

I. BACKGROUND OF THE PROJECT

1. The present Concept Paper analyzes the source of the challenge for international technology transfer, summarizes the main achievements for the Project on Intellectual Property and Technology Transfer: "Common Challenges – Building Solutions" (Recs. 19, 25, 26 & 28)¹ approved by the Committee on Development and Intellectual Property (CDIP) at its sixth session, held in November 2010 (the "Project"), and proposes to build solutions together to respond to the common challenges faced globally, based on fair and equitable international technology transfer.
2. In addition, the Concept Paper is meant to provide the basis for discussion at the High Level International Expert Forum, tentatively scheduled to take place in Geneva, at the end of the project, in January 2015.

DEFINITION OF "TECHNOLOGY TRANSFER"

3. One of the first achievements of this Project was to ~~define~~succeed in reaching consensus among all WIPO Member States on a common definition, for the purposes of the Project, of the term "transfer of technology". The agreed wording of the ~~common~~ definition was finalized during CDIP/96 as follows:²

(a) "For the purposes of this paper, ~~T~~ransfer of technology refers broadly to a series of processes enabling and facilitating flows of skills, knowledge, ideas, know-how and technology among different stakeholders such as university and research institutions, international organizations, IGOs, NGOs, private sector entities and individuals, as well as international technology transfer among countries."

(b) "Transfer of technology, which is often considered to include the absorption of new technologies, is sometimes also considered to involve the transfer of *concrete knowledge* for the manufacture of products, the application of a process or for the rendering of a service granting the improvement of domestic as well as the international competitiveness in the economic market."

4. ~~Reaching a common understanding on what is meant by "transfer of technology" can be regarded as a great achievement for this WIPO Development Agenda Project, in particular in view of the different existing approaches to technology transfer by different entities, and taking into account the fact that, in the context of the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), adopted in 1995, it had not been possible to reach consensus on a common definition of "technology transfer".~~

¹ Recommendation No. 19 (Cluster B): "To initiate discussions on how, within WIPO's mandate, to further facilitate access to knowledge and technology for developing countries and LDCs to foster creativity and innovation and to strengthen such existing activities within WIPO."

Recommendation No. 25 (Cluster C): "To explore IP 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."

Recommendation No. 26 (Cluster C): "To encourage Member States, especially developed countries, to urge their research and scientific institutions to enhance cooperation and exchange with research and development (R&D) institutions in developing countries, especially LDCs."

Recommendation No. 28 (Cluster C): "To explore supportive IP related policies and measures Member States, especially developed countries, could adopt for promoting transfer and dissemination of technology to developing countries."

² See CDIP/9/INF/4, paragraphs 9 and 10 CDIP/6/4 Rev.; http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=159265

- 5.4. Under the agreed ~~common~~ definition of “transfer of technology” set out above, finding solutions to the challenges for international technology transfer is inherently linked with enabling the right dynamics for knowledge flow³, incorporating the important concept of “concrete knowledge”.
- 6.5. Much research has been done to analyze the challenges to innovation and the dissemination of technology, particularly in the area of environmental innovation. According to that research, transactions in technology are characterized by three principal problems:
a) asymmetric information: the difficulty for *ex-ante* buyers in assessing the value of information;
b) market power: time to market, awareness of IPRs, access to capital; and c) externalities: uncompensated spillovers and lack of institutional framework.
- 7.6. Keith Maskus, University of Colorado, provides three options that can be pursued to promote international technology transfer: a) safeguarding national “policy space” to address market failures; b) identifying actions by source countries to encourage international technology transfer; and c) multilateral initiatives to address externalities associated with technology markets and/or national policies.⁴
- 8.7. To address the challenges mentioned above, one should start by identifying the formal channels for international technology transfer. There are three main channels: a) trade in goods and services; b) foreign direct investment; and c) intellectual property licensing, including the licensing of trade secrets⁵.
- 9.8. Intellectual Property (IP) captures the economic value of development and facilitates the reduction of the knowledge gap.
- 10.9. In the corporate world, as enterprises increasingly rely on intangible or knowledge-based assets rather than tangible or physical ones for creating and maintaining their competitiveness in the marketplace, their ability to create, deploy and strategically manage such proprietary assets is becoming a crucial factor in business success.

II. PROJECT PAPER APPROVED BY THE CDIP

- 11.10. The Project Paper for this Project (document CDIP/9/INF/4) was approved by the CDIP at its ninth session, held in May 2012. The Project Paper provides the vision, strategy and ultimate objectives for the Project, and a holistic and comprehensive picture of the Project.⁶
- 12.11. In addition, the Project Paper contains information and a detailed description of the stages as well as all activities proposed for the Project. It also provides an overview of the different existing approaches to technology transfer by different entities.

III. SUMMARY OF PROJECT DELIVERABLES

- 13.12. According to the Project Paper as approved by the CDIP, the project deliverables for this Project are the following:
- (a) the organization of five regional technology transfer consultation meetings (see paragraphs 13 to 17, below);
 - (b) the elaboration of six peer-reviewed analytic studies (see paragraphs 18 and 19, below);

³ Under recommendation 36, an “Atlas of Global Knowledge Flows” was developed by Community Systems Foundation (CSF), New York, and delivered in its final form on July 22, 2014.

⁴ Kamal Saggi, Keith E. Maskus and Bernard Hoekman, “Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options”, World Bank Policy Research Working Paper 3332, June 2004.

⁵ Literature suggests a number of informal channels such as access to patent information and international fairs.

⁶ See CDIP/9/INF/4, http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=202624

- (c) the drafting of a concept paper (the present document) on building solutions as the basis for discussion at the High Level International Expert Forum, submitted to the CDIP for approval (see paragraphs 30 to 32, below);
- (d) the organization of a High-Level International Expert Forum in the form of an international conference (see paragraphs 20 to 27, below);
- (e) the preparation and provision of materials, modules, teaching tools and other instruments resulting from recommendations adopted at the High-Level International Expert Forum (see paragraph 27, below);
- (f) the creation of a Web Forum (see paragraph 28, below); and
- (g) the incorporation of any outcome resulting from the above activities into the WIPO programs, after consideration by the CDIP and any possible recommendation by the Committee to the General Assembly (see paragraph 29, below).

IV. REGIONAL CONSULTATION MEETINGS

14.13. Under the Project, a total of five regional consultation meetings on intellectual property and technology transfer were organized, with Member States' prior consultation, who approved, at the eighth session of the CDIP⁷, the terms of reference (TORs) and composition criteria in respect of the regional consultation meetings and the experts tasked to elaborate the various studies.

(A) ORGANIZATION OF FIVE MEETINGS

15.14. The five regional consultation meetings were organized in the following regions:

- (a) Asian Region ("Singapore"): Regional Consultation Meeting on Intellectual Property and Technology Transfer, Singapore, Singapore, July 16-17, 2012,⁸
- (b) African and Arab Regions ("Algiers"): Regional Consultation Meeting on Intellectual Property and Technology Transfer, Algiers, Algeria, January 29-30, 2013,⁹
- (c) Transition Region ("Istanbul"): Regional Consultation Meeting on Intellectual Property and Technology Transfer, Istanbul, Turkey, October 24-25, 2013,¹⁰
- (d) Developed Region ("Geneva"): Regional Consultation Meeting on Intellectual Property and Technology Transfer, Geneva, Switzerland, November 25-26, 2013,¹¹ and
- (e) Latin American and Caribbean Region ("Monterrey"): Regional Consultation Meeting on Intellectual Property and Technology Transfer, Monterrey, Mexico, December 5-6, 2013.¹²

⁷ See CDIP/8/7, http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=188786
⁸ http://www.wipo.int/meetings/en/details.jsp?meeting_id=28643
⁹ http://www.wipo.int/meetings/en/details.jsp?meeting_id=31263
¹⁰ http://www.wipo.int/meetings/en/details.jsp?meeting_id=30703
¹¹ http://www.wipo.int/meetings/en/details.jsp?meeting_id=31242
¹² http://www.wipo.int/meetings/en/details.jsp?meeting_id=31243

(B) ANALYSIS OF THE MEETINGS

16.15. Appendix I provides a series of info-graphics on the total number of participating country representatives (Fig. 1), the total number of participants for each event (Fig. 2), the total number of thoughts formulated at each event (Fig. 3), the number of thoughts in areas such as capacity building (Fig. 4), support in institutional framework (Fig. 5), support in innovation infrastructure (Fig. 6), support in funding mechanisms (Fig. 7), support in evaluation mechanisms (Fig. 8), global collaboration (Fig. 9), the geographical origin of international experts at each event (Figs. 10, 11, 12, 13 and 14), and the affiliation of international experts at each event (Fig. 15).

(C) SUMMARY OF THE MEETING RESULTS

17.16. At the end of each of the regional consultation meetings, open-ended feedback was sought from all the participants from the region in the form of "thoughts" as to how to foster international technology transfer. Appendix II provides lists of those "thoughts" from each of the five regional meetings.

18.17. Table 1, below, provides a summary of those "thoughts" from each of the five regional consultation meetings.

Table 1: Summary of the "thoughts".

Policy Proposal	Singapore	Algiers	Istanbul	Geneva	Monterrey
Provide more IP awareness and capacity building	✓ Provide awareness on economic benefits of IP	✓ Provide tailored workshops, academy trainings, training of trainers and IP curricula	✓ Develop a practical workshop and guide for the licensing of trade secrets	✓ Create a Global Observatory providing technical assistance in technology transfer	✓ Develop a workshop on the licensing of trade secrets and knowhow as well as training of TTO staff
Increase the assistance for the development of institutional framework		✓ Assist universities in elaborating IP policies including a system of recognition	✓ Provide guidelines on data mining and the visualization of statistical IP data and evidence	✓ Evaluate the impact of investment in technology transfer on economic and social development	✓ Promote better use of the PCT system in the Latin American and Caribbean region
Expand the support for the setup of innovation infrastructure	✓ Create collective TTOs with links to the developed world	✓ Promote regional-based networking of TISCs	✓ Develop a platform for enhancing the regional collaboration and the sharing of experiences of TTOs	✓ Build networks of innovation infrastructures enabling twinning of technology transfer agents	✓ Assist in the development of innovation networks
Assist in the development of funding mechanisms	✓ Provide incentive programs to commercialize IP	✓ Create a Global Fund or an Angel Investor Program	✓ Commission a survey of available VCs, angel investors and philanthropists	✓ Expand on EU twinning scheme to between developed and developing countries	✓ Commission a study on the impact of funding mechanisms such as proof-of-concept centers

Policy Proposal	Singapore	Algiers	Istanbul	Geneva	Monterrey
Support in implementing evaluation mechanisms		✓ Provide workshops with best practices for the development of efficient innovation infrastructures		✓ Scope out of what an effective TTO looks like	✓ Develop national score cards with respect to the performance in IP management and technology transfer
Set up platforms for global collaboration	✓ Create regional IP open forums for the exploitation of IP valuation models	✓ Promote regional and South-South cooperation and call for a "United Nations Decade for Innovation and Youth Employment"	✓ Develop a platform for the repatriation of international professionals	✓ Create a program for people exchange to share experience and knowledge for long-term sustainability	✓ Strengthen networks of TISCs at the regional level

V. PEER-REVIEWED ANALYTIC STUDIES

(A) COMMISSIONED ANALYTIC STUDIES

19.18. Under the Project, a total of 6 reviewed analytic studies in different areas work were commissioned, covering the following issues: (i) economic studies on obstacles to international technology transfer; (ii) IPR-related policies in developed countries; (iii) cooperation between R&D institutions; (iv) favorable incentives for business partnership; (v) technology transfer issues from the perspective of developing countries; and (vi) alternatives to R&D efforts to support innovation besides patents.

(B) STUDY EXPERTS, TERMS OF REFERENCE AND STUDY COMPLETION

20.19. Figure 16 in Appendix I provides the geographical origin and affiliation of the experts tasked to develop the studies. A brief overview of the studies is set out in Appendix III. These studies have been peer-reviewed. The final text of the studies as well as the peer-reviews will be made available on the CDIP website.¹³ The titles, authors and completion dates of the studies are as follows:

(a) Study (a): *Economics of IP and International Technology Transfer*, by Prof. A. Damodaran, Bangalore, India (final text, incorporating the comments by the peer-reviewer, Prof. Francesco Lissoni, Bocconi University, Italy, was received on July 30, 2014);

(b) Study (b): *Intellectual Property-Related Policies and Initiatives in Developed Countries to Promote Technology Transfer*, by Mr. Sisule Musungu, Nairobi, Kenya (final text, incorporating the comments by the peer-reviewer, Prof. Walter Park, American University, USA, was received on September 5, 2014);

(c) Study (c): *Case Studies on Cooperation and Exchange between R&D Institutions in Developed and Developing Countries*, by Prof. Bowman Heiden, Gothenburg, Sweden (final text, incorporating the comments by the peer-reviewer, Dr. Nikolaus Thumm, European Commission Joint Research Centre, Spain, was received on September 11, 2014);

¹³ The final versions of the analytic studies will be uploaded on the "Project Status" page of the CDIP (<http://www.wipo.int/ip-development/en/agenda/projects.html>) under the Project on IP and Technology Transfer.

(d) Study (d): *Policies Fostering the Participation of Businesses in Technology Transfer*, by Mr. Philip Mendes, Brisbane, Australia (final text, incorporating the comments by the peer-reviewer, Dr. Nikolaus Thumm, European Commission Joint Research Centre, Spain, was received on September 5, 2014);

(e) Study (e): *International Technology Transfer: An Analysis from the Perspective of Developing Countries*, by Prof. Keith Maskus, Boulder, Colorado, USA, and Prof. Kamal Saggi, Nashville, Tennessee, USA (final text, incorporating the comments by the peer-reviewer, Prof. Walter Park, American University, USA, was received on July 31, 2014); and

(f) Study (f): *Alternatives to the Patent System that are Used to Support R&D Efforts, including both Push and Pull Mechanisms, with a Special Focus on Innovation Inducement Prizes and Open Source Development Models*, by Mr. James Packard Love, Washington, DC, USA (final text, incorporating the comments by the peer-reviewer, Prof. Dominique Foray, EPFL, Switzerland, was received on September 9, 2014).

VI. HIGH-LEVEL INTERNATIONAL EXPERT FORUM

21.20. The High-Level International Expert Forum envisaged to be organized under the Project is tentatively scheduled to take place at the WIPO's headquarters in Geneva in January 2015. As set out in document CDIP/9/INF/4, the High-Level International Expert Forum will take the form of an international conference, aimed at initiating discussions on how, within WIPO's mandate, to further facilitate access to knowledge and technology for developing countries and LDCs, including in emerging areas, as well as other areas of special interest for developing countries, taking into account recommendations 19, 25, 26 and 28 (food, agriculture, climate change). Drawing *inter alia*, on the outcomes of the five regional technology transfer consultation meetings, the six peer-reviewed studies and the experience of global experts in the area of transfer of intellectual property rights in academia and industry, the Forum will provide a framework for an open dialogue among experts from both developed and developing countries knowledgeable in public and private sector technology transfer and for debates on technology transfer supportive IP-related policies by developed countries.

22.21. With regard to the selection of experts to be invited to the Forum as well as the terms of reference for those experts, document CDIP/9/INF/4 (paragraph 59, at the end) states the following:

"The High-Level Expert Forum should also benefit from consultations with Member States. Concerning the composition of the High-Level Experts Forum, the top experts worldwide on the different aspects of the subject would need to be selected by WIPO according to fair selection criteria approved by Member States to ensure the project's progress. For the experts meeting, experts from both the public and private sector would be invited. The terms of reference (TORs) for the experts would be decided in consultation with Member States."

23.22. So as to seek guidance on a possible mechanism for obtaining approval by Member States of a set of fair criteria for the selection of the experts to be invited to the Forum and for consulting with Member States on the terms of reference for those experts, the Secretariat invited the Coordinators of all Regional Groups to an informal meeting, which was held in Geneva on October 24, 2014.

24.23. At the meeting, there was agreement among all Regional Coordinators to seek Member States' approval of the following proposed criteria for the selection of experts to be invited to the Forum (based on the criteria which had been approved by Member States in the context of selecting consultants for the regional consultation meetings carried out under the project; see document CDIP/9/INF/4, Appendix I, paragraph 12):

"The Secretariat was requested, when selecting experts to be invited to the High-Level Expert Forum, to seek a balance in terms of their geographical representation (developed as well as developing countries), their affiliation (public and private sector), and their position with respect to the role of IP in technology transfer."

25.24. At the meeting, there was further agreement among all Regional Coordinators to consult with Member States on the following proposed terms of reference for the experts to be invited to the High-Level Expert Forum:

"Experts should make themselves familiar with the project deliverables. When identifying thoughts for inclusion in a list of suggestions and possible measures for promoting technology transfer, to be submitted to the CDIP for its consideration, experts should start with the least common denominators between all perspectives and base such thoughts on realistic and mutually acceptable and beneficial elements as a starting point for building joint solutions."

26.25. Finally, ~~all Regional Coordinators supported the proposal by the Secretariat to organize the High-Level Expert Forum as a two-day event rather than,~~ as had been originally envisaged, the High Level Expert Forum will be held as a three-day event.

27.26. Member States' approval is thus sought on the proposed criteria for the selection of experts to be invited to the High-Level Expert Forum set out in paragraph 23, above. Furthermore, Member States' feedback is sought on the proposed terms of reference for those experts set out in paragraph 24, above.

VII. MATERIALS, MODULES, TEACHING TOOLS

28.27. Following any recommendations from the High-Level International Expert Forum, as envisaged under the Project Paper approved by the CDIP, materials, modules, teaching tools and other instruments will be prepared and incorporated into the global WIPO capacity building framework.

VIII. WEB FORUM

29.28. The Web Forum, envisaged under the Project Paper approved by the CDIP, will be incorporated within the framework of the portal on Innovation and Technology Transfer Support Structure for National Institutions, established in the context of the project for Recommendation 10.¹⁴

IX. INCORPORATION OF OUTCOMES INTO WIPO PROGRAMS

30.29. Following any recommendations from the High-Level International Expert Forum, as envisaged under the Project Paper approved by the CDIP, any outcome resulting from the above activities will be incorporated into the work of the Organization, after consideration by the CDIP and any possible recommendation by the Committee to the General Assembly.

X. SUBMISSION OF CONCEPT PAPER FOR COMMENTS BY INTERNATIONAL EXPERTS

31.30. As set out in the implementation timeline contained in CDIP/6/4 Rev, a draft of the present Concept Paper was submitted on March 27, 2014, to the following international experts: Mr. Pedro Roffe, Senior Associate, and Mr. Ahmed Abdel Latif, Senior Programme Manager, Innovation, Technology and Intellectual Property Programme, International Centre for Trade and Sustainable Development (ICTSD). They provided feedback on the content of the info-graphics, the thoughts from the regional consultation meetings and on the analytic studies, and on their presentation in the present Concept Paper. This Concept Paper incorporates those comments.

XI. PRESENTATION OF CONCEPT PAPER TO PERMANENT MISSIONS IN GENEVA

32.31. As set out in the implementation timeline contained in CDIP/6/4 Rev, the present Concept Paper was presented to Permanent Missions in Geneva in informal briefing sessions that took place at WIPO's headquarters on September 1, 2014 and October 21, 2014. The comments from Member States expressed during those briefing sessions have been incorporated in this final version of the Concept Paper.

XII. ONE-DAY MEETING WITH IGOS, NGOS, PROFESSIONAL ASSOCIATIONS AND SELECTED EXPERTS

33.32. As set out in the implementation timeline contained in CDIP/6/4 Rev, the present Concept Paper was presented to NGOs, IGOs, professional associations and selected experts, in a meeting that took place at WIPO's headquarters on October 28, 2014¹⁵. Speakers gave examples of the benefits from being engaged in technology transfer in developing countries. Representatives of industry and intergovernmental as well as non-governmental organizations agreed on the timeliness and importance of this WIPO project, noting that it could help achieve the potential of technology transfer for the benefit of all, particularly in terms of future market opportunities. Questions raised during the meeting included queries regarding the procedural aspects of the project, aimed at ensuring that meaningful results will be 'built' through this project (as its name indicates: "Common Challenges – Building Solutions"). Speakers and participants at the meeting suggested the following thoughts aimed at supporting local initiatives through technology transfer:

- (a) build human capital;
- (b) expand national innovation systems; and
- (c) develop a balanced IP system.

XIII. CONCLUSION

34.33. The WIPO Development Agenda Project on Intellectual Property and Technology Transfer: "Common Challenges – Building Solutions" (Recs. 19, 25, 26 & 28) used a step-by-step dichotomic approach to explore new ways of establishing international IP collaboration, to enhance understanding and to reach consensus on possible IP initiatives or policies to promote technology transfer. The Project was split into different phases, including the organization of 5 regional consultations, the commissioning of 6 analytic studies, the holding of a High Level International Expert Forum and the development of a web forum.

¹⁵

http://www.wipo.int/meetings/en/details.jsp?meeting_id=34205

- 35-34. The High Level Expert Forum, which will be in the form of an international conference, is tentatively scheduled to take place at WIPO's headquarters in Geneva on January 19 and 20, 2015. Drawing on the outcomes of the five regional technology transfer consultation meetings, the six peer-reviewed studies and the experience of global experts in the area of transfer of intellectual property rights in academia and industry, the Forum will provide a framework for an open dialogue among experts from both developed and developing countries knowledgeable in public and private sector technology transfer and for debates on technology transfer supportive IP-related policies by developed countries.
- 36-35. The exploratory and step-by-step approach adopted in this WIPO Development Agenda Technology Transfer Project has some promise. It offers an opportunity to rethink and test assumptions and consider new areas that have received little attention in earlier works. From the project's inception in the fourth session of the CDIP, this project had been conceived as a Stage I project, with a potential second phase including a more practical project involving pilot countries.
- 37-36. At the conclusion of the High Level International Expert Forum, the aim of the project is to incorporate any outcome into the WIPO programs, after consideration by the CDIP and any possible recommendation by the Committee to the General Assembly.

[Appendix I follows]