code/>.

³ See the Preamble to the Draft Code.

⁴ The Agreement is available on the WIPO website at <http://www.wipo.int/treaties/en/agreement/>.

⁵ See Article 1 of the Agreement.

⁶ See Article 10 of the Agreement.

⁷ The discussions in the UNFCCC led to establishment of a Technology Mechanism (http://unfccc.int/tclear/templates/render_cms_page?TEM_home) during the 16th Session of the Conference of the Parties (COP) in 2010 in Cancun.

Related Aspects of Intellectual Property Rights (TRIPS). In the TRIPS negotiations, developing countries pushed for specific technology transfer provisions as part of the bargain and in exchange for strengthening their IP regimes. Such strengthening of IP regimes was considered advantageous to developed countries. In this context, the TRIPS Agreement contains a number of specific provisions touching on technology transfer. In addition to the objectives provision (Article 7) which states that the protection of IPRs should contribute to transfer and dissemination of technology and the principles provision (Article 8) which permits measures to prevent abuse of IPRs or practices that adversely affect international transfer of technology, TRIPS went some way on concertizing transfer of technology rights and obligations including:

- Article 40 where WTO Members agreed that some licensing practices or conditions pertaining to IPRs which restrain competition may have adverse effects on trade and may impede the transfer and dissemination of technology and that consequently, WTO Members can specify in their legislation licensing practices or conditions that may in particular cases constitute an abuse of IPRs having an adverse effect on competition.
- Article 66.2 where developed countries have an obligation to provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members (LDCs) in order to enable them to create a sound and viable technological base.

5. Many developing countries, including LDCs, have incorporated in their national laws relevant provisions in the context of Article 40 of TRIPS. With respect to Article 66.2, while many developed countries have reported taking action, there remains a debate as to whether such action has been effective.⁸

6. The emphasis and framing of the WIPO Development Agenda (the “DA”) recommendations on the issues related to IP and technology transfer should be understood in the context of the above-mentioned previous discussions and developments on IP and technology transfer in the UN, Bretton Woods institutions and GATT/WTO systems.⁹ In particular, Recommendation 25 of the DA (Box 1) is framed in a manner that acknowledges the challenges of the past in addressing the relationship between IP and technology transfer and the complexity of the task as well as the geo-political and economic changes that have taken place since. For this reason the recommendation, by focusing on exploratory work, encourages an open-minded approach to the work in this area going forward.

Box 1

Recommendation 25 of the WIPO Development Agenda

[25.] To explore intellectual property -related policies and initiatives necessary to promote the transfer and dissemination of technology, to the benefit of developing countries and to take appropriate measures to enable developing countries to fully understand and benefit from different provisions, pertaining to flexibilities provided for in international agreements, as appropriate.

7. This study, which has been prepared under the DA “Project on Intellectual Property and Technology Transfer: Common Challenges – Building Solutions” (herein after “the Technology Transfer Project”)¹⁰, seeks to provide information on existing IPR-related policies and initiatives found in the public and private sectors of developed countries to promote technology transfer and research and development (R&D) capacity in developing countries, including relevant

⁸ See e.g., the discussion in Moon, 2011.

⁹ The full set of the DA recommendations can be accessed on the WIPO website at <http://www.wipo.int/ip-development/en/agenda/recommendations.html>.

¹⁰ For a description of the Project see WIPO document CDIP/6/4REV. Available on the WIPO website at http://www.wipo.int/edocs/mdocs/mdocs/en/cdip_6/cdip_6_4_rev.pdf.

international IP standards and flexibilities. It builds on and/or takes into account WIPO's previous work in this area, including the Technology Transfer Project Paper (document CDIP/9/INF/4)¹¹ and other work under other DA projects.¹²

8. The study begins (in section II) by addressing some definitional issues and also delineating its scope. Definitions, particularly as to what is meant by key terms and phrases such as technology transfer, is critical to avoid confusion since there may be more than one definitional approach in the literature. The definitions, by implication, also delineate the scope of the study. This will ensure clarity as to what is covered and what is not covered. This is important since the subject of technology transfer is very broad. Section III then provides an overview of existing IP-related policies and initiatives in developed countries promoting technology transfer in key development sectors in developing countries, including the health sector, the food and agriculture sector and the environment and energy sectors. Section IV of the study analyses and reviews the potential and performance of the identified policies and initiatives to determine which of those are most favorable to promoting technology transfer. The final section, section V, provides the conclusion and recommendations on what developed countries can do in the area of IP to enhance technology transfer.

II. DEFINITIONS AND THE SCOPE OF THE STUDY

9. There are three (3) main phrases or terms, which are important to define for the purpose of this study. These are the phrases/terms (i) technology transfer; (ii) IPRs; and (iii) IPR-related policies and initiatives. In addition to these phrases/terms it is also important, for purposes of this study and in the discussion of technology transfer in general, to define what developed countries and developing countries mean. What follows below are the definitions assigned to these phrases/terms in this study.

(A) TECHNOLOGY TRANSFER

10. This study adopts, with some modifications, the definition of transfer of technology used in the Technology Transfer Project Paper.¹³ The definition in the said paper was adopted and endorsed by all WIPO Member States convened as the CDIP in November 2010. The agreement on the meaning of technology transfer in the CDIP is an important milestone in the IP and technology transfer discourse at the multilateral level. It is one of the few times that there has been consensus between developed and developing countries on the meaning of the term. Technology transfer, for purposes of this study, therefore means a series of processes enabling and facilitating flows and absorption of skills, knowledge, ideas, know-how and technology among different stakeholders in developed countries on the one hand and other stakeholders in developing countries on the other hand. In effect, technology transfer in this study primarily refers to what in the literature is sometimes referred to as 'international technology transfer'. In practical terms, technology transfer also involves the transmission and absorption of concrete knowledge for the manufacture of products, the application of a process or for rendering of a service.

11. The stakeholders who are the players in the process of technology transfer both the providers (in developed countries) and the recipients (in developing countries) include both public and private sector entities as well as for-profit and not-for-profit entities. Among others, the stakeholders would include public sector agencies involved in research and/or development funding, universities and research institutions, companies (both multinational and local), non-governmental organizations (NGOs) and intergovernmental or international organizations.

¹¹ The paper can be accessed at http://www.wipo.int/edocs/mdocs/mdocs/en/cdip_9/cdip_9_inf_4.pdf.

¹² Some of the relevant projects include: (i) the Project on Developing Tools for Access to Patent Information; (ii) Project on Intellectual Property and Socio-Economic Development; and (iii) Project on Innovation and Technology Transfer Support Structure for National Institutions. For a description of these projects and the work done under them see the DA projects webpage on the WIPO website at http://www.wipo.int/ip-development/en/agenda/work_undertaken.html.

¹³ *Supra* note 10.

(B) INTELLECTUAL PROPERTY RIGHTS (IPRS)

12. Ordinarily, IPRs refers to rights conferred by different categories of laws to what are commonly known as creations of the mind, including rights over inventions (protected under patent laws), symbols, names, images (protected under trademark laws), designs (protected under industrial design laws), confidential information (protected under trade secret laws) and literary and artistic works (protected under copyright and related rights laws). In the context of the relationship between technology transfer and IPRs, however, the term IPRs is generally used (in the literature) to refer to protection offered under patent laws and to some extent trade secret laws.

13. There are two main reasons that can be advanced for the predominant focus on patents and trade secrets in the technology transfer-IPRs discussions. First, it is generally understood that technology and know-how are mainly embodied in inventions that are protectable under patents or covered by trade secrets. This covers both technological products such as machinery, and technological processes. Second, unlike other forms of IPRs, patent law, in particular, embodies what is considered a critical social contract, namely, that part of the bargain for the protection of inventions under the patent system is that in exchange for exclusive rights, the rights holder is required to disclose the invention to society. Disclosure of inventions is considered critical in order to advance the development of science and technology.

14. Consequently, for the purposes of this study reference to IPRs means patent rights and, as applicable, trade secrets. In the study therefore both the term IPRs and patent rights/trade secrets are used interchangeably.

(C) IPR-RELATED POLICIES AND INITIATIVES

15. Transfer of technology, as already stated, is a widely debated and studied topic. There are many and varied dimensions to the issue and it involves both proprietary and non-proprietary knowledge, ideas, know-how and technology. IPR is therefore only one, albeit an important dimension, to the issue.

16. Successful transfer of technology requires that the relevant knowledge, ideas, know-how and technology are not only successfully transmitted from developed country entities to developing countries entities but also that such knowledge, ideas, know-how and technology are absorbed, and where applicable, adapted or modified by entities in developing countries. In effect, the success of technology transfer relates to both the cost-effectiveness and efficiency of the channels or modes of technology transfer¹⁴ and the factors in the recipient country that enable absorption, adaptation and modification.

17. In this regard, the *IPR-related* policies and initiatives of concern to this study are those IPR policies or initiatives that affect or relate *to the channels of technology transfer and the ability of entities in the recipient countries to absorb, modify or adapt knowledge, ideas, know-how and technology*. In specific terms, IPR-related policies and initiatives here means those policies and initiatives in developed countries that impact on trade in goods and services, foreign direct investment (FDI), licensing and joint ventures, cross-border movement of personnel, imitation and the availability and use of patent data.

18. The literature on IPRs and technology transfer has predominantly focused on the relationship or effect of the domestic IPR environment in the developing or technology recipient countries on the deployment of technology through different channels and the absorptive

¹⁴ Maskus 2004 provides a useful explanation of the different channels of technology transfer, including both formal and informal channels. Formal channels of technology transfer include trade in goods and services, FDI, licensing and joint ventures and cross-border movement of personnel. Informal channels include imitation, departure of employees and use of patent data. See also Maskus and Saggi (2004).

capacity.¹⁵ Much less attention has been given to how the IPR environments or policies in developed countries affect or impact on the channels of technology transfer and absorptive capacity in developing countries. Even in the literature relating to the implementation of Article 66.2 of the TRIPS Agreement the focus has primarily been on what developed countries can do either in financial terms or do in LDCs or what they should allow LDCs to do.¹⁶ Only one recent study at the Center for Global Development (CGD) has looked at the issue from the same perspective as this study.¹⁷ By focusing on the IPR-related policies and initiatives in developed countries this study therefore proceeds on a less trodden path in the IPR and technology transfer discussions and research. It therefore bears repeating that this study is **NOT** concerned with how IPR law or the IPR environments in developing countries affects or promote technology transfer.

19. For purposes of the study, it is also important to delineate what we mean by '*policy*' and '*initiatives*' so that the full meaning of the phrase "IPR-related policies and initiatives" is understood. Policy is used in this study to refer to the formal intention of developed countries to take a specific direction in relation to the specific IPR issue at hand. Such policy may be expressed in formal policy documents or in the IPR or related laws. Initiative, on the other hand, is used in the study to refer to specific actions taken by developed countries, whether in pursuance of a stated policy or not, in relation to addressing a specific IPR issue. The initiative could be by an individual developed country or in the context of intergovernmental or international arrangements and mechanisms.

(D) DEVELOPED AND DEVELOPING COUNTRIES

20. There are no internationally accepted standard definitions of '*developed*' and '*developing*' countries whether in the UN system or within the WTO system. The only properly defined category of countries within the UN system is the group of LDCs.¹⁸ In the context of the IPR and technology transfer discourse; however, the literature generally treats LDCs as a sub-category of developing countries. This is the same approach that has been taken in this study. In the absence of standard definition of the meaning of developed and developing countries it is important that this study clarifies what is meant by these terms for its purpose.

21. For purposes of this study, developed countries are defined as those countries that are Members of the Organization for Economic Cooperation and Development (OECD) and/or the Group of 8 (G8) but that are not members of the Group of 77 and China. This adds up to a group of 33 countries.¹⁹ As a corollary, developing countries are taken, in this study, to mean those countries that are members of the Group of 77 and China. There are a total of 132 countries in this group.²⁰

¹⁵ See e.g., discussion and references in Arora, 2009; Hassan et al, 2010; Maskus, 2004; Rand Corporation, 2010; and UNIDO, 2006.

¹⁶ See e.g., Maskus, 2004; and Moon, 2011.

¹⁷ See Park; Krylova; Reynolds; and Barder, 2014.

¹⁸ The UN has set criteria for determining LDC status (criteria available at <http://www.un.org/special-rep/ohrls/ldc/ldc%20criteria.htm>) and a specific list of LDCs at any given time (list available at <http://www.unohrls.org/en/ldc/25/>).

¹⁹ The countries are: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russian Federation, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom (UK) and the United States of America (U.S.A). The full list of OECD countries is available on the OECD website at <http://www.oecd.org/general/listofocedmembercountries-ratificationoftheconventionontheoecd.htm>.

²⁰ The list of the countries is available at <http://g77.org/doc/members.html>. G8 refers to France, Germany, Italy, the United Kingdom, Japan, the United States, Canada, and Russia.

22. This definition of developed and developing countries has one important limitation that needs to be specifically highlighted. The definition excludes a number of UN member states (approximately 28 countries). These are mainly the countries with economies in transition particularly the countries of the Commonwealth of Independent States (CIS) and other former Soviet republics.

III. AN OVERVIEW OF EXISTING DEVELOPED COUNTRY POLICIES AND INITIATIVES PROMOTING TECHNOLOGY TRANSFER

23. As has already been noted, the focus of this study is on how developed country IPR policies and initiatives affect availability and use of technologies disclosed in patent data or held as trade secrets; international trading of IP embedded goods and services; FDI in key technology sectors; licensing and joint ventures; and imitation or reverse engineering. In terms of patent law, the general policy issues to consider therefore include developed country policies in relation to:

- Disclosure standards and accessibility of patent databases.
- The application of IPRs to exports, particularly those exports destined for developing countries, including the treatment of goods-in-transit.
- Compulsory licensing for export.
- Licensing, including the approach to royalties and application of competition law to licensing contracts.

There are also related policies that come into play including financing acquisition of patented technology and other commitments with respect to specific sectors, such as environmentally-sustainable technologies (ESTs).

24. The sub-sections that follow below provide an overview of the relevant policies and approaches in developed countries to the above issues and some sector specific-initiatives in that context.

(A) GENERAL DEVELOPED COUNTRY IPR POLICIES

25. There are a number of IPR-related policy areas where the approach of developed countries has important implications for technology transfer. It is important to note here that these policy areas usually have broader implications and are therefore generally not framed as technology transfer provisions. What is important, however, is that the approach to these issues will have a direct or indirect implication for technology transfer with respect to either the formal or informal channels of transfer. As previously stated in the definitions section of this study, there is limited, if any, discussion on these issues in the IPR and technology transfer literature.

A.1 Policies and Approaches to Disclosure Standards and Patent Databases

26. The most important source of technological information, know-how and ideas in relations to IPR protected or protectable inventions can be found in patent application documents and other patent status documents such as patent registers and bulletins. The availability and accessibility of the global stock of IPR related knowledge is therefore determined by disclosure policies. The policies of developed countries with respect to the standards of disclosure of inventions in patent applications and making available the disclosed information to the public are therefore critical for availability and access to technological information, which can promote technology transfer.

27. A review of the literature shows that while this issue is mentioned in the literature it has received much less attention than it deserves. While previously, such as in the 1970s, patent data as a source of information had limited potential since in most countries one had to undertake a manual search and reading, that has since changed. The large number of

university educated personnel and the growth of ICT, particularly in developing countries, means that today the opportunity and potential of patent documents to make available and provide access to both old and cutting-edge technologies is enormous. In addition to ICT making it possible to avail full text and other formats of patent documents in patent databases, it has also made it much easier for translations meaning that the language barriers between developed and developing countries are reducing.

28. The research for this study (see table 1 below) found that a significant number of developed countries have specific disclosure provisions in their IPR laws and therefore have a policy of full disclosure of inventions in the patent applications. A number of these countries also require disclosure of best mode or best method of carrying out the invention. Nevertheless, a similarly significant number of developed countries do not have clear disclosure standards. A full disclosure policy for patent application is important since it ensures that the information that is eventually available to the public about the invention is as complete as possible. In the context of technology transfer, full disclosure policy means that the quantity and quality of technological knowledge available is enhanced.

29. The information summarized in Table 1 also shows that the majority of developed countries now make published national patent data available through free online searchable databases to a global audience. This means that anyone anywhere in the world can access these knowledge repositories and mine for technological information and ideas. Similarly, the majority of developed countries also make data contributions to key international free online patent databases. For purposes of this study a review of the contribution of these countries to WIPO's PATENTSCOPE²¹ and the European Patent Office's (EPO) International patent Documentation Center (INPADOC) database²² was undertaken.

30. The research found that the majority of developed countries contribute to the PATENTSCOPE by providing information on the Patent Cooperation Treaty (PCT) national phase in those countries and to INPADOC. A significant number of countries, including key countries, such as the United States (U.S.), also contribute their national collections to PATENTSCOPE.

²¹ The database is accessible at <http://patentscope.wipo.int/search/en/search.jsf>.

²² The database is available at <http://www.epo.org/searching/essentials/patent-families/inpadoc.html>.

Table 1			
Disclosure Policies/Laws and Contribution to International Patent Databases			
	Developed Country	Policy/Law on Disclosure	Contribution to International Patent Databases
1.	Australia	<ul style="list-style-type: none"> Section 40(2) of the Patent Act 1990: Requires full description of invention, including best method for performing the invention. Provides an online searchable patent database (AUSPAT) – http://www.ipaustralia.gov.au/get-the-right-ip/patents/search-for-a-patent/ 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
2.	Austria	<ul style="list-style-type: none"> Section 87(1) of the Patent Act 1970: Requires patent applicant to fully disclose the invention to allow a person skilled in the art to preform the invention. Provides an online searchable patent database on its patent office website – http://www.patentamt.at 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
3.	Belgium	<ul style="list-style-type: none"> Provides an online searchable patent database on its patent office website – http://economie.fgov.be/fr/modules/onlineservice/ 	<ul style="list-style-type: none"> INPADOC
4.	Canada	<ul style="list-style-type: none"> Section 27(3) of the Patent Act (R.S.C., 1985, c-P4): Requires a patent applicant to correctly and fully describe the invention and its operation or use as contemplated by the inventor, set out the various steps in a process or method for making or using a machine to enable a person skilled in the art to make or use it as well as explain the principle and best mode with respect to machines. Provides an online searchable patent database on its patent office website (Canada Patent Database – http://brevets-patents.ic.gc.ca/opic-cipo/cpd/eng/introduction.html) 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC

Table 1			
Disclosure Policies/Laws and Contribution to International Patent Databases			
	Developed Country	Policy/Law on Disclosure	Contribution to International Patent Databases
5.	Czech Republic	<ul style="list-style-type: none"> No clear disclosure provision. Provides an online searchable patent database on its patent office website - http://www.upv.cz/en/provided-services/online-databases/patent-and-utility-model-databases/national-database.html 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
6.	Denmark	<ul style="list-style-type: none"> No clear provision on standard of disclosure. Provides an online searchable patent database on its patent office website - http://onlineweb.dkpto.dk 	<ul style="list-style-type: none"> INPADOC
7.	Estonia	<ul style="list-style-type: none"> Section 10(2) of the Patent Act (Act No. RT I 1994, 25, 406) requires the claims to be clear, concise and short Provides an online searchable patent database on its patent office website - http://www.epa.ee/default.asp?wa_site_id=2 	<ul style="list-style-type: none"> INPADOC
8.	Finland	<ul style="list-style-type: none"> Provides an online searchable patent database on its patent office website - http://www.prh.fi/en/patentit/tietokannat.html 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
9.	France	<ul style="list-style-type: none"> Provides an online searchable patent database on its patent office website http://fr.espacenet.com. 	<ul style="list-style-type: none"> INPADOC

Table 1			
Disclosure Policies/Laws and Contribution to International Patent Databases			
	Developed Country	Policy/Law on Disclosure	Contribution to International Patent Databases
10.	Germany	<ul style="list-style-type: none"> No clear provision on standard of disclosure. Provides an online searchable patent database on its patent office website - https://depatisnet.dpma.de 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
11.	Greece	<ul style="list-style-type: none"> Provides an online searchable patent database on its patent office website - http://www.obl.gr/obi/?tabid=213 	<ul style="list-style-type: none"> INPADOC
12.	Hungary	<ul style="list-style-type: none"> No clear provision on standard of disclosure. Provides an online searchable patent database on its patent office website - http://www.hipo.gov.hu/English/adatbazisok/ 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
13.	Iceland	<ul style="list-style-type: none"> Article 8 of the Patent Act No. 17/1991 provides that the patent description shall be so clear as to enable a person skilled in the art to carry out the invention with the guidance of the description. There is no dedicated searchable patent database on its patent office website. 	
14.	Ireland	<ul style="list-style-type: none"> Section 19(1) of the Patents Act 1992 requires that a patent application shall disclose the invention to which it relates in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. There is no dedicated searchable patent database on its patent office website. 	<ul style="list-style-type: none"> INPADOC

Table 1			
Disclosure Policies/Laws and Contribution to International Patent Databases			
	Developed Country	Policy/Law on Disclosure	Contribution to International Patent Databases
15.	Israel	<ul style="list-style-type: none"> No specific provision on standard of disclosure. Provides an online searchable patent database on its patent office website - http://www.ilpatsearch.justice.gov.il/UI/MainPage.aspx 	<ul style="list-style-type: none"> Patentscope (National collection & PCT national phase) INPADOC
16.	Italy	<ul style="list-style-type: none"> Provides an online searchable patent database on its patent office website - http://www.uibm.gov.it 	<ul style="list-style-type: none"> INPADOC
17.	Japan	<ul style="list-style-type: none"> No specific provision on standard of disclosure. Provides an online searchable patent database on its patent office website - http://www.inpit.go.jp/english/distri/ipdl/index.html 	<ul style="list-style-type: none"> Patentscope (National collection & PCT national phase) INPADOC
18.	Korea	<ul style="list-style-type: none"> Article 42(3) of the Patent Act (No. 950 of November 28, 1949) requires clear and detailed description of the invention to ensure that any person with ordinary knowledge in the technology sector can easily make the invention. Provides an online searchable IPR database at http://www.kipris.or.kr/enghome/main.jsp 	<ul style="list-style-type: none"> INPADOC
19.	Luxembourg	<ul style="list-style-type: none"> There is no dedicated searchable patent database on its patent office website. 	<ul style="list-style-type: none"> INPADOC
20.	Mexico	<ul style="list-style-type: none"> There is no dedicated searchable patent database on its patent office website. 	<ul style="list-style-type: none"> Patentscope (National collection & PCT national phase) INPADOC
21.	Netherlands	<ul style="list-style-type: none"> There is no dedicated searchable patent database on its patent office website. 	<ul style="list-style-type: none"> INPADOC

Table 1			
Disclosure Policies/Laws and Contribution to International Patent Databases			
	Developed Country	Policy/Law on Disclosure	Contribution to International Patent Databases
22.	New Zealand	<ul style="list-style-type: none"> Section 10 (3) of the Patent Act, 1953 requires patent applicants to describe the invention and the method by which it is to be performed and disclose the best method of performing the invention known to the applicant. Provides an online searchable patent database on its patent office website - http://www.iponz.govt.nz/app/Extra/IP/PT/qbe.aspx?sid=635169473126598102 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
23.	Norway	<ul style="list-style-type: none"> No specific provision on standard of disclosure. Provides an online searchable patent database on its patent office website - http://www.patentstyret.no/en/News/Documents-in-Online-Search---version-30/ 	<ul style="list-style-type: none"> INPADOC
24.	Poland	<ul style="list-style-type: none"> No specific provision on standard of disclosure. Provides an online searchable patent database on its patent office website - http://bazy.uprp.pl/patentwebaccess/databasechoose.aspx?language=polski 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
25.	Portugal	<ul style="list-style-type: none"> There is no dedicated searchable patent database on its patent office website 	<ul style="list-style-type: none"> INPADOC
26.	Russian Federation	<ul style="list-style-type: none"> Provides an online searchable patent database on its patent office website - http://www1.fips.ru/wps/wcm/connect/content/en/en/informational_resources/databases1 	<ul style="list-style-type: none"> Patentscope (national collection & PCT national phase) INPADOC
27.	Slovak Republic	<ul style="list-style-type: none"> No specific provision on standard of disclosure. Provides an online searchable patent database on its patent office website - http://www.upv.sk/?databases-and-registers 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC

Table 1			
Disclosure Policies/Laws and Contribution to International Patent Databases			
	Developed Country	Policy/Law on Disclosure	Contribution to International Patent Databases
28.	Slovenia	<ul style="list-style-type: none"> No specific provision on standard of disclosure. Provides an online searchable patent database on its patent office website - http://www.uil-sipo.si/sipo/activities/databases/ 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
29.	Spain	<ul style="list-style-type: none"> Provides an online searchable patent database on its patent office website - http://invenes.oepm.es 	<ul style="list-style-type: none"> Patentscope (national collection & PCT national phase) INPADOC
30.	Switzerland	<ul style="list-style-type: none"> No specific provision on standard of disclosure. Provides an online searchable patent database on its patent office website (Swissreg) - https://www.swissreg.ch/srclient/faces/jsp/start.jsp 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC
31.	Turkey	<ul style="list-style-type: none"> Provides an online searchable patent database on its patent office website - http://online.tpe.gov.tr/EPATENT/servlet/EPreSearchRequestManager 	<ul style="list-style-type: none"> Patentscope (PCT national phase)
32.	UK	<ul style="list-style-type: none"> No specific provision on standard of disclosure. Provides an online searchable patent database on its patent office website - http://www.ipo.gov.uk/types/patent/p-os/p-find.htm 	<ul style="list-style-type: none"> Patentscope (PCT national phase) INPADOC

Table 1			
Disclosure Policies/Laws and Contribution to International Patent Databases			
	Developed Country	Policy/Law on Disclosure	Contribution to International Patent Databases
33.	U.S.A	<ul style="list-style-type: none"> • 35 U.S.C. 112 of the of the US Code Title 35 – Patents requires that the patent description in clear, concise and exact terms as to enable a person skilled in the art to make or use the invention and that the best mode contemplated for carrying out the invention be disclosed. • Provides an online searchable patent database on its patent office website - http://patft.uspto.gov 	<ul style="list-style-type: none"> • Patentscope (national collection & PCT national phase) • INPADOC

A.2 Policies and Approaches on Exports and Goods-in-Transit

31. International trade and FDI, as already noted, is another important channel for technology transfer. Primarily, technology goods and services that are exported to developing countries, including goods exported to subsidiaries of multinational corporations (MNCs) in these countries are the most important. Therefore, the policies with respect to the application of IPR on goods destined for export, including goods in transit, will determine whether there is free flow of technology goods to developing countries or not.

32. Patent rights, including under the TRIPS Agreement²³, generally confer exclusive rights that enable right holders to prevent third parties from importing patented goods into the country. It is for this reason that the special border measures under Article 51 of TRIPS relate primarily to importation. It is also important to note that border measures are also primarily aimed at dealing with counterfeit trademark and pirated copyright goods and not to patented goods. Generally speaking therefore, there are no particular obligations to apply patent rights to goods being exported and particularly to goods-in-transit that are neither made in the country nor destined for the local market.

33. The IPR policies of developed countries in this area are therefore of importance since the imposing of IPR to patented products and to goods for export, particularly, goods-in-transit, can affect the free movement of goods in trade and therefore affect the international transfer of technology. The research undertaken for the preparation of this study found that a significant number of developed countries do not apply border measures to patented goods and to exports or goods-in-transit. There is, however, an equally significant number of countries that apply IPR to patented goods destined for export or in-transit. The application of the European Community's (EC) Council Regulation 1383/2003 and European Customs Code, for example, has attracted special attention with respect to international trade in medicines.²⁴

34. There are a handful of other developed countries that apply border measures to exports and/or patent products. These include Japan, Korea, Mexico and Turkey.

A.3 Policies and Approaches on Export of Goods under Compulsory Licenses

35. Similar to the issue of application of IPRs to goods for export and goods-in-transit another issue is whether goods produced under a compulsory can be exported. This is an important consideration since it has implications and can affect international trade as a technology transfer channel.

36. Article 31(f) of TRIPS requires that goods produced under a compulsory license should be predominantly be for the domestic market of the country issuing the license. The only exception is with respect to licenses issued to remedy anti-competitive practices and those issued in the context of the August 30, 2003 General Council Decision relating to pharmaceuticals²⁵. The research undertaken for this study found that most developed countries apply these minimum requirements. As Table 2 shows, a number of countries have also passed special legislations to implement August 30, 2003 General Council Decision. These include Canada and the EC countries.

²³ See Article 28 of TRIPS.

²⁴ The Regulation (available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:196:0007:0014:EN:PDF>) sets out the conditions under which customs authorities may intervene in cases where goods are suspected of infringing IP rights as well as the procedures to be followed. For a detailed discussion on the controversy regarding generic medicines see e.g., the working paper by Seuba (2009) and Kumar.

²⁵ The decision is accessible on the WTO website at http://www.wto.org/english/tratop_e/trips_e/implem_para6_e.htm.

37. While compulsory licenses issued to remedy anti-competitive practices would ordinarily allow exports, a 2011 survey of WIPO Member States laws which covered at least 15 developed countries found that compulsory licenses are generally not structured to remedy, repress, correct or prevent anti-competitive practices.²⁶

²⁶ See WIPO document CDIP/4/4 REV./STUDY/INF/3 “An analysis of the Economic/Legal Literature on the Effects of IP Rights as a Barrier to Entry” available on the WIPO website at http://www.wipo.int/edocs/mdocs/mdocs/en/cdip_4/cdip_4_4_rev_study_inf_3.pdf.

Table 2
Export of Compulsory License Goods

	Developed Country	Policy/Law on Export of Compulsory License Goods	Type of Provision/Policy
1.	Australia	Section 168 of the Patent Act No. 83 of 30/10/1990 allows for Supply of products by commonwealth to foreign countries by agreement where the products are required for the defense of the foreign country. May be sold by the Commonwealth to the Country or a person authorized to do so by the commonwealth.	Specific to defense
2.	Austria	Article 1 of the Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
3.	Belgium	Article 1 of the Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
4.	Canada	Sections 21 of the Patent Act (R.S., 1985, c. P-4, Act current to 21/01/2010) allows for the use of patents for international humanitarian purposes to address public health problems. It facilitates access to pharmaceutical products to address public health problems afflicting many developing and least-developed countries, especially those resulting from HIV/AIDS, tuberculosis, malaria and other epidemics. The governor may with the recommendation of the minister add any patented product to products listed under Schedule 1 to the Act and which may license for export.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
5.	Czech Republic	No provision available	N/A
6.	Denmark	Article 1 of Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems	Specific to the implementation of the WTO General Council Decision of August, 30, 2003

Table 2
Export of Compulsory License Goods

	Developed Country	Policy/Law on Export of Compulsory License Goods	Type of Provision/Policy
7.	Estonia	No provision available in the National legislation but under the EU Article 1 of the Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
8.	Finland	No provision available in the local legislation but under the EU Article 1 of the Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
9.	France	Article L613 -17-1 adopts Article 1 of the Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 and allows for the granting of compulsory licensing of patents relating to the manufacture of pharmaceutical products intended for export to countries with public health problems	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
10.	Germany	Article 1 of the Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
11.	Greece	Article 1 of Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003

Table 2
Export of Compulsory License Goods

	Developed Country	Policy/Law on Export of Compulsory License Goods	Type of Provision/Policy
12.	Hungary	Article 33A of the Law on the Protection of Inventions by Patents No. XXXIII of 1995 (Consolidated text of 01/10/2009) recognizes Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006, which establishes a procedure for the grant of Compulsory licences in relation to patents for patented products intended for export to eligible importing countries in need of such products in order to address public health problems.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
13.	Iceland	Under Article 49 of the Patent Act No. 17 of 1991, a compulsory licence may be granted for exporting medicines to developing countries and countries which are struggling with a severe public health problem, in accordance with the decision of the World Trade Organisation's General Council of 30 August 2003 on the TRIPS agreement and public health	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
14.	Ireland	Article 1 of Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
15.	Israel	Sections 123 of the Patent Law no. 5727 of 08/08/1967 provides that a license under the act shall only granted for exploitation of an invention in Israel in the course of production. This means that the Act does not allow for exportation of products under a compulsory license.	N/A
16.	Italy	Article 1 of the Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
17.	Japan	No provision available	N/A

Table 2
Export of Compulsory License Goods

	Developed Country	Policy/Law on Export of Compulsory License Goods	Type of Provision/Policy
18.	Korea	Under Article 107 of the Patent Act promulgated on 28/11/1949 by Military Act No. 950 the Commissioner of the Korean Intellectual Property Office may in consultation with the patentee or exclusive licensee make an adjudication for the establishment of a nonexclusive license where working the patented invention is necessary for the export of medicine to a country (referred to as "an importing country" and which is either a World Trade Organization (WTO) member country or a non-WTO member country listed in a Presidential decree) that intends to import the Medicine (including effective ingredients that are necessary for the production of the medicine and diagnostic kits necessary for the use of the medicine) in order to treat diseases that threaten the health of the majority of its citizens.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
19.	Luxembourg	Article 1 of Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
20.	Mexico	No provision available	N/A
21.	Netherlands	Article 2 of the Policy Rules on issuing compulsory licenses pursuant to WTO decision WT/L/540 states that the minister may issue a compulsory licence as referred to in section 57, subsection 1 of the Patents Act 1995 for the pharmaceutical product that is needed to address the public health problems in the interests of solving public health problems in an importing state or group of states.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
22.	New Zealand	No provision available	N/A
23.	Norway	Section 107 of the regulations under the Patent Act No. 9 of 15/12/1967 allows for a producer of pharmaceutical products in Norway to be granted on application a compulsory licence pursuant to section 47 of the Patents Act to manufacture pharmaceutical products for export to an eligible importing State that has requested the producer to supply the products.in this section an eligible importing state is an LDC under the UN or any country which has made a notification to the Council for TRIPS in accordance with the General Council Decision, paragraphs 1(b) and 2(a).	Specific to the implementation of the WTO General Council Decision of August, 30, 2003

Table 2
Export of Compulsory License Goods

	Developed Country	Policy/Law on Export of Compulsory License Goods	Type of Provision/Policy
24.	Poland	No specific provision under the national legislation but Article 1 of Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
25.	Portugal	Article 1 of Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
26.	Russian Federation	Article 1362 (2) of the Patent Act (Chapter 72) provides for use within the territory of the Russian Federation.	N/A
27.	Slovak Republic	Article 1 of Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
28.	Slovenia	Article 1 of Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003

Table 2
Export of Compulsory License Goods

	Developed Country	Policy/Law on Export of Compulsory License Goods	Type of Provision/Policy
29.	Spain	Article 1 of the Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
30.	Switzerland	Under Article 40d of the Federal Patents Law of 25/06/1954 Any person may ask the judge to grant a non-exclusive license to manufacture of patented pharmaceutical products and their export to a country that has no manufacturing capacity or with insufficient capacity in the sector but these pharmaceutical Products which are needed to fight against problems of public health, especially those resulting from HIV / AIDS, tuberculosis, malaria and other epidemics.	Specific to the implementation of the WTO General Council Decision of August, 30, 2003
31.	Turkey	No specific provision.	N/A
32.	UK	Sections 59 of the Patents Act of 1977 allows for the exploitation of patents during any period of Emergency for assisting the relief of suffering and the restoration and distribution of essential supplies and services in any country or territory outside the United Kingdom which is in grave distress as the result of war. Article 1 of the Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 states the scope of the regulation is to establish a procedure for the grant of compulsory licences in relation to patents and supplementary protection certificates concerning the manufacture and sale of pharmaceutical products, when such products are intended for export to eligible importing countries in need of such products in order to address public health problems	<ul style="list-style-type: none"> • Specific to defense supplies • Specific to the implementation of the WTO General Council Decision of August, 30, 2003
33.	U.S.A	No specific provision.	N/A

A.4 Policies and Approaches on Licensing and Competition

38. Contractual licensing is one of the most acknowledged channels of technology transfer.²⁷ This is the case for both intra-firm and third party licensing. The policies relating to voluntary licensing and anti-competitive practices are most relevant to the issue of transfer of technology. With respect to licensing, one needs to consider both the regulation of licensing by private entities in developed countries, that is the general policy on licensing and licensing of IPRs resulting from government funded projects or initiatives.

39. Table 3 below shows that there are clear policies/legislations in all developed countries that permit voluntary licensing of patented technologies. In the majority of cases, there is explicit recognition of both exclusive and non-exclusive licenses. This widespread recognition of voluntary licensing has no doubt been an important factor in the creation of the global technology markets and therefore a catalyst for market-based technology transfer. Indeed, it is today widely accepted that technology markets have substantially grown in the last few decades as evidenced by cross-border receipts and payments for technologies.²⁸ In considering the relevant policy and legislative frameworks, it is important to note that for effective technology transfer licensing of know-how, protected by trade secrets is a key issue. In many cases, the licensing of only patented technology may lead to failure to commercialize the product or process.²⁹ Consequently, the consideration of the suitability of the relevant voluntary licensing provisions in developed countries laws and policies need to take into account how they facilitate trade secret licensing.

40. Some developed countries have also adopted specific legislative policies with respect to the licensing of government funded IPR. Here the policy and approach of the U.S. is one of the most clear. Under 35 U.S.C. 200, the U.S. espouses a policy for promoting the utilization of inventions arising from research supported by the federal government. Among other things, the policy is aimed at ensuring that inventions made by nonprofit organizations and small business firms are used in a manner to promote free competition and enterprise and to promote commercialization and public availability of inventions. The Patent Act (35 U.S.C. 209) also contemplates the licensing of IPR resulting from federally funded research and development (R&D). Under the section, however, licensees under this provision are required to substantially manufacture the IPR products in the U.S.

41. The application of competition policy in the area of IPR is also an important policy area that has implications for technology transfer. Generally speaking it is widely accepted in developed countries that IPRs do not necessarily confer market power.³⁰ Recent WIPO studies have however demonstrated that there are a number of IPR-related actions or market behavior that are anti-competitive.³¹ These practices by extension can have negative impacts of transfer of technology. Some of the relevant issues include: anti-competitive enforcement of IPRs, such as through sham litigation; IPRs as a barrier to entry; and on the issue of exhaustion of rights. In the area of sham litigation, the WIPO study in this area show that this is indeed a problem but that are approaches in developed countries to address the problem. However, the study also shows that it is a complex area and that it is not easy to use the doctrine of sham litigation. With respect to the issue of IP as a barrier to entry, the WIPO study concluded that there is currently

²⁷ See e.g., Arora in WIPO, 2009; Barton, 2007; Maskus, 2004; and UNIDO, 2006. Also see the literature review in WIPO document CDIP/4/4 REV./STUDY/INF/3, *id.*

²⁸ Arora in WIPO 2009, p. 42.

²⁹ For a discussion on trade secret licensing and the interaction with patents see e.g., Jorda, K.F., "Trade Secrets and Trade Secret Licensing" on the MIHR/PIPRA IP Handbook Best Practices website at <http://www.iphandbook.org/handbook/ch11/p05/>.

³⁰ Correa, 2007, p.ix.

³¹ To access the WIPO studies see the IP and Competition webpage on the WIPO website at <http://www.wipo.int/ip-competition/en/>.

limited empirical research with respect to this issue. Finally, on exhaustion the WIPO study finds that though there remains debate on the scope and appropriate application of exhaustion at the international level, the exhaustion principle has been used in developed country jurisdictions such as the US and the EC to address anti-competitive behavior related to IPRs.

Table 3			
Policies/Laws on Licensing and Competition			
	Developed Country	Policy/Law on Voluntary Licensing	Policy/Law on Application of Competition Laws to IPR
1.	Australia	Schedule 1 to the Patent Act 1990 recognises and defines a licence as a licence to exploit, or to authorise the exploitation of, a patented invention. It also defines an exclusive licensee as a licensee under a licence granted by the patentee and conferring on the licensee, or on the licensee and persons authorised by the licensee, the right to exploit the patented invention throughout the patent area to the exclusion of the patentee and all other persons.	Competition and Consumer Act 2010
2.	Austria	Section 35 of the Patents Law 1970 (BGBl. No. 259/1970), as last amended by Act No. 143/2001 provides that the patentee may permit third parties to work the invention, in all the territory covered by the patent or part thereof. The right may or may not be exclusive.	Federal Law against Cartels and other Restraints of Competition (Cartel Act 2005)
3.	Belgium	Art. 45. of the Patent Law of 28/03/1984 states that A patent application or patent may be in whole or in part, subject to contractual licenses for all or part of the kingdom and may be exclusive or non-exclusive.	Law of July 14, 1991 on Trade Practices and Consumer Information and Protection
4.	Canada	Patent Act (R.S., 1985, c. P-4, Act current to 21/01/2010) does not have a specific provision.	Competition Act (R.S.C., 1985, c. C-34) (2010)
5.	Czech Republic	Section 14 of the Law on Inventions, Industrial Designs and Rationalization Proposals No. 527 of 27/11/1990 as last amended by Act No. 207/2000 Coll. and Act No. 378/2007 provides that a Patent holder may give consent (license) to use a patented invention and must provide the written agreement (the " License Agreement "). The license agreement becomes effective against third parties by registration in the Patent Register	Act No. 143/2001 of April 4, 2001 on the Protection of Economic Competition and on Amendments to Certain Acts
6.	Denmark	Part 6, section 43 and 44 of The Consolidate Patent Act No. 91 of 28/01/2009 provides for the procedure to be followed where the proprietor of the patent has granted a license. Such license must be entered in the register.	The Competition Act

Table 3			
Policies/Laws on Licensing and Competition			
	Developed Country	Policy/Law on Voluntary Licensing	Policy/Law on Application of Competition Laws to IPR
7.	Estonia	Section 46 of the Patent Act of 16/03/1994 provides that the proprietor of a patent (licensor) may, pursuant to a written licence agreement (hereinafter by way of a licence), grant the use of the rights of the proprietor of the patent listed in subsection 15 (1) of this Act to another person or persons (licensee) in part or in full provided that the term of the license does not exceed the term of the Patent and such agreement may be registered and transferred.	The Competition Act, 2001
8.	Finland	Section 43-44 of the Patents Act No. 550 of 15/12/1967 provides that a patentee may by Agreement in the form of a license transfer his rights to another party.	Act on Restrictions on Competition, issued on 27 May 1992/480
9.	France	No specific provision available	Law No. 2003-7 of January 3,2003 amending the Book VIII of the Commerce Code
10.	Germany	Sections 15(2) of the Patent Law of 16/12/1980, states that may be licensed in whole or in part, exclusively or non-exclusively, for the whole or part of the territory to which this Act applies.	Act Against Unfair Competition
11.	Greece	Chapter 4 of the Law 1733 of 1987 "Technology transfer, inventions and technological innovation" states that the right to a patent and the patent can be transferred by a written agreement and that the patentee may grant trough a written agreement, license the patent to others.	Law 146/1914 on Unfair Competition
12.	Hungary	Chapter III Article 27-30 of the Law on the Protection of Inventions by Patents No. XXXIII of 1995 provides for exploitation contracts under which the patentee licenses the right to exploit an invention and the person exploiting the invention (licensee) is required to pay royalties	Law No. LVII of 1996 on the Prohibition of Unfair Market Practices and Restriction of Competition
13.	Iceland	Article 43 of the Patents Act No. 17of 1991 as last amended by Act No.167/2007 provides that If the proprietor of the patent has granted another person a right to exploit the invention	Competition Law No. 44/2005

Table 3			
Policies/Laws on Licensing and Competition			
	Developed Country	Policy/Law on Voluntary Licensing	Policy/Law on Application of Competition Laws to IPR
		commercially (license), the licensee may not transfer that right to others in the absence of an agreement to the contrary.	
14.	Ireland	Section 68 of the Patents Act No. 1 of 27/02/1992 states that At any time after the grant of a patent the proprietor of the patent may apply to the Controller for an entry to be made in the register to the effect that licences under the patent are to be available as of right If the Controller is satisfied that the proprietor of the patent is not precluded by contract from granting licenses under the patent he shall make such entry.	Competition Act 2002.
15.	Israel	Section 84 of the Patents Law 5727-1967 states that a patent holder may give an exclusive or nonexclusive written license to exploit the invention for which the patent was granted, and so may the owner of an invention for which a patent application was made.	Consumer Protection Law, 5741-1981
16.	Italy	Article 67 d the Industrial Property Code, Legislative Decree No. 30 of 10/02/2005 recognises that the rights of a patent holder to include the right to transfer or transmit patent rights in a process patent to a third party.	Law No. 287 of October 10, 1990 containing Rules on Protection of Competition and Decree-Law No. 1 of January 24, 2012, containing Urgent Provisions for Competition, Infrastructure Development and Competitiveness, converted into law with changes by Law No. 27 of March 24, 2012 (as amended up to Decree-Law No. 69 of June 21, 2013)
17.	Japan	Article 34-2 of the Patent Act, Act No. 121 of 1959 states that person who has the right to obtain a patent may grant a provisional exclusive license with regard to the patent right. The article further states that A provisional exclusive licensee may grant a provisional non-exclusive license on his exclusive license. Also Article 34-3 states that A person who has the right to obtain a patent may grant a provisional non-exclusive license on the patent right.	Unfair Competition Prevention Act (Act No. 47 of 1993, as amended up to Act No. 62 of 2011)
18.	Korea	Article 100 -102 of the Patent Act No. 950 of 1959 provides for the provision of exclusive and non-exclusive licenses by the patent holder.	Unfair Competition Prevention and Trade Secret Protection Act (Act No. 911 of December 30, 1961)

Table 3			
Policies/Laws on Licensing and Competition			
	Developed Country	Policy/Law on Voluntary Licensing	Policy/Law on Application of Competition Laws to IPR
19.	Luxembourg	Article 45 and 46 of the Patent Act of 20/07/1992 provides that A patent shall confer the right to prohibit any third party, save consent by the owner of the patent, from supplying or offering to supply, on Luxembourg territory, a person other than a person entitled to exploit the patented invention, the means of implementing, the invention with respect to an essential element thereof.	Law of 27 November 1986 regulating certain trade practices and penalizing unfair competition
20.	Mexico	Article 62. of the Industrial Property Law of 25/06/1991, the rights conferred by a patent or registration , or those arising from a pending application may be encumbered and transferred wholly or partly in the terms and with the formalities established common law . For the transfer of rights or lien to be binding on third parties	Federal Law on Consumer Protection and the Commercial Code
21.	Netherlands	Article 56 of the Patent Act of 15/12/1994 recognizes licenses created by an agreement between the holder of a patent and a third party.	Law of May 22, 1997 Establishing New Rules on Economic Competition.
22.	New Zealand	Section 44 and 45 of the Patents Act No. 64 of 1953 provides for the Voluntary endorsement of patent. And where the patent is thus endorsed any person shall, at any time thereafter, be entitled as of right to a licence under the patent upon such terms as may, in default of agreement, be settled by the Commissioner on the application of the patentee or the person requiring the licence	Fair Trading Act 1986
23.	Norway	Section 43 of the Patent Act No. 9 of 15/12/1967 provides that where the patent holder has granted someone else the right to exploit the invention commercially (licence), the licensee may not transfer his right to others, unless an agreement to the contrary has been made	Act No. 47 of June 16, 1972 relating to Control of Marketing and Contract Terms and Conditions (the Marketing Control Act, as amended by Act No. 90 of December 18, 1981)
24.	Poland	Article 66 of the Industrial Property Law of 30/06/2000 the patent holder shall have the right to authorise (license) another party to exploit his invention (license agreement).	Law of April 16, 1993 on Combating Unfair Competition

Table 3			
Policies/Laws on Licensing and Competition			
	Developed Country	Policy/Law on Voluntary Licensing	Policy/Law on Application of Competition Laws to IPR
25.	Portugal	Article 32 of the Industrial Property Code (consolidated as of 2008) provides for the grant of Contractual Licences.	Law No. 39/2006 of 25 August (Infringement of National Competition Rules) and Law No. 18/2003 of 11 June (Legal Framework for Competition)
26.	Russian Federation	Article 13 of the Patent Act (Chapter 72) deals with the grant of the Right to Use the Invention, Utility Model or Industrial Design and states that any natural person or legal entity, which is not a patent owner, shall have a right to use a patented invention, utility model or industrial design upon authorization from the patent owner (on the basis of a license contract)	Federal Law No. 135-FZ of July 26, 2006 on the Protection of Competition (as last amended on December 6, 2011)
27.	Slovak Republic	Article 25 and 26 of Act No. 435/2001 Coll. on Patents, Supplementary Protection Certificates and on Amendment of Some Acts as Amended provides that If a patent applicant or a patent owner (hereinafter referred to as "licensor") shall file a written statement with the Office that he shall grant right to utilise an invention to any person subject to appropriate compensation (hereinafter referred to as "licence offer"), the Office shall enter a licence offer into the Register.	No legislation available
28.	Slovenia	No specific provision available but Article 120a which provides the Capacity to enforce rights provides that the rights of a patent holder extend to owners of exclusive licence to the extent to which the owner's rights are assigned to them by law or through a legal transaction	No legislation available
29.	Spain	Section 74 of the Law about Patents of Invention and Utility Models No.11/1986 of 20/03/1986 Both patent applications and patents shall be transferable and may be the subject of licenses and use.	Law No. 15/2007 of July 3, 2007 on the Protection of Competition (as last amended by Law No. 2/2011 of March 4, 2011)
30.	Switzerland	Article 33 of Patent Law of 25 June 1954 recognizes that the right to the grant of the patent and the right to the patent may be assigned to third parties either wholly or in part. Art. 34 states that the patent applicant or the proprietor of the patent may grant third parties the right to use the invention (grant of licences).	Federal Law of December 19, 1986 on Unfair Competition (status as of July 1, 2012)

Table 3			
Policies/Laws on Licensing and Competition			
	Developed Country	Policy/Law on Voluntary Licensing	Policy/Law on Application of Competition Laws to IPR
31.	Turkey	Contractual License Article 88 of the Decree-Law on the Protection of Patent Rights No. 551 of 27/06/1995 recognises the right to a patent application or patent, in whole or part of the national borders, as applicable, may be subject to the license agreement. License, exclusive or non-exclusive licenses granted in the form of license	Law No. 4054 of December 12, 1994 on the Protection of Competition
32.	UK	Section 46 of the Patent Act 1977 states that at any time after the grant of a patent a proprietor may apply to the comptroller for an entry to be made in the register to the effect that licences under the patent are to be available as of right and Where such an application is made, the comptroller shall give notice of the application to any person registered as having a right in or under the patent and, if satisfied that the proprietor of the patent is not precluded by contract from granting licences under the patent, shall make that entry.	The Enterprise Act 2002
33.	U.S.A	No specific provision available	Biologics Price Competition and Innovation Act of 2009 (Public Law 111–148, 124 Stat. 119)

(B) SECTOR-SPECIFIC INITIATIVES

42. There are many thousands of initiatives and projects on technology transfer both in the public and private sectors of developed countries and among international organizations. These initiatives and projects are too numerous and too varied to be the focus of one study. What is possible and probably more interesting is to examine a cross-section of international initiatives in key development sectors and ask the following question: *how do developed country IPR policies impact, if at all, on these international technology transfer initiatives?*

43. For illustrative purposes, this study reviews technology transfer initiatives within the UN family aimed at addressing some of today's key development challenges, including health, food security and climate change.

B.1 Transfer of Technology Initiatives in the Health Sector

44. The World Health Organization (WHO) has a dedicated technology transfer initiative for health-related products.³² Overall, the initiative is aimed at identifying where the transfer of health-related technologies in developing countries will improve access to relevant health products and lead to improvements in health and to promote and facilitate technology transfer. Among the achievements of this initiative (as reported on the website) is the:

- Establishment of local production of pandemic influenza vaccines in 14 developing countries and two (2) technology transfer hubs to provide critical know-how on pandemic influenza manufacturing and adjuvant production technologies;
- Successful negotiations for royalty-free licenses to live attenuated influenza vaccine technology on behalf of developing country manufacturers;
- Creation of centers of excellence and negotiation of royalty-free licenses for public sector sales in developing countries for other medical products.
- Project on improving access to medicines in developing countries through local production and related transfer of technology.

45. There are clearly IPR-related issues that come into play for this initiative, including in the context of local production and in the negotiations for royalty-free licenses. In the series of case studies produced under the Project on improving access to medicines in developing countries through local production and related transfer of technology one key finding was that access to technology played a critical role in local production and that technology transfer continues to support firms expand into new product categories both for local consumption and exports.³³ While there is discussion of IPR issues, including licensing by R&D companies in developed countries for local production in developing countries, these studies and the broader WHO initiative does not directly address the contribution, if any, of the IPR policies in the relevant developed countries.

46. In the private sector, the International Federation of Pharmaceutical Manufacturers and Associations (IFPMA) reports that the R&D industry has supported many technology transfer initiatives in developing countries in both middle-income and low-income countries.³⁴ While the R&D industry cites government policy, including on IPRs, as key to technology transfer, the

³² The initiative is described on the WHO website. The description is accessible at http://www.who.int/phi/programme_technology_transfer/en/index.html.

³³ See e.g., UN, 2011, p. 12.

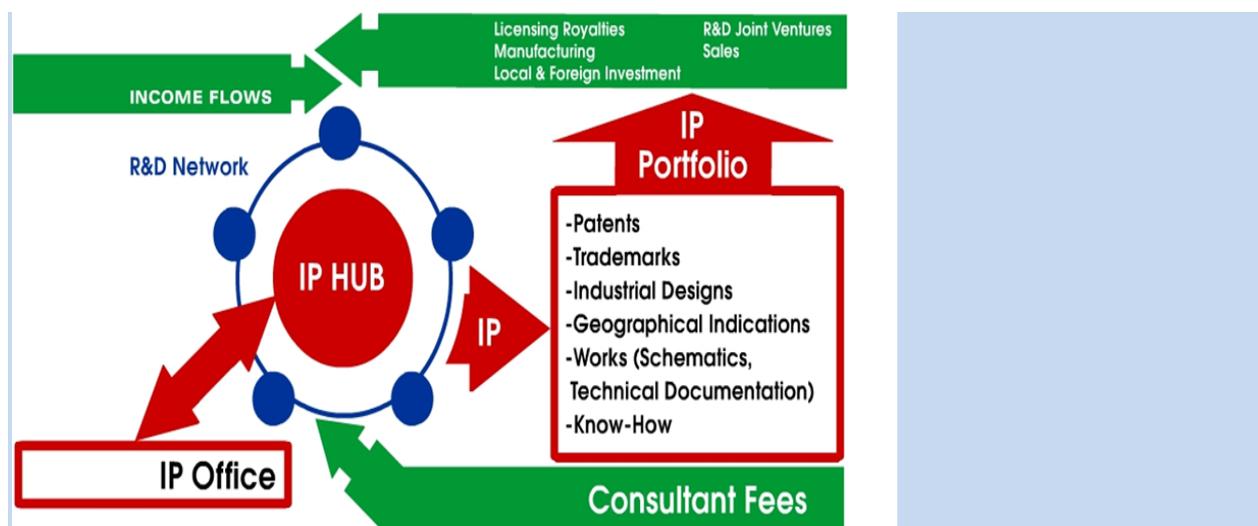
³⁴ See IFPMA, 2011.

focus, as with many other technology transfer discussion, is on the government policy of developing countries. Essentially, nothing is said about how IPRs policies of developed countries where these companies originate impact their technology transfer initiatives.

47. WIPO's R&D Network and IP Hubs is another interesting initiative in the health sector.³⁵ The initiative involves collaboration between WIPO and ten (10) partner institutions. It fosters scientific collaboration, improves results, optimizes resource allocation by using economies of scale and reduces the costs of research and IP protection, management and commercialization for the network members. Research networks are collaborations between research institutions with common policies and services. Many people in developing countries suffer from malaria, tuberculosis, sleeping sickness, sickle cell anemia, Ebola and other diseases. Yet therapies are often too expensive for poor people and difficult to distribute. Scientists in developing countries strive to use conventional approaches and traditional medicine as cost-effective solutions. With the R&D and IP Hub model, a researcher who discovers a homegrown treatment for a tropical disease has better opportunities for commercialization or use in their community. The researcher goes to the IP hub to have a patent application drafted and also for advice on contracts. The researcher will also get help with the commercial exploitation of the IP.

48. The R&D Network and IP Hub model was implemented in the health R&D sector of 6 West African countries (Cameroon, Central African Republic, Chad, Equatorial Guinea, Gabon and Republic of Congo) as well as Colombia. In Colombia, the project resulted in 18 patent applications filed since the start of the program in September 2004 and was so successful that it was expanded to three other sectors of the economy, namely the agro-business, energy and defense sectors. Figure 1 below illustrates how the system works.

Figure 1: WIPO R&D Network and IP Hub



Similar to the WHO initiative, however, not much consideration has been given to how the IPR policies of developed countries might impact the working of the R&D Network and IP Hub model, whether positively or negatively.

³⁵ For details about the initiative see the document at http://www.wipo.int/freepublications/en/intproperty/921/wipo_pub_921.pdf.

B.2 Transfer of Technology Initiatives to Address Food Security

49. The international efforts in relation to addressing the challenges of food security are centered around the work of the UN Food and Agriculture Organization (FAO), including the work in the context of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), and the work of the Consultative Group on International Agriculture Research (CGIAR).

50. At the FAO its work on technology transfer is most pronounced with respect to its Technologies and Practices for Small Agriculture Producers (TECA) platform.³⁶ More recently the work in the area of technology transfer at the organization has focused on climate change related risks to food security. In its work on technology transfer the FAO has focused on what it refers to as south-south and triangular cooperation.³⁷ In this context there is limited discussion on IPRs and even much less, if at all, on IPR policies of developed countries.

51. The Central Advisory Service on Intellectual Property (CAS-IP) undertakes the IPR and technology transfer work in the CGIAR system.³⁸ CAS-IP work is aimed at providing services regarding the transfer and use of the products developed by the CGIAR centers. In this regard, one of the areas of focus is developing IP and technology transfer management tools and legal instruments for effective, efficient and equitable transactions. While the discussion in the CGIAR on technology transfer clearly touches on IPR, similar to WHO, WIPO and FAO, there is little consideration on how the IPR policies of developed countries affect technology transfer in the area of food and agriculture.

B.2.3 Transfer of Technology Initiatives on Climate Change

52. Technology transfer in relation to climate change has been a hot button issue in recent years particularly in the context of the UNFCCC processes. This topic has also been important at the United Nations Environment Programme (UNEP).

53. Under Article 4.5 of the UNFCCC, developed countries have committed to take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and knowhow, particularly to developing country. In this regard, developed countries are expected to support the development and enhancement of endogenous capacities and technologies of developing countries. In the context of the implementation of Article 4.5, a technology transfer framework has been established under the UNFCCC.³⁹

54. The framework has four components namely; technology needs assessment, technology information, enabling environments and capacity building. In terms of specific technology transfer mechanisms the framework envisaged actions in the areas of:

- Innovative financing;
- International cooperation;
- Endogenous development of technologies; and
- Collaborative R&D.

³⁶ The platform is accessible at <http://teca.fao.org>.

³⁷ See e.g., the Report of the FAO to the UN Secretary General on environmental technologies at <http://sustainabledevelopment.un.org/content/documents/1955FAO.pdf>.

³⁸ Fuller information about CAS-IP and its activities can be found at http://www.cgiar.org/web-archives/www-cgiar-org-soar-2006-2006_cas-html/.

³⁹ The framework and other information is provided on the UNFCCC website at http://unfccc.int/ttclear/templates/render cms_page?TTF_home.

55. Specific actions have been adopted for the implementation of each of these four components. In addition to these policy areas, UNFCCC has also established a technology portal to permit searches of climate change related technologies in different sector.⁴⁰

56. The subject of IPRs and technology transfer has been a prominent issue in the implementation of Article 4.5 of the UNFCCC and particularly in recent meetings of the UNFCCC Conference of Parties (COP), including the COPs in Durban, Bali, Cancun and Doha. While there has been no consensus reached on how to address IPR in the context of climate-related technologies the discussions in the UNFCCC processes have not been much different from those previously witnessed in UNCTAD, WTO and WHO. The primary focus has been the role of IPRs in technology recipient countries. The main difference with the earlier technology transfer discussion is the considerable attention given to financing and licensing options, including the costs of licensing. It follows therefore that there has been virtually no discussion focused on what developed countries should be doing with specific IPR policies within the developed countries themselves.

IV. REVIEWING THE PERFORMANCE OF DEVELOPED COUNTRY IPR POLICIES AND INITIATIVES PROMOTING TECHNOLOGY TRANSFER

57. The terms of reference (TORs) for the preparation of this study envisaged an analysis to review the performance of the identified IPR-related policies and initiatives of developed countries to promote transfer of technology. It was anticipated that such analysis would gauge the success or failure of such policies or initiatives so as to determine those policies or initiatives that are favorable for the promotion of technology. Finally, the TORs also expected a discussion of how the relevant IPR policies and initiatives could be beneficial to developing countries.

58. As the overview in section III above shows, however, there is very limited research or literature focusing on IPR-related policies of developed countries. In terms of initiatives, while there are thousands of initiatives on technology transfer in both the public and private sectors in developed countries; it is difficult to discern any clear approaches with regard to how IPR policies in developed country are tailored for technology transfer. Taking in account the available information and literature as well as empirical data, it would, in the authors view, be premature to seek to gauge the success or failure of IPR policies or initiatives in developed countries with respect to technology transfer.

59. Further, in light of the limited, if not negligible, attention that has been given to the relationship between IPRs policies in developed countries and technology transfer, this study could not go much further than starting an exploratory journey to identify what could be the key IPR-related policies in developed countries that affect technology transfer in different sectors. In terms of analysis therefore, the study could only focus on a theoretical discussion of how the IPR policies of developed countries in certain specific areas of IPRs could be beneficial or not to developing countries. What follows is therefore a brief discussion of how the IPR policies of developed countries in the four areas identified in section III.A above could be structured to support technology transfer to developing countries.

(A) DISCLOSURE STANDARDS

60. Disclosure of inventions, as already noted, is a key part of the patent system and a significant number of developing countries have clear disclosure policies, which seek to ensure the full disclosure of inventions. Some of these countries also have best mode or best method requirements. Many developed countries are also making contributions to key international patent databases, such as PATENTSCOPE and INPADOC, in addition to making their own national collections available through searchable online databases. While this study did not undertake an empirical analysis on the actual use of the increased availability of patent data to

⁴⁰ The portal is accessible at http://unfccc.int/tclear/pages/roadmap_search.html.

obtain technology and ideas by entities in developing countries, the policies in relation to disclosure and contribution to international databases are no doubt positive for technology transfer. The easy and widespread availability of the data is an important prerequisite for patent data to play a role in technology transfer.

61. There is, however, more that can be done in developed countries to enhance the disclosure of inventions and the accessibility of patent data in developing countries. First, as this study found (Table 1), there is a significant number of developed countries that do not have clear disclosure standards. In these countries, IPR policy changes towards requiring fuller disclosure, including of best mode or method, can play a role in increasing the available stock of knowledge and ideas embodied in patent applications. Second, Table 1 also shows that there are a few developed countries that do not have online repositories and, most importantly, a significant number of developed countries are yet to make their national collections available in PATENTSCOPE. Actions or policies towards making national collections part of the PATENTSCOPE would be positive in the context of increasing the potential for technology transfer in various fields.

(B) APPLICATION OF BORDER MEASURES TO EXPORTS AND GOODS-IN-TRANSIT

62. Most developed countries do not directly apply IPR-related border measures to exports or to goods-in-transit. This means that their IPR policies in this area favors the free flow of technology goods in international trade and that they allow freedom of transit.

63. As noted in sub-section A.2, however, there are some developed countries that apply border measures to exports and to goods-in-transit. While these countries have other policy objectives that they seek to achieve, it is important to note that such application of IPRs can affect the free flow of technology goods and affect the freedom of transit with the effect that the availability of technology goods in developing countries could be reduced. Such a result could have important consequences for international trade and FDI as channels of technology transfer. Consequently, there may be a case for these developed countries to reconsider or recalibrate their policies in this area taking into account the technology transfer implications. In particular, where there is no risk of leakage to local markets in the export or transit countries and the goods in question are not otherwise regulated by other applicable standards, IPR laws should be crafted or re-crafted in a manner that leaves the determination of infringement matters to the country of import or destination. In considering this issue, thought also needs to be given to the application of IPR rules with respect to export in the context of e-commerce where there might be no physical movement of goods.

(C) EXPORT OF GOODS MADE UNDER COMPULSORY LICENSING

64. The TRIPS Agreement, as already discussed, imposes certain restrictions on the export of goods made under compulsory licenses. There are, however, important exceptions such as in the case of the August 30, 2003 Decision and in the context of anti-competitive practices. Some developed countries have taken advantage of these exceptions and allow compulsory licenses for export or where the predominant part of the production can be exported. Overall, however, the policy in this area in developed countries, save for the August 30, 2003 Decision, is far from clear. Clarification of the policies here could go some way in providing an enabling environment for technology transfer.

65. Consideration could also be given to more pro-active policies with respect to exportation of parts of the productions under compulsory licenses in developed countries especially in key technology sectors, such as clean energy technologies. While the predominant part of the production can still be for the supply of the domestic developed country markets, the remainder of the production could be exported to developing countries to promote technology transfer.

(D) LICENSING AND COMPETITION

66. Voluntary licensing is widely recognized in developed countries and, as noted, the approach in these countries on this issue has enabled the creation of a vibrant international technology market. Some countries, such as the US, also have clear policies regarding licensing of government funded IPR which is an important positive step for technology transfer. The approaches where there is restriction on the manufacturing locations or licensable entities may however negatively impact the technology transfer impact of this approach.

67. The majority of licensing transactions occurs in the market place and involves private entities. In key development sectors, such as food, health and energy, however, there is significant public sector involvement in the development and deployment of technologies in developed countries. In these areas, specific IPR policies in respect of government-supported inventions can offer important opportunities for technology transfer. This would be particularly the case if the IPR policy permits the manufacture of products under these licenses in developing countries or specifically encourage licensing of such technologies to developing country entities. In deserving cases, consideration could also be given to policies encouraging royalty-free licensing.

V. CONCLUSION AND RECOMMENDATIONS

68. The relationship between IPRs and technology transfer is a topic that has animated international development, trade, environment and investment discussions for a long time. As a result, there is a large body of literature on the subject, including sector-specific and even firm level analysis. Notwithstanding this large body of literature and the analysis and research that has gone into studying IPRs and technology transfer, the subject remains a difficult, and sometimes, controversial one. While many efforts at addressing the issue have failed before, the exploratory and step-by-step approach adopted in the WIPO DA Technology Transfer Project has some promise. Once the phase project is concluded, further efforts taking into account the lessons-learned in this first phase, including more empirical work could be undertaken. In this regard, this Project offers an opportunity to rethink and test assumptions and consider new areas that have received little attention in earlier works. This study is one such attempt.

69. Overall, despite the long running discussion on IPR and technology transfer, it can be concluded that very little attention has been given to how the IPR environments and policies in developed countries affect or impact on technology transfer. The findings in this study, however, show that there are a number of potentially important policy areas in developed countries that can be addressed in the efforts to promote technology transfer. The analysis in section IV has pointed to areas of potential improvement, which are summarized below as recommendations 1 to 4. In addition to these specific recommendations regarding the IPR policies of developed countries there is also one other obvious recommendation that can be made with respect to WIPO's work in this area. This is recommendation 5.

70. These recommendations are made tentatively taking into account the fact that focused studies on IPR policies in developed countries to foster technology transfer to developing countries are few and far between. Consequently, the implementation and/or consideration of the specific recommendations may require further analysis and discussions, including empirical work in the areas mentioned in the above paragraphs and other related areas.

RECOMMENDATIONS

Recommendation 1: IPR policies/laws with respect to disclosure in developed countries

71. There is more that can be done in developed countries to enhance the disclosure of inventions and the accessibility of patent data to developing countries. First, IPR policy changes towards requiring fuller disclosure, including of best mode or method, should be undertaken in those developed countries that currently do not have such provisions. Second, the few developed countries which do not have online repositories should take measures to make their patent data available online as a contribution to technology transfer and those that are yet to make their national collections available to PATENTSCOPE should do so.

Recommendation 2: IPR policies/laws with respect to goods for export and goods-in-transit

72. The developed countries that apply patent rights to goods destined for export and/or goods-in-transit should reconsider their policy/legal approach in the context of technology transfer needs in developing countries. While their policy may have legitimate justifications or objectives, such other policy objectives should be weighed against the impact on technology transfer. Where the application of patents rights to these categories of goods is considered absolutely necessary, the application of the law should be guided by technology transfer considerations, including inclusion of exceptions to the rule to address technology transfer imperatives.

Recommendation 3: IPR policies/laws with respect to export of goods produced under compulsory licenses

73. Clarification of the policies and a more pro-active approach with respect to export of goods produced under compulsory licenses should be considered by developed countries to enhance technology transfer. Specific provisions, such as those enacted by some developed countries with respect to health, could be considered with respect to other technology areas, including in the area of food or climate technologies.

Recommendation 4: IPR policies/laws with respect to licensing and competition

74. In key development sectors where there is significant public sector involvement in the development and deployment of technologies in developed countries, specific IPR policies in respect of government-supported inventions are called for. Developed countries should consider following and enhancing the approach of the US with respect to government funded IPR. In this regard, in addition to adopting approaches similar to the US, these countries should permit the manufacture of products under these licenses in developing countries or specifically encourage licensing of such technologies to developing country entities, particularly small and medium-sized enterprises (SMEs). In deserving cases, consideration could also be given to policies encouraging royalty-free licensing.

Recommendation 5: Future work

75. Overall, this study has shown that there is real potential for looking at the issue of IPR and technology transfer through a different lens than what has been the general approach in the majority of literature on IPR and technology transfer. This means that this study can only be seen as a starting point. Consequently, it is recommended that in the context of the current project on technology transfer and beyond further work, including empirical work, should be undertaken under the auspices of WIPO to enhance the understanding of how IPR policies of developed countries affect technology transfer and whether IPR related changes in these countries could enhance the transfer of technology to developing countries. In addition to the policy areas covered in this study, future work could also consider the impact of policies or laws with respect to issues such as trade secrets and the effect on transfer of know-how. In this area,

there is also significant data on OECD countries' approaches in terms of policy, practices and laws but work will need to be done on implications for transfer of technology and know-hoe to developing countries.⁴¹

⁴¹ For a recent review of OECD approaches and literature see Schultz and Lippoldt, 2014.

SELECTED BIBLIOGRAPHY

Barton, J., “New Trends in Technology Transfer – Implications for National and International Policy”, *Issue Paper No. 18*, ICTSD, Geneva: 2007

Correa, C., “Intellectual Property and Competition Law – Exploring Some Issues of Relevance to Developing Countries”, *Issue Paper No. 21*, ICTSD, Geneva: 2007

Hassan, E., Yaqub, O., and S. Diepeveen, *Intellectual Property and Developing Countries – A Review of Literature*, Rand Corporation, Santa Monica: 2010

IFPMA, *Technology Transfer: A Collaborative Approach to Improve Global Health – The Research-Based Pharmaceutical Industry Experience*, IFPMA, Geneva: 2011

Kumar, S., “Freedom of Transit and Trade in Generic Pharmaceuticals: An Analysis of EU Border Enforcement Law and Implications for the International Intellectual Property Law Regime”, *European Intellectual Property Review*

Maskus, K., “Encouraging International Technology Transfer” *Issue Paper No. 7*, ICTSD, Geneva: 2004

Maskus, K., and K. Saggi “Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options”, World Bank Policy Research Working Paper 3332, June 2004

Moon, S., “Meaningful Technology Transfer to the LDCs: A Proposal for a Monitoring mechanisms for TRIPS Article 66.2”, *Policy Brief No. 9*, ICTSD, Geneva: 2011

Park, W., Krylova, P., Reynolds, L., and O. Barder, *Europe Beyond Aid: Evaluating Europe’s Contribution to the Transfer of Technology and Knowledge to Developing Nations*, Center for Global Development, Washington, D.C. and London, U.K.: 2014

Schultz, M., and L. Douglas “Approaches to Protection of Undisclosed Information (Trade Secrets): Background Paper,” *OECD Trade Policy Papers No. 162*, OECD Publishing, Paris: 2014

Seuba, X., “Border Measures Concerning Goods Allegedly Infringing Intellectual Property Rights: The Seizures of Generic Medicines in Transit”, ICTSD, Geneva: 2009

UN, *Local Production of Pharmaceuticals and Related Technology Transfer in Developing Countries – A Series of Case Studies by the UNCTAD Secretariat*, UN, New York: 2011

UNIDO, *The Role of Intellectual Property Rights in Technology Transfer and Economic Growth: Theory and Evidence*, UNIDO. Vienna: 2006

WIPO, *The Economics of Intellectual Property – Suggestions for Further Research in Developing Countries and Countries with Economies in Transition*, WIPO, Geneva: 2009

[Annex II follows]

REVIEW OF STUDY (B): SISULE MUSUNGU, “INTELLECTUAL PROPERTY-RELATED POLICIES AND INITIATIVES IN DEVELOPED COUNTRIES TO PROMOTE TECHNOLOGY TRANSFER”

REVIEWER: PROF. WALTER PARK, AMERICAN UNIVERSITY, WASHINGTON, DC, USA

Dr. Musungu provides a refreshing look at the relationship between technology transfer and IPR from the perspective of *developed countries*. Thus far, in policy discussions and academic research, the focus has been on the kinds of policies and initiatives that developing economies could undertake to attract technologies from abroad. This shift in perspective is useful and worth advocating. Independently, the Center for Global Development (CGD), through its Commitment to Development Index (since 2003), has been keeping track of policies in the developed world that affect conditions, including technological development, in the developing world. Recently, I co-authored a discussion paper with a team from CGD on how the IPR and R&D policies of the developed world can facilitate or impede the diffusion of technologies from the North to the South.⁴² Thus, our paper complements Dr. Musungu’s contributions here and both studies should emphasize that the promotion of international technology transfer is a joint responsibility of developed and developing economies.

Dr. Musungu draws attention to the following key areas that involve the IPR policies of developed countries: increased and improved knowledge disclosure through patents; appropriate IPR policies affecting the exports of goods and goods-in-transit that are destined for developing countries; compulsory licensing for purposes of exporting critical technologies to developing countries; and U.S. (Bayh-Dole) style provisions to encourage the commercialization of publicly funded inventions. While these are not exhaustive avenues by which developed country policies affect technology transfer to developing countries, they comprise leading elements for consideration. Some of these recommendations will require more specific details. For example, the study mentions calibrating (or re-calibrating) border measures to facilitate exports and goods-in-transit. Which measures in particular should be modified (inspection process, customs seizures)? Moreover, how should we treat digital products and internet commerce, where the physical movement of goods is not necessary? Or goods that are licensed versus those that are owned (where the first sale doctrine applies)? How should we treat goods-in-transit that may not comply with local or regional regulations?

As an added benefit, the study provides a wealth of information about the state of policies in the key areas mentioned above (for example, patent disclosure, exporting of compulsory licensed goods, voluntary licensing). Dr. Musungu provides detailed country-by-country tables on these policies, which should help better guide policy deliberations. The study mentions how important the transfer of ‘know-how’ is to technology transfer and that the transfer of patented technology only is likely to be of limited benefit. In this connection, trade secrecy laws are important. Do they help facilitate the transfers of know-how or are trade secrecy provisions in technology transfer agreements restrictive? A recent OECD study also provides detailed country-by-country policy stances on trade secrecy which should complement this study.⁴³

This study concludes with some recommendations for further work, particularly empirical. There is definitely a need to “rethink and test assumptions” as well as to generate better ways to conduct policy evaluation and derive criteria for measuring policy success.

[End of Annex II and of document]

⁴² See Walter Park, Petra Krylova, Liza Reynolds, and Owen Barder (2014), *Europe Beyond Aid: Evaluating Europe’s Contribution to the Transfer of Technology and Knowledge to Developing Nations*, Center for Global Development, Washington, D.C. and London, U.K.

⁴³ Mark Schultz and Douglas Lippoldt (2014), “Approaches to Protection of Undisclosed Information (Trade Secrets): Background Paper,” *OECD Trade Policy Papers* No. 162, OECD Publishing.