Intellectual Property Office

Work Package 1

ANALYSING THE IMPACT OF IP TECHNICAL ASSISTANCE

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Project team and acknowledgements

Saana Consulting Ltd. was commissioned to carry out this study by the UK Intellectual Property Office (IPO) in January 2011. This study is the first of two Work Packages aiming to help the IPO, as well as the UK Department for International Development (DFID) more effectively deliver policies on IP that promote social and economic development, and support IPO policy and resource decisions on IP technical assistance and technology transfer programmes.

The lead author on this study has been Dr. Roya Ghafele (Oxford University). Jakob Engel and Tom Pengelly (Saana Consulting Ltd.) provided substantial research and analysis for Chapters 1, 2, 7 and 8, as well as support on data collection, quality assurance and editing on Chapters 3, 4, 5, and 6. Tom Pengelly directed the project; Jakob Engel coordinated and managed the project. Sarah Bottomley provided extensive research and drafting assistance; Marta Gjoertz provided editorial assistance.

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The impact of intellectual property (IP) and intellectual property rights (IPRs) differs substantially for countries at different levels of industrial and technological development, and stronger IPR regimes – particularly in the context of complying with the WTO TRIPS Agreement – can potentially generate both benefits and costs for developing countries.

Major donors of intellectual property-related technical assistance (IP TA) comprise of multilateral and bilateral organisations. These organisations provide technical and financial assistance to developing countries to modernize IPR administration, revise IPR legislation and policies, strengthen enforcement efforts, and to address other IP-related priorities. However, the quality and effectiveness of IP TA has been subject to much debate and criticism.

Multilateral donors of IP TA include WIPO, UNCTAD, WHO and the WTO, whilst major bilateral donors include the US, the EC, EU member states, EPO, Japan, Switzerland, Canada and Australia, among others. WIPO is by far the largest provider of IP TA, and is expected to commit an estimated US$ 120 million to development-related activities in the 2010-11 biennium. Support from multilateral organisations tends to provide a broad scope of assistance, ranging from legislative guidance to training and to awareness-raising on IP issues. Assistance from many of the bilateral donors is more focused; for example, US assistance is heavily geared towards enhancing the implementation and enforcement procedures within recipient countries. The UK has placed a greater emphasis on providing IP TA that addresses the specific needs of least developed countries (LDCs).

This study aims to assess to what extent developed country TA programmes are likely to have interacted with, and potentially contributed to the promotion of country-appropriate sustainable changes in IP strategies and technological capacities over the period 2005-10. It does this primarily on the basis of IP TA impact assessments of four emerging and transition economies; namely Brazil, India, Poland and Thailand. Through an analysis of various measures of the domestic economic, technological and IP context, this study assesses to what extent the supply of TA provided between 2005 and 2010 has related to recipient country needs. While it is not possible to construct direct causal relationships between supply and demand of IP TA, it is possible to map how demand relates to supply and allows us to draw some conclusions and further recommendations on future IP TA. IP TA activities have been grouped within four general categories. Rather than relating to the nature of specific activities (training, advisory support, research and analysis), this taxonomy focuses on the institutional and functional pillar of modern IP systems that is being supported.

Table 1. Taxonomy of IP TA

IP TA Pillar	Examples of activities
Support to legislation, regulation and policy development	- Providing technical advice on revising laws and drafting of new laws. - Supporting the stakeholder consultations for policy development. - Funding independent research and analysis on IP-related issues
Institutional support to IPR administration	- Infrastructure improvements in IP-related departments. - Technical advice on institutional reforms. - Funding of automation systems.
Support for innovation, technology transfer, and IP awareness	- Making available international databases of patent documentation. - Supporting SMEs to more effectively use IP-based strategies. - Supporting licensing arrangements.
Support to IP protection and enforcement	- Training to enforcement officials. - Supporting anti-counterfeiting efforts.

Main case study findings

Thailand: IP TA is likely to have had a minor, but not insignificant impact in some priority areas. Unlike many other countries, Thailand has made IP a crosscutting policy priority. The Thai Patent Office has done a commendable job in bringing IP closer to the people and raising awareness about IP. In this context, IP TA could have a substantial role, most notably in helping Thailand accede to major IP treaties that further facilitate international trade and by helping the Thai Government to reinforce clusters and cross-linkages, and increasing knowledge transfer between industry and universities. Between 2005 and 2010, the Thai government received the most substantial legislative assistance from WIPO on the drafting of various pieces of IP legislation, and by Japan on plant variety protection (over many years). Given that Thailand passed many of its IP laws in recent years, it is not unlikely that WIPO and Japanese TA had some impact. The heavy IP TA focus by many providers on enforcement (particularly on counterfeits) may have had some impact on further raids of counterfeit goods, though it is likely that foreign pressure – especially through the US's Section 301 Priority Watch-list system – had a more substantial impact in this regard, than IP TA did. However, efforts to create linkages to broader science and technology priorities seem to have been missed. While it seems that all of these efforts are important milestones towards the achievement of an IP-based economy in Thailand, most of the IP TA offered has lacked continuity.

Poland: Poland's IP TA is mainly driven by the European Union (EU) and addresses a key need in terms of building an IP-based economy. Given Poland's economic situation, IP TA could address issues related to the promotion of R&D and bring licensing practices closer to the local community by raising awareness about the economic opportunities of the IP system by explaining to businesses and universities alike how to better extract value from the IP system. IP TA offered by the EU shows a strong degree of continuity and consistency. There has been a major focus on promoting IP for the benefit of the local economy, and specifically local SMEs and universities. Support to enforcement capacities seems to remain the major focus of the USPTO. While this is also a priority for Polish firms, it seems to reflect broader strategic business interests, especially considering the heavy focus on strengthening the judiciary on anti-counterfeiting.

India: During the time period under investigation, India was in the midst of the second phase of a substantial IP modernization programme intended to foster IP's role within a growing knowledge economy. This has created substantial challenges and opportunities for repositioning the IP system

to address medium- and long-term priorities. IP in India is, however, mainly leveraged by foreign entities and the data suggests that the local community of entrepreneurs and inventors has not yet fully grasped the economic opportunities of IP. This is an area where IP TA could have a large impact. In this context, IP TA in India is mainly driven by the USPTO/USAID, WIPO and to a more limited extent, the WTO. IP TA is likely to have had an impact on the development of human capacity, particularly in the area of administration and enforcement. That said, given India's strong focus on the role of IP in driving innovation and technology development, this area shows some neglect – perhaps indicative of a misalignment of TA provider and recipient priorities. In the area of enforcement it does appear that IP TA activities may have contributed to an improving situation. A 2008 EC country survey of firms operating in India found that "cooperation between the enforcement departments has considerably improved, resulting in more enforcement actions, and greater IP awareness amongst officials."

Brazil: While Brazil had relatively weak IP protection for many decades, a comprehensive patent reform act in 1996 made the country TRIPS-compliant. Other relevant IP laws have also been revised in recent years**.** IP TA seemed to have had some impact on the state of current legislation. Given administrative capacity constraints of the rapidly expanding system, training provided is likely to have had some impact on the Brazilian patent office's ability to review an ever-rising number of applications every year. The heavy focus by many IP TA providers on enforcement (particularly on counterfeits) may have had some impact on the creation of the Council to Combat Piracy and Crimes against IP. Particularly USPTO TA on enforcement may have contributed to an improved situation in this area. IP TA could nonetheless have been geared more substantially towards increasing outreach and better leveraging business ties to enhance technology transfer (TT). These broader linkages central to developing country demands within the WIPO Development Agenda do not feature prominently in IP TA currently provided.

Finally, an overview of **IP TA** in **Least Developed Countries (LDCs)** was conducted and a series of best-practice projects is listed. In the process of creating a sound and viable technological base, and modernising the national IPR and innovation infrastructure, LDCs face particular challenges. LDCs are far from homogenous, and special care and attention in the provision of TA must be paid to their individual scientific and technological capacities, along with their social and economic structures, as well as inequities in income and wealth, and lower IP TA absorption capacity. This is particularly relevant in the context of the WTO TRIPS Council decision to prolong the transition period granted to LDCs to comply with the TRIPS Agreement to 1st July 2013. This decision meant that LDCs were required to provide the TRIPS Council with their specific technical and financial assistance needs assessments, to accompany the TRIPS Agreement. To date, five LDCs have submitted their needs assessments to the TRIPS Council. Further, the LDCs that have conducted their needs assessments have struggled to receive adequate funding to make substantial progress on the implementation of their national IP plans. It appears that many donors are prioritizing support to those non-LDC developing countries where they have more substantial strategic trade and investment interests. Moreover, development agencies frequently do not view IP modernisation as a high priority, given the many other competing interests present in LDCs, making them reluctant to fund these sorts of programmes.

Conclusions

While the data shows that technical and financial assistance in this area could be of great use, and there is clearly a need for well-targeted IP TA and much scope for useful IP TA interventions, there seemed to only be a partial alignment between country needs and the direction of IP TA. On the whole, most IP TA providers tended to focus on similar areas in each country, regardless of the respective context. This should not detract from the fact that many IP TA programs are likely to have

had a significant impact. In Brazil and India's case, training on IP administration may have influenced increased efficiency (from a low base) at the INPI and IP India, respectively, while the substantial EU support to raise SME IP awareness in Poland is likely to have had some significant impacts in this area. In India, sustained TA in this area likely influenced legislation on plant variety protection, as did WIPO TA on legislative reforms in Thailand. In all cases, the substantial US (and to a more limited extent EC) focus on TA directed towards enforcement coincided with improvements in this area, though the political and economic pressures by both providers, and especially the US Section 301 System probably dwarfed the impact of this TA. Further, the typology and direction of IP TA reflects political and diplomatic interests, trade priorities and colonial ties, among many other things. As such, it is important to understand that IP TA is highly political – a fact that is concealed in its "technical" nature.

Recommendations:

The above leads to ten lessons derived from the analysis:

1. The lack of alignment between supply and demand in the case of some case study countries can in part be explained by donors focusing on their comparative advantages, ensuring little duplication in the sense that major providers occupy very different fields in the area of IP TA. However, it does reflect a lack of flexibility by some to respond to country needs.
2. Despite the likelihood that the results of IP TA sustainably contributed the country's long-term development in this area, one inevitably runs into problems of attribution. Initiatives from donors are diminishingly small when put in comparison to the size of these economies. This complicates determining cost-effectiveness but should not detract from the fact that IP TA is likely to have had a considerable benefits and impacts beyond their likely costs.
3. While the different niches that IP TA providers occupy indicates a lack of duplication, this by no means implies there is substantial coordination to increase effectiveness. Local donor coordination groups that meet regularly with government officials, which have become part and parcel of development assistance in other sectors, do not seem to be a significant aspect for IP TA delivery.
4. It is important to note that the extent to which IP TA was aligned with pre-existing priorities was a significant factor in its assumed effectiveness. Alignment was significantly aided if strong linkages from the IP offices to ministries and relevant ministers had been developed. Thus, it is important to know whose demand one is responding to and how broadly demands are shared across the country's institutional framework. In addition, it is important for providers to consider the provision of relevant assistance to stakeholders outside of the government, such as universities.
5. In all countries IP-related needs were on two levels: those narrowly related to IP systems (such as the training of patent examiners) and those linking IP to the broader economy. Particularly this latter aspect becomes increasingly important as countries develop substantial industrial and innovative capacities. This calls for a much more substantial integration of IP issues into broader development assistance.
6. IP TA was most effective when support to a narrowly focused priority area was sustained over a long period of time. Particularly, this latter point suggests substantial value-for-money gains if programmes are sustained, rather than if IP TA is structured around one-off ad-hoc training or workshop events.
7. Efforts to devise coherent policies, laws, and regulations should be linked to broader development and public policy objectives and tailored to respond to the specific needs and problems of individual countries. This also calls for a broader scope of analysis in determining needs and also the usefulness of different types of IP TA interventions, including comprehensive

institutional and political risk assessments to understand the opportunities and constraints within the political economy context in which IP TA is being carried out.

8. There are substantial efficiency gains if IP TA providers aim to recognise the changing architecture of aid and particularly Aid for Trade. As regional integration has become an increasing priority among developing countries, a greater focus on re-contextualising IP TA towards regional initiatives would yield substantial gains.
9. While some organisations, such as WIPO, are beginning to take concerns raised about insufficient results frameworks more seriously, there is still no significant culture of regular *independent* impact assessments and external evaluations among IP TA providers or beneficiaries. Focusing more extensively on how to assess impact of these highly qualitative interventions will be crucial.
10. The different contexts of IP TA provision in LDCs, as opposed to emerging economies, cannot be overstated. While these countries also have IP-related needs, the level of capacity, IP relevance and prioritisation is different. This points to a lower level of importance of ensuring TRIPS compliance and a much more substantial need to ensure a strong development-orientation and substantial linkages to other sectors.

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List of Acronyms

AGRIDEA	Swiss Association for the Development of Agriculture and Rural Areas
ALA	Australian Leadership Awards
ALADI	Asociación Latino Americana de Integración
APACE	Asia-Pacific Copyright Systems Enhancement
APEC	Asia Pacific Economic Cooperation
BOP	Balance of Payments
CEECA	Countries of Central and Eastern Europe and Central Asia
CEIPI	Centre for International Studies in Intellectual Property
CIDA	Canadian International Development Agency
CIPITC	Central Intellectual Property and International Trade Court
CIPR	Commission on Intellectual Property Rights
CIPO	Canadian Intellectual Property Organization
CIRAD	French Agricultural Research for Development
CPLP	Community of Portuguese Language Countries
CNPC	National Council to Combat Piracy and Crimes against intellectual property
CSIR	Council for Scientific and Industrial Research
DAAD	German Academic Exchange Service
DFID	UK Department for International Development
DDIP	Development dimensions of intellectual property
DKPTO	Danish Patent and Trademark Office
DIP	Department for Intellectual Property (Thailand)
DOJ	United States Department of Justice
DPMA	German Patent and Trademark Office
DNPI	National Industrial Property Directorate of the Eastern Republic of Uruguay)
DTIS	Diagnostic Trade Integration Studies
EAC	East African Community
EC	European Commission
ECAP	ASEAN-EC Patent and Trademark Programme
ECOWAS	The Economic Community of West African States
EMBRAPA	Brazilian Agricultural Research Corporation
EPO	European Patent office
EPOQUE	European Patent Office online search system
EU	European Union
FDI	Foreign Direct Investment
FAPESP	Sao Paulo Research Foundation
FIT	Funds-in-Trust
GDP	Gross Domestic Product
GI	Geographical Indications
GIPA	Global Intellectual Property Academy
GNI	Gross National Income
GNP	Gross National Product

ICTSD	International Centre for Trade and Sustainable Development
IGO	Inter-governmental Organization
IP	Intellectual Property
IPI	Intellectual Property Institute
IPO	Intellectual Property Office
IPR	Intellectual Property Rights
INAO	French Institute for the regulation of French Agricultural Products
INPI	National Industrial Property Institute (Brazil)
IT	Information Technology
JCO	Japanese Copyright Office
JICA	Japanese International Cooperation Agency
JPO	Japanese Patent Office
KIPI	Kenya Industrial Property Institute
LDC	Least-developed Countries
LYIP	Light-Years Intellectual Property
M&E	Monitoring and Evaluation
MoU	Memorandum of understanding
NGO	Non- governmental Organisation
OAS	Organization of American States
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OEPM	Spanish Patent and Trademark Office
PCT	Patent Cooperation treaty
AMCHAM	American Chamber of Commerce in Vietnam
PRSP	Poverty Reduction Strategy Papers
R&D	Research and Development
S&T	Science and Technology
SEBRAE	Brazilian Micro and Small Business Support Service
SECO	State Secretariat for Economic Affairs
SIPO	State Intellectual Property Organization (China)
SKGI	Swiss-Kenyan project on Geographical Indications
SME	Small and Medium Enterprises
TA	Technical Assistance
TAIEX	Technical Assistance and Information Exchange Instrument
TCE	Traditional Cultural Expressions
TNC	Trans-national corporations
TT	Technology Transfer
TK	Traditional Knowledge
TRIPS	Trade-related aspects of Intellectual Property Rights
UEMOA	West African Economic and Monetary Union
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
USDOJ	United States Department of Justice

USPTO	United States
USTDA	United States Trade and Development Agency
UTIP	Uganda Trade and Intellectual Property programme
WB	World Bank
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

1. Introduction

The impact of IP and intellectual property rights (IPRs)[1] differs substantially for countries at different levels of industrial and technological development. IPRs exist to strike a balance between private rights and public goods; in other words the needs of society to encourage innovation and commercialization of new technologies, products, and artistic and literary works on the one hand, and to promote the use of those items on the other. Empirical evidence suggests that stronger IPR regimes can potentially generate both benefits and costs for developing countries.[2] The implication of this for designing IPR systems is that developing countries require quite sophisticated technical expertise and decision-making processes in order to formulate policy, adopt legislation and develop public and private institutions and services that carefully balance and respond to the different public policy objectives and stakeholder interests within the context of a country's, social, economic and technological development objectives. As a result, the scope of developing country needs in this area, and what in turn can be considered IP TA is broad.

Most developed countries, and multilateral organizations, such as the World Intellectual Property Organisation (WIPO), provide technical and financial assistance to developing countries to modernize IPR administration, revise IPR legislation and policies, strengthen enforcement efforts, and other IP-related priorities, frequently within the context of compliance with the WTO TRIPS Agreement. However, the quality and effectiveness of IP TA has been subject to much debate and criticism. The UK Government's Commission on Intellectual Property Rights stated in its 2002 report:

> "The results of much technical assistance do not seem commensurate with the effort and resources put into it. Assistance from different providers may be insufficiently coordinated, and insufficiently integrated with other forms of development assistance."[3]

In the years since, there have been intense debates on how to make IP TA more effective, and IP TA providers have taken significant steps to change the focus and delivery of their TA. This has been most noticeable in the efforts of WIPO, the largest IP TA provider, to adopt recommendations from the 2007 Development Agenda, in which members called on the organization to ensure that its TA was "development-oriented, demand-driven and transparent, taking into account the priorities and the special needs of developing countries."

This study aims to contribute to these efforts by assessing to what extent developed country TA programmes are likely to have interacted with, and potentially contributed to the promotion of country-appropriate, sustainable changes in IP-related policy/legal/regulatory frameworks, institutions, technological capacities, and use of IP for development objectives by firms and public sector agencies over the period 2005-10.

[1] IPRs are granted by governments to owners of IP to protect abstract objects, such as musical, literary, and artistic works; discoveries and inventions; and words, phrases, symbols, and designs. They include trademarks, patents, industrial designs, copyright, trade secrets, plant varieties, and geographical indications.

[2] For an overview see UNCTAD-ICTSD (2005). 'Resource Book on TRIPS and Development'. Cambridge: Cambridge University Press, or more recently Hassan, E., Yaqub, O. and Diepeveen, S. (2010) 'Intellectual Property and Developing Countries: A review of the literature'. Prepared for the UK Intellectual Property Office and the UK Department for International Development.

[3] CIPR (2002) 'Integrating Intellectual Property Rights and Development Policy: Report of the Commission on Intellectual Property Rights'. London: UK Department for International Development.

Chapter 2 provides an overview of different types of IPTA, and develops a taxonomy. It further examines how different TA providers are aiming to measure and ensure the effectiveness of their IP TA. Finally, Chapter 2 lays out the methodology for the impact assessment that builds the core of this study.

Chapters 3 through 6 are country case study impact assessments of a set of selected emerging economies and transition countries; namely Brazil, India, Poland and Thailand. These countries have been selected as they are all major receivers of IP TA and bear the potential to become emerging knowledge economies. Through an analysis of various measures of the domestic economic, technological and IP context, we assess to what extent TA provided between 2005 and 2010 has related to developing country needs. Chapter 7 examines the context of IP TA in low-income countries, where the objectives of IP TA are likely to be very different due to the different economic context, and provides a series of case studies of best practice.

Chapter 8 examines trends, key lessons and patterns emerging from the four case studies, examining to what extent TA seemed to be demand-driven, how effective TA was, how IP TA seemed aligned with broader aspects of the industrial development and science and technology context and policy framework, as well as to what extent IP TA providers utilised coordinated strategies and approaches. It will also provide recommendations on improving the effectiveness and value for money of IP TA and improve means of ensuring that IP TA is appropriate for the country's respective level of development and needs.

2. Assessing the effectiveness of IP TA

2.1. Towards a taxonomy of IP TA

IP has emerged as an essential organizational principle of the knowledge-based economy, since it determines the way in which knowledge relations are governed and structured. IP can contribute to organizational effectiveness and resolve issues related to the appropriation of a firm's R&D activities and innovation. Furthermore, it can provide an incentive for creation and invention, investments to develop and commercialize innovation, as well as for the motivation of inventors to declare their inventions and to permit their orderly exploration.

IP, managed under a public interest paradigm and in a proactive way, can contribute to bridging divides, both within and between societies, allowing developing countries to leverage their own latent creativity. Yet, the enabling mechanisms of IP remain unrecognised in many developing countries due to a lack of awareness of IP. In this sense, a key objective of IP TA lies in supporting developing countries to create the enabling environment to benefit from IPRs.

Developing countries' requirements for IP TA and capacity-building are varied, relating to IP policy-making and legal reforms; participation in the negotiation of international IP agreements and multilateral standard-setting; re-organization and automation of IPR administration; strengthening of capacity for regulation and enforcement of IPRs; and promotion of national innovation and creativity. Support provided to developing country governments and stakeholders can include general training (for example, on the role of IP in development) or on specific IP-related issues (such as on copyright law), legal advice and assistance (for example in preparing a new patent law), support for modernizing IPR administration systems (e.g. through automation systems), exchange of information (for example between lawmakers and entrepreneurs) or access to information services (such as patent information services). It can also include support to firms and private sector apex organisations to facilitate using IP to promote local innovation and competitiveness. As donors, including multilateral organisations and developed country governments, often lack specific expertise and tend to not have offices or agencies in the respective country, advisory missions and consultants are normally deployed in developing countries to plan, deliver and monitor programme activities.

For the purposes of this study, we have grouped most IP TA activities as falling under four general categories.[4] Rather than relating to the nature of specific activities (training, advisory support, research and analysis), this taxonomy focuses on the institutional and functional pillars of an IP system to which support is being provided.

These are depicted in Table 2.1 and will be described in greater detail below:

[4] These pillars are in part adapted from Leesti, M. and Pengelly, T. (2007) 'Assessing Technical Assistance Needs for Implementing the TRIPS Agreement in LDCs'. Geneva: Commissioned by the International Centre for Trade and Sustainable Development (ICTSD).

Table 2.1. A taxonomy of IP TA

IP TA Pillar	Examples of activities
Support to legislation, regulation and policy development	- Reviewing existing legislation and providing technical advice the drafting of new laws - Supporting the stakeholder consultations for policy development - Funding independent research and analysis on IP-related issues
Institutional support to IPR administration	- Infrastructure improvements in IP offices - Technical advice on institutional reforms - Funding of automation systems - Training of IP administration officials & examiners
Support for innovation, technology transfer, and IP awareness	- Making available international databases of patent documentation - Supporting SMEs or producers to more effectively use IP-based strategies - Supporting licensing arrangements. - IP awareness raising campaigns for different audience segments
Support to IP protection and enforcement	- Training to enforcement officials from judiciary, police, customs - Supporting anti-counterfeiting efforts

Support to legislation, regulation and policy development

TA frequently aims to support the revision or drafting of IP policies, laws and regulations. This could be to address the development of new technologies, new policy priorities, or most likely international legal commitments. Most developing countries are members of the WTO or are in the process of accession. Compliance with the TRIPS Agreement, and the treaties and agreements that encompass it, is in large part a process of overhauling and modernising laws, policies and regulations of a country. Many developing countries must update, or develop from scratch, an over-arching national IP and legal policy framework developed and supported by all interested stakeholders. This requires technical support to ensure that the broader development needs of the country are met.

In this regard, TA activities could entail:

- Reviewing existing legislation and providing technical advice on the drafting of new laws in a manner that both achieves compliance with treaties but also uses flexibilities in a manner that takes account of a country's specific development context and priorities;
- Supporting consultative mechanisms for policy development to facilitate policy input on linkages of IP and public health (including implementation of the WTO Doha Declaration on the TRIPS Agreement and Public Health); agriculture and the environment (including plant variety protection); education, science and technology; enterprise development and regulation; and the protection of cultural heritage and traditional knowledge;
- Funding independent background research and analysis to effectively define and support positions on the complex and technical issues of IP, or strengthening the country's capacity to participate effectively in international and regional IPR rule-making and standard-setting;
- IP TA programs can help developing countries participate in international standard-setting processes, not only in WIPO and the TRIPS Council, but also to address IP-related issues such as agriculture and aid-for-trade, ideally through a permanent mission, otherwise through travel and subsistence expenses.

Institutional support to IPR administration

Administration of IPRs covers a number of different dimensions of institutional capacity, such as organisational and management arrangements; staffing and human resource issues; and operating procedures and automation models. Moreover, depending on the nature and volumes of anticipated workloads, administration of patents, trademarks, copyright and other forms of IPRs may require different types of institutional capacity and present unique challenges for developing countries, and particularly LDCs.

Support in this area can include:

- Technical advice on institutional reforms of IP offices, auditing the existing infrastructure, institutional and financial resources, recommending an appropriate business model based on international best practice, as well as the design and implementation of new IP regulations, procedures, computerized workflows and staff training;
- Training for government officials, the private sector and civil society representatives participating in IP coordination on basic IPR concepts, the international framework for IPR protection, key challenges (benefits, costs and risks) for developing countries implementing IP protection; and best practices from other countries (tailored to the needs of policymakers, rather than, for example, IP office administrators);
- Improving the technical infrastructure, financing automation systems and computerizing industrial property workflows and registries.

Support for innovation, technology transfer, and IP awareness

Developing countries will frequently require additional resources to develop and strengthen an institutional framework to support national innovative capacities, access to technologies and IPR-protected knowledge assets, and research and education institutions. Raising awareness about IPRs can also help reduce the amount of duplication in R&D that takes place in industry and particularly SMEs.

As a result, donor IP TA can support the following:

- Making available international databases of patent documentation that can be exploited at relatively low cost to access appropriate and useful information for SMEs and research organizations;
- Research on how to more effectively generate the economic value of a developing country's creative & cultural industries as generators of IP assets, in order to identify the potential economic value of national creative & cultural industries;
- Support to graduate, undergraduate and doctoral teaching and supervision capacity at universities on IP-related business, legal and economic concepts, protection systems, regulatory frameworks, benefits and costs for IPR protection for business and consumers, etc.

Support to IP protection and enforcement

For many developing countries, establishing an effective enforcement regime presents considerable institutional challenges for policing and judicial systems, civil and criminal procedures and the customs authorities (regarding border enforcement measures). It further is frequently not seen as a very high priority in the process of IP reforms, as it is generally viewed as an aspect of TRIPS compliance that largely benefits developed country corporations. There is some truth in that, and especially some bilateral IP TA providers have a strong self-interest in strengthening enforcement, even beyond what is required by TRIPS. However, especially middle-income countries, like those examined in the following chapters, are developing substantial innovative capacities in their own right and are taking an increased interest in strengthened enforcement.

TA in this area can include some of the following activities:

- Training enforcement agencies, private and public sector attorneys and practitioners in IPR concepts and national legislation;
- Supporting anti-counterfeiting efforts, for example through the design, implementation and evaluation of public education and awareness-raising campaigns;
- Helping customs services access IP registries and databases.

This taxonomy will provide a categorisation for the methodology laid out in 2.5 and applied in Chapters 3 to 6 to analyse the impact of IP TA.

2.2. IP TA providers and efforts to assess impact

This study aims to address one of the key concerns raised about IP TA, namely a lack of effort and commensurate systems to determine how effective IP TA has been at addressing needs of developing countries in the areas of IP, innovation and economic development.

The Commission on Intellectual Property Rights (CIPR) report, for example, recommended that "[d]onors should strengthen systems for the monitoring and evaluation of their IP-related development programmes." The report further recommended "a working group of donors and developing countries should … commission and oversee a sector wide impact review of IP-related TA…" While such a review has not been undertaken, it seems that some existing IP TA providers are gradually making greater efforts to implement broader efforts at implement the Paris Principles in IP TA, though much remains to be done (see Box 2.1).

The following overview provides some insight into the nature of monitoring and evaluation systems of major IP TA providers. As part of this study, larger IP TA providers were asked to give information on their main programmes and projects (including costs), as well as how they monitor and evaluate the effectiveness of their TA.[5] While some donors provided detailed input, most donors were generally unable to provide comprehensive cost figures for projects, making value for money

[5] The initial email requested contacts to send through any information they could provide the team with relating to:
1) A list of projects and programmes in the area of IP technical assistance provided by their organisation;
2) Examples of best practice in either of these areas that they would like to share;
3) An explanation of how they conduct impact assessment and evaluation exercises for IP technical assistance projects.

assessments difficult. A brief overview of IP TA providers and respective methodologies used for impact assessment is provided below:

Box 2.1: Paris Declaration on Aid Effectiveness

At the 2005 Paris High Level Forum on Aid Effectiveness, hosted by the French government and organized by the OECD, representatives from over 100 donor and developing country governments, multilateral donor agencies, regional development banks and international agencies came together to address increasing concerns about the role of aid in promoting development. This was, at the time, attracting increasing public scrutiny and while some progress had been made towards harmonizing international aid, it was acknowledged that far more needed to be done. There were particular concerns that the aid process was too strongly led by donor priorities and administered through donor channels, therefore making it difficult for developing countries to take the lead.

Representatives endorsed the **Paris Declaration on Aid Effectiveness**, representing a broad consensus among the international community, on how to make aid more effective. Central to this decision was the commitment to help developing country governments formulate and implement their own national development plans, according to national priorities, using their own planning and implementation systems. The declaration contains 56 partnership commitments aimed at improving the effectiveness of aid. It includes 12 indicators to provide a measurable and evidence-based way to track progress and set targets for 11 of these to be met by 2010.

The five mutually reinforcing principles are:

1.) **OWNERSHIP-** donors must support developing countries in building the capacity to lead their own development policies and strategies.
2.) **ALIGNMENT-** this involves ensuring aid is in line with the priorities outlined in developing countries' development strategies and where possible, using local institutions and procedures for managing this aid.
3.) **HARMONISATION-** Coordination must be improved among donors to avoid duplication and high transaction costs for poor countries, thus reducing the strain aid can impose on recipient governments.
4.) **MANAGING FOR RESULTS-** there must be more focus of aid on achieving tangible results, through the development of tools and systems to measure impact.
5.) **MUTUAL ACCOUNTABILITY-** Donors and developing countries are required to account more transparently to each other for the use of aid funds, and to citizens and parliaments for the impact of their aid.

assistance, ranging from legislative guidance, expertise and assistance for building up and organising national and regional IP institutions, training in aspects of IPR administration, promoting public awareness of IP and an IP culture and promoting international patent co-operation and the operation and development of global IP protection systems (such as the PCT and the Madrid system). In recent years there had been substantial criticism of WIPO TA, for not being cost-effective, lacking transparency in its expenditure and budget reporting system, being insufficiently development-oriented, and using inadequate monitoring and evaluation systems.[6]

The organisation is also giving a greater focus to the use of IP for development and is currently developing the tools for officials to conduct needs assessments and enhancing its M&E framework, while increasing IP linkages of its TA to other areas of social and economic development. The

[6] Deere-Birkbeck, C. & Marchant, R. (2010). 'The Technical Assistance Principles of the WIPO Development Agenda and their Practical Implementation'. International Centre for Trade and Sustainable Development (ICTSD), Issue Paper No. 28.

organization is also currently conducting a review of its TA activities to determine effectiveness, impact, efficiency and relevance.[7]

UNCTAD provides IP TA on a number of issues, most notably relating to the training of IP officials, providing advice on IP legislation and policy reform, organisational development, and the promotion of domestic innovation and creativity. UNCTAD support (especially with ICTSD) to LDCs will be explored in greater detail in Chapter 7. Upon request, the organisation stated that each project specifies its own monitoring and evaluation mechanisms subject to established UN procedures on monitoring and evaluation. The **World Health Organisation (WHO)** is involved in providing IP TA in areas that overlap with public health concerns. In May 2008, the WHO adopted the Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property. This represented a landmark agreement, as it aims to improve the treatment of poverty-related and neglected diseases that disproportionally affect LDCs by both stimulating innovation to find new pharmaceutical products for these diseases and by improving the availability, affordability, access and acceptability of existing products. The global strategy, amongst others, highlights the need to build and improve innovative capacity in developing countries and facilitate the transfer of health-related technology. Like UNCTAD and WIPO, it is subject to UN impact assessment procedures.

The **World Trade Organisation** provides training and human resource development, and provides advice on IP legislation and policy reform. In 2010, the WTO held national and regional workshops with a focus on certain topical issues under discussion, examination or negotiation in the TRIPS context, in particular TRIPS and public health, biotechnology/traditional knowledge/biodiversity, and geographical indications. The aim of the workshops was to provide information as well as an opportunity for an exchange of views among countries. According to a WTO representative contacted for this study, impact assessment methodologies are based on participant evaluation forms filled out by participants at the end of workshops, with future activities adapted in light of comments received.

Bilateral Donors

United States TA is led by the USPTO and USAID, and tends to focus on activities that have been designed to enhance implementation and enforcement procedures within recipient countries. There is less emphasis from the US on wider issues of how best developing countries, and especially LDCs can utilise the TRIPS flexibilities and concepts. Typical activities include drafting legislation and commenting on bills concerning general provisions and fundamental principles of the TRIPS Agreement and other bilateral and international IP agreements, as well as on providing advice on how to best organize TRIPS-compliant administrative apparatuses, such as patent offices and collective management societies. The US also provides training for staff in the administration of IPR protection and management methods and specialized training for judges, customs officials and police officers, who enforce rights, as well as activities to promote awareness about IPRs in the private sector and civil society. It was not clear how impact assessment is conducted, though a 2004 study found no specific arrangements in place for the monitoring or evaluation of IP technical assistance programmes other than the general systems used for US development co-operation programmes.[8]

The **United Kingdom**, both through DFID and the IPO, has been providing TA to developing country

[7] WIPO (2010). 'Terms of Reference for the Review of WIPO's Technical Assistance Activities in the Area of Cooperation for Development: Document CDIP/4/8/REV/TOR'.

[8] Of note however, the USPTO has commissioned a study on connections between governmental technical assistance and capacity-building abroad and the growth of exports, which is using a survey approach of US exporters.

IP offices (such as those in China and Brazil) to share information, as well as to think tanks, such as ICTSD and Chatham House, working on IP issues. The UK is also influential in providing assistance to LDCs, through a project with Light Years IP, a non-profit organization. Light Years IP designed and managed an initiative which saw Ethiopia take a degree of control over the distribution of three of its finest coffees from retail markets worldwide through the successful use of trademarks and licensing (for more information on this initiative, see Chapter 7). Of note, the UK, following a CIPR recommendation also provided catalytic funding for the IPRTA Forum, the only international initiative devoted solely to the improvement in efficiency and effectiveness of IP TA (see Box 2.2).
While some individual projects are evaluated at their completion, there have been no substantial independent evaluation efforts of UK IP TA.

Box 2.2: Focusing on the effectiveness of IP Technical assistance – The IPRTA Forum

The **IPRTA forum** was launched in 2006 with start-up funding from DFID with the aim to promote constructive dialogue, share knowledge and catalyse concrete action amongst developing countries and development partners for improving IP TA and capacity building. The Forum initiative has involved over 100 stakeholders from IPRTA donors, beneficiaries in developing countries and business and civil society organisations since 2006, with activities evolving in line with demand from stakeholders. Key developing country members of the IPRTA Forum network include Brazil, Argentina, India, Thailand, the Philippines, Egypt, Morocco, Jamaica, Ghana, Vietnam, Sierra Leone and Uganda. While DFID has remained a key supporter, the Forum's sponsorship base has broadened to include the European Patent Office, the Swiss IP Institute and the Organization of American States.

countries. In particular, assistance is geared towards legal reforms, integrating social and health objectives, IP administration and modernization, training for judicial staff, and awareness-raising activities for IP rights holders. EC IP TA activities generally appear to be organised through large programmes such as the ECAP (the EC-ASEAN project on the protection of IPRs), that are sustained for several years and are frequently renewed. Initiatives in this case are targeted at a specific country/region and cover several types of capacity building and TA. They generally seek to strengthen IP protection systems at the domestic level through training, legislative and institutional reform and awareness-raising, therefore aiming to cover several fields of IP TA. Large-scale projects (such as ECAP) are subject to external evaluations through independent consultants, with results informing the next phase(s) of work. While general EC project monitoring guidelines apply, we were not able to ascertain whether the EC has conducted an external evaluation of all its IP-related activities.

The **European Patent Office (EPO**) has tended to support a wide range of programmes providing guidance on building and organizing IP authorities and institutions, general/specialist personnel training, technical support in the form of advice on information and documentation and the provision of hardware, software and library stock. Other activities have included promoting public awareness of IP and supporting policy research and dialogue on IP and development-related topics for developing country IP policy-makers and administrators. A new 2006 EPO policy called for the stronger integration of evaluations in its cooperation policy to enable the establishment of the relationship between results, project purpose and overall objectives. Over the following years, member states agreed on a set of common indicators, and that cost-benefit, outcomes, results and impact of activities shall be regularly monitored and evaluated. It is not clear whether this has been mainstreamed across EPO projects and when contacted for this study, the EPO said that it has no monitoring system for bilateral cooperation activities, beyond those the EC has in place.

Japan's IPRTA activities are mostly focused on the Asia-Pacific region. Japan's assistance tends to be channelled through the WIPO Funds-in-trust (FIT). We were not able to ascertain to what extent

impact is assessed in Japanese assistance that is not subject to standard WIPO FIT reporting procedures.

Switzerland provides IP TA to countries that its development agency views as priority countries. The Swiss IP Office's international cooperation in TA project has started with one single project in Vietnam in 2001. Since 2005, the amount of activity in this field has considerably increased due to more demand from partner countries and the Swiss government. Activity and result monitoring occur through the local project coordinators, while financial monitoring was conducted with the partner country institutions with yearly reporting to the Swiss Development Agency. For its project in Vietnam, an independent mid-term review after the 1st phase was prepared and fed into the planning of the 2nd phase. At the end of the 2nd phase, SECO decided to evaluate the impacts of the project by an independent consultant about 3 years after its completion. The local project coordinator conducted an extensive self-evaluation with the Vietnamese counterparts at the end of the project. There has been no comprehensive evaluation of the Swiss IP TA programme so far.

Canada offers limited IP TA to developing countries. There are nonetheless two main types of ongoing IP TA, a workshop that has been delivered for over 12 years with WIPO called "the Application of Management Techniques in the Delivery of Intellectual Property Services". For this workshop, senior officials from 12 developing IPOs are invited to the Canadian IPO office for one week of training. The Canadian IP Office also provides assistance through search and examination of patent applications undertaken for developing countries. The assistance is coordinated through WIPO's International Cooperation in the Search and Examination of Inventions. However, the CIPO does lack the tools to assess the impact of all of the IP TA outlined above.

Australia devotes a limited amount of resources to IP TA, and the efforts are mainly targeted towards countries in the Asia Pacific region. Australia undertakes IP TA on a bilateral basis, but also seeks to provide assistance at the regional level. Examples of activities include the Australian Leadership Awards Fellowship Program (the largest IP Australia corporation activity taken to date), the APEC intellectual Property Rights Public Education and Awareness Program and the WIPO-IPA Work Plan 2010-11: Expert Advisory Missions. Given resource constraints, Australia conducts little follow-up or assessments of its IP TA activities.

2.3. Literature Review

Debates on IP Technical Assistance

The literature on the role of IP TA is embedded in the wider literature studying the effects of IP in developing countries. The role of IP in stimulating innovation incites strong debates and claims are made in either direction. A review of the literature undertaken by Roya Ghafele for the IPI in 2008 showed that the overarching discourse on IP and developing countries is divided into two camps:[9] those who believe that IP advances the state of the knowledge-based economy and those who think that IP is essentially an instrument of power that separates between the 'haves' and 'have nots'.[10] Evelyn Su, for example, speaks of "winners and losers" when she discusses the effects of the TRIPS agreement on developing countries.

When studying the scarce literature on IP TA, similar overarching themes can be found. Carolyn Deere studies the dynamics of the implementation of the TRIPS Agreement and finds that many developing countries adopted more stringent IP laws than necessary. In *The Implementation Game:*

[9] Ghafele, R. (2008). 'Perceptions of Intellectual Property: A Review'. London: Intellectual Property Institute.

[10] "TRIPs: A Blessing or Curse for Developing Countries?" Discussions at the European Patent Forum. http://www.epo.org/topics/patent-system/scenarios-for-the-future/forum.html.

the TRIPS Agreement and the Global Politics of Intellectual Property Reform in Developing Countries, Deere sees in the TRIPS Agreement a highly contested political act that served primarily the interests of developed countries and multinational companies headquartered in developing countries.[11] Deere attributes the variation in TRIPS implementation to the interplay between international power pressures and the complex political dynamics within developing countries themselves.[12] According to Deere, development aid with respect to IP law was not given to help build local economies, but to help build an adequate infrastructure for business headquartered in the donors' region. Other tactics included threats to market access, strategic alliances and investments.[13]

In the aftermath of the criticisms of IP TA in the CIPR report, a proliferation of studies has examined more practical aspects in the delivery of IP TA. In his survey of TA provided to developing countries, Pengelly argues that IP TA need to be better tailored to development needs, and that assistance to low-income countries and LDCs needed to be radically scaled up. Further, he points out that there is insufficient promotion of pro-competitive enforcement and regulations of IPRs, while co-ordination of IP TA is insufficient. Kostecki suggests that more emphasis should be placed on business-relevant and hands-on training than on legal and policy issues. Some programmes are insufficiently tailored to developing country contexts; therefore intended beneficiaries show little ownership of their processes and outcomes. The paper concludes with two sets of guidelines to improve current IP TA practices. The first takes the form of an annotated checklist of questions for donors and providers to consider before undertaking IP TA activities. The latter is a checklist for beneficiaries aimed at encouraging a more pro-active involvement in IP TA design and implementation.[14] Leesti and Pengelly assess particularly the main difficulties of developing countries in implementing global IP rules.[15]

In his analysis of EC IP TA, Sagar examined the extent to which financial assistance and specialist advice has been an efficient use of resources and whether this has been sufficiently tailored to reflect the best interests of developing country WTO members.[16] He suggests a need to focus on quantity, quality and appropriateness of financial assistance and specialist advice by evaluating the extent to which the content of the TA fully represents the best interests of recipient countries. Recommendations focus on strengthening the various stages in TA programme design. Musungu likewise argues that much IP TA is too donor-driven and does not sufficiently focus on developing country needs. He suggests judging the success of activities on "whether the assistance contributed or failed to contribute to the overall goal of helping developing and least-developed countries minimise the risks related to IP especially with respect to the poor while maximising the

[11] In doing so, Deere builds on the work of authors such as Sell and May who consider the TRIPS Agreement a victory of technology-rich multinational companies, particularly pharmaceutical companies, which had vested interests in protecting their intellectual wealth from potential leverage in developing countries (see Sell, S. K. & May, C. (2001). 'Moments in law: contestation and settlement in the history of intellectual property'. Review of International Political Economy, no 8, pp. 467 – 500.

[12] TRIPS book reviews. *IP Kat,* 24.8.2009, http://ipkitten.blogspot.com/2009/08/trips-book-reviews.html

[13] Deere finds that this was a complex two-way relationship, however. Many developing countries were put under severe pressure and pushed towards strong intellectual property regimes through diplomacy based on a 'carrot-stick' approach. On the other side, Deere argues, in many developing countries we find civil servants, politicians and diplomats who were more interested in preserving and advancing their own interests rather than those of their country. See also Ghafele, R. (2010). 'Can IP Diplomacy be More than War by other Means?'. Oxford Journal on IP Rights & Practice, no 5, pp 200-204.

[14] Kostecki, M. (2006). 'Intellectual Property and Economic Development: What Technical Assistance to Redress the Balance in Favour of Developing Nations?'. http://ictsd.org/i/ip/18075/?view=document

[15] Leesti M. & Pengelly, T. (2002). 'Institutional Issues for Developing Countries in IP Policymaking, Admnistration and Enforcement'. Background paper prepared for CIPR and Leesti M. & Pengelly T. (2007). 'Assessing Technical Assistance Needs for Implementing TRIPS in LDCs'. Geneva: International Centre for Trade and Sustainable Development.

[16] Sagar, R. (2006). 'Identifying models of best practices in the provision of technical assistance to facilitate the implementation of the TRIPS Agreement'. Produced for the European Commission under its Sixth Framework Programme.

benefits."[17] Furthermore, a range of authors have attempted to assess the practical implications of IP TA in a series of developing country case studies.[18]

IP reforms and the promotion of innovation in developing countries

The capacity of developing countries to foster indigenous innovation through IP reforms has gone by and large unaddressed in the literature. The role of IP in stimulating innovation incites strong debates and claims are made in either direction. Heller and Eisenberg predict a medical anti-commons effect caused by too many patents on upstream technologies.[19] Several other scholars have demonstrated that patents only promote innovation to a certain extent, after which further patenting becomes counterproductive. This inverted relationship follows a U shape.[20] In a widely cited study carried out by Deardoff during the TRIPS negotiation period it was found that a certain level of national economic development, perhaps middle-income status, should be achieved before IP reforms tend to be appropriate.[21]

However, few studies[22] have considered empirically what happens to domestic IP-oriented industry sectors (such as, pharmaceuticals and software) if the IP system is reformed.[23] Maskus, lacking longitudinal, post-reform data, created a model to predict possible future economic results, such as production, sales, and employment, in the country given a variety of assumptions. That study did not raise the question of innovation. Yi Qian asked whether IP stimulated enough innovation in developing countries to justify the social, economic and political costs associated with it.[24] He finds that patents in and by themselves do not stimulate innovation. However, adequately managed patent systems do promote innovation in countries with high levels of education, development and economic freedom. He could not find similar evidence from developing countries, which he admits may be explained by data scarcity. Broadly speaking there is however quite little knowledge about real-world economic effects in developing countries when IP systems are reformed and hardly any effort has been undertaken to empirically study the effects of IP in fostering domestic innovation in developing country contexts.

[17] Musungu, S. (2003). 'Designing Development-Oriented Intellectual Property Technical Assistance Programmes'. Paper prepared at the Second Bellagio Series of the Rockefeller Foundation; Pengelly, T (2004). 'Technical Assistance for the Formulation and Implementation of Intellectual Property Policy in Developing Countries and Transition Economies'. Geneva: International Centre for Trade and Sustainable Development.

[18] Leesti, M. (2006). 'Special Challenges for IP TA in Capacity Building in an LDC'. http://www.iprsonline.org/ictsd/docs/LDCToolkit-final.pdf; Roffe, P. & Vivas, D. (2006). 'Case Study on IP TA in Regional and Bilateral Trade Agreements'. Geneva: International Centre for Trade and Sustainable Development.

[19] Heller, M. A. & Eisenberg, R. S. (1998). 'Can Patents Deter Innovation? The anticommons in Biomedical Research'. Science, no 280, pp. 698-701

[20] Horwitz, A. and Lai, E. (1996). 'Patent Length and the Rate of Innovation'. International Economic Review, no 37, pp. 785-801 and Gallini, N., 'Patent Policy and Costly Imitation'. Rand Journal of Economics, no 23, pp. 52-63.

[21] Reichman, J. H. (2003). 'The TRIPS Agreement Comes of Age: Conflict or Cooperation in the Post-Transitional Phase?' In T. Cottier and P. C. Mavroidis, eds., *Intellectual Property: Trade, Competition, and Sustainable Development*, pp. 115-140. Ann Arbor, MI: University of Michigan Press.

[22] Deardorff, A. V. (1992). 'Should Patent Protection Be Extended to All Developing Countries?'. The World Economy, no 13, pp. 497-508; Deardorff, A. V. (1992). 'Welfare Effects of Global Patent Protection'. Economica, no 233, pp. 35-51.

[23] Maskus, K. E. (1998). 'The Role of Intellectual Property Rights in Encouraging Foreign Direct Investment and Technology Transfer'. Duke Journal of Comparative and International Law, no 9, pp. 109-161. Maskus, K.E. (2005). 'Strengthening Intellectual Property Rights in Lebanon'. In C. Fink and K. E. Maskus, eds., *Intellectual Property and Development: Lessons from Recent Economic Research*, pp. 259-294. New York: Oxford University Press. Qian, Y., (2006). 'Do National Patent Laws Stimulate Domestic Innovation In a Global Patenting Environment? A Cross-Country Analysis of Pharmaceutical Patent Protection: 1978- 2002'. Review of Economics and Statistics, no 89, pp. 436-453. United Nations University, 'Breaking the Fence: Patent Rights and Biomedical Innovation in "Technology Followers"'. United Nations University Working Paper # 2006-2008.

[24] Qian, Y., (2006). 'Do National Patent Laws Stimulate Domestic Innovation In a Global Patenting Environment? A Cross-Country Analysis of Pharmaceutical Patent Protection: 1978- 2002'. Review of Economics and Statistics, no 89, pp. 436-453.

2.4. Impact assessment methodology

As IP introduces private property over knowledge, it gives way to a market based economy where surplus demand may be created on the basis of active, transparent markets for technology. IP can be a major driver of development within this context. The nature of IP TA is being assessed according to the following factors:

- Technological activity within the receiving country
- IP activity within the receiving country
- Description of IP TA received

This enables one to determine, on the one hand, the economic context of the country and to particularly study its science & technology and IP position (the assumed nature of demand for IP TA). On the supply side, this entails an assessment of the type of TA received so as to determine to what extent supply of TA has met demand. In a first step we therefore quantitatively assess the state of the IP-based knowledge economy in these selected developing countries. In a second step we then accumulate all available data on IP TA received by these countries. The two sources of information are then matched against each other, to answer the following two key questions:

- Does IP TA address the type of issues that are needed to build an IP based knowledge economy in a developing country?
- Is it designed to address the most urgent needs that a developing country is facing in order to fully leverage the benefits of an IP based economy?

In order to make a more differentiated assessment of the interplay between supply and demand, a taxonomy of IP TA is elaborated on the earlier framework to match the type of IP TA provided to these five countries against the reality on the ground.

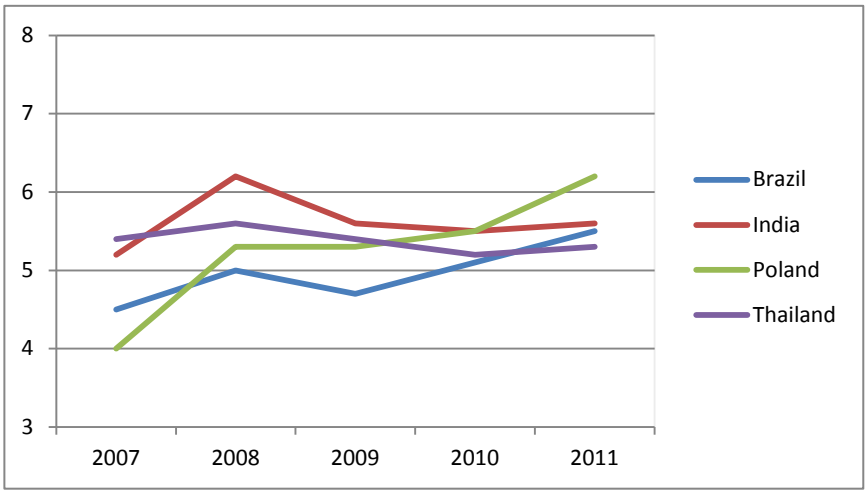
To provide quantitative support for this, the World Bank disposes of valuable data that allows for an assessment of the state of technology-based economic activity within a country. WIPO furthermore has data on international patent trends as part of the Patent Cooperation Treaty. This data allows one to understand the split between foreign and domestic filing within a developing country, as well as the share of global filing activities of a given developing country.

The most important documentary source of data on IP TA are TRIPS Article 67 submissions by developed countries. It is important to keep in mind that these are self-reported summaries of ongoing work that frequently entails both over- and under-reporting. Moreover, these do not include valuations of project data. As a result, we have attempted (with mixed results) to follow up with individual countries.

There is a certain risk that research findings may be too broad, too vague and too general; i.e. that this project cannot deliver any in-depth insights. In order to mitigate against this risk, we concentrate our analysis on four major developing countries and study only the timeline of the last five years (2005-2010). We therefore restrict our analysis to four economies; namely Brazil, India, Poland and Thailand. This reduction is necessary since, due to time and resource constraints, it is not possible to monitor and adequately assess **all** IP TA in **all** developing countries. Countries have been selected, as they are all major receivers of IP TA and emerging IP economies. These countries also cover different geographical areas, making the conclusions of the report as widely applicable as possible. Individual low-income or least developed countreis have not been chosen for case studies

to narrow the sample, and due to the limited availability of data. Furthermore, development assistance to these countries rarely takes the form of IP TA since the focus of development assistance tends to focus on other areas. The four countries selected also, according the Intellectual Property Rights Index for the years between 2007- 2011, have broadly similar (and generally increasing) levels of IP protection (see Diagram 1.1). [25]

Figure 2.2: Intellectual Property Rights Index, 2007-2011: Brazil, India, Poland and Mexico



Source: International Property Rights Index Reports, 2007-2011

From the methodology, we have derived the following working steps:

- **In-depth quantitative needs assessment**

  This was undertaken through the data provided in publicly available databases (including World Bank Data, OECD Data, UNIDO Data, World Economic Forum Data). Indicators, such as the average values for FDI inflows and licensing payments overseas by the case study countries were assessed. Furthermore, the total magnitude of international patenting activities within the country was examined. Where available, qualitative information of needs and key policy developments are used as well. [26]

[25] The IPRI is a survey-based international comparative study, assessing the significance of intellectual property rights and their protection for economic development See http://www.internationalpropertyrightsindex.org/

[26] Please see Annex 1 for detailed Tables on this data.

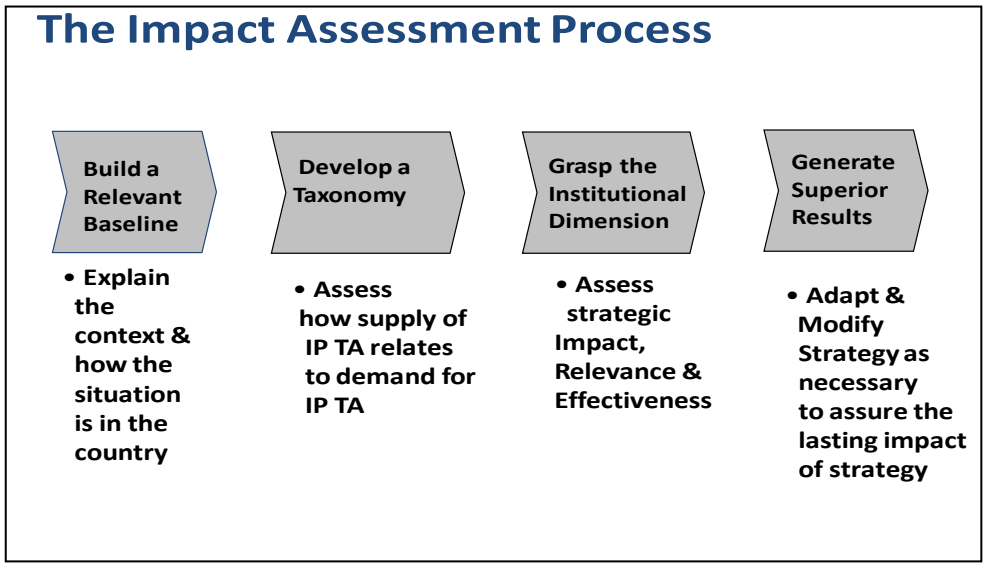
- **In-depth quantitative assessment of IP TA provided**

  Using publicly available data, we studied the scope IP TA provided to the selected sample. (WTO Article 67 submissions, as well as requests made to the donor itself).

- **In a final step, demand was matched against supply.**

  While it is not possible to construct direct causal relationships between supply and demand of IP TA, it is possible to map how demand relates to supply, as suggested by the data. Thus, we predict that our analysis allows us to draw some conclusions and further recommendations on future IP TA.

The purpose of this is to provide an indication of the context and consequences of IP TA and thus, to grasp to what extent IP TA has been conducive towards the achievement of a series of set goals. As such, we consider this undertaking an important tool to improve the legitimacy of strategic approaches towards IP TA, as well as a means to raise awareness on the issue, not only among the various donors, but also in recipient countries.[27] It aims to provide fact-based, impartial feedback that may help inform allocation decisions and generate lessons that can help improve the implementation of ongoing and future IP TA. Clearly, the impact assessment may be viewed as an aid towards decision-making, but not as a substitute for political judgment.[28]



[27] Baecklund, A. (2009). 'Impact Assessment in the European Commission – A System with Multiple Objectives'. Environmental Science & Policy – Article in Press.

[28] George, C. & Kirckpatrick, C. (2004). 'Trade and Development: Assessing the Impact of Trade liberalisation on Sustainable Development'. Journal of World Trade, no. 38, pp. 441- 46.

3. Impact Assessment of IP Technical Assistance in Thailand

3.1. Main Findings

When examining the IP-related economic context of Thailand since 2005, the following trends emerge:

- Thailand is well integrated into the global economy. Between 2005 and 2008, Thailand has seen continuous economic growth at 4.2% on average per year. Thailand's exceptional trading position is impressive with exports constituting nearly three fourths of the Thai economy. In spite of a minimal R&D budget, (only 0.2% of GDP is spent on Science & Technology), Thailand's exports in high technology goods constitute 25% of exports in manufacturing goods.

- Thailand is not a signatory to the majority of international IP treaties, a serious shortcoming impeding Thailand from fully embracing the opportunities of international economic integration. A country that has such an important trading position could in the long run see its trading context challenged if it does not adhere to those international treaties that strongly facilitate cross border trade. This said, Thailand has ratified the TRIPS Agreement and has in that context drafted a series of IP laws.

- IP has only recently emerged as a concept in Thailand. Most laws are not older than two decades and the IP Office has only been in place for fifteen years. Thus, the country has relatively little experience in judicial matters as they pertain to IP law. The same can be said for enforcement. With respect to Plant Variety Protection it seems that there is further scope for legal clarification.

- Given the short period of its existence, the Thai Patent Office has done an excellent job in bringing IP closer to the people and raising awareness about IP. DIP, the Thai Patent Office, has organized events such as 'IP, Women and Traditional Handicrafts' and has developed IP curricula for schools. The Thai Patent Office is also one of the few patent offices that fully recognize that IP is an economic asset and it seeks to the best of its abilities to help realize the economic value of IP.

The quantitative assessment of Thailand's economy, and particularly the role of S&T technology in Thailand, suggest that IP TA should aim at helping Thailand resolve the following issues in a concerted way:

- Help Thailand to ratify the most important international treaties in the area of IP since the Thai economy is largely integrated in the global economy.

- Help the Thai Government to reinforce clusters and cross-linkages. The Thai economic climate is characterized by a lack of exchange and a lack of knowledge transfer between industry and universities. These need to be overcome through adequate boundary spanning.

With these types of issues becoming imminent as the most pressing issues that Thailand would need to address to potentially leverage Science & Technology as an engine of growth, has IP TA met its goals? The following main findings emerge:

- IP TA in Thailand is mainly driven by Japan, the USPTO/USAID, the WIPO and the WTO. Bilateral assistance from various member states of the EU is more sporadic and there is less continuity. Japan is an important exception to this.

- Similarly to other developing countries, IP TA in Thailand is offered by various actors, shows little duplication in the sense that major providers (USPTO with the support of USAID, WIPO and WTO) occupy very different fields in the area of IP TA. The USPTO/USAID is primarily concerned with enforcement and the training of judges. WIPO has primarily assisted Thailand in drafting its IP laws. The WTO's IP TA is aimed at raising awareness about various aspects of the TRIPS Agreement. It is interesting to note that among all of the advice provided on the TRIPS Agreement, we could only find one consultative meeting provided by WHO on health related safeguards. While it seems that all of these efforts are important milestones towards the achievement of an IP-based economy in Thailand, most of the IP TA offered lacks continuity.

- However, one inevitably runs into problems of scalability. The budget spent on IP-related TA is small and diminishing. Given that Thailand is a country of nearly 90 million people, all of the courses, training programs and expert missions provided are deemed to have modest outputs given the sheer budgetary limitations of IP TA. This suggests that even among donors, the important role that IP plays to a knowledge-based economy is not fully grasped.

3.2. Needs assessment

State of the economy[29]

The economic performance of Thailand has been impressive throughout the last 40 years. Like several other East Asian countries, Thailand has experienced a transformational change in the structure of its economy. Whereas agriculture still contributed to more than 40% of its GDP in the 1960s, services currently dominate with an approximate contribution of 45% to the economy. A similar transformation can be observed in the country's export structure where resource-based and labour-intensive goods and services historically dominated, whereas Thailand is currently exporting more diversified goods and services. Nonetheless, Thailand is far from being primarily an exporter of science-based goods and services. Thailand has thus not seen the same transformational changes as neighbouring South Korea or Singapore.[30]

Between 2005 and 2008, Thailand had an average annual GDP growth of 4.2%. In 2009, Thailand's economy contracted by 2.2%, which, compared to the regional average (0.1%), was relatively substantial. The average global contraction was however 1.9% and, like many other countries that are highly connected to global markets and supply chains, Thailand was unable to escape the global financial crisis. Relative to the sample countries considered here, Thailand's economic growth is average and the GNI per capita in 2009 was at $3,760. Strong income disparities nonetheless persist.

Relative to its size, Thailand has seen moderate inflows of FDI since 2005, but compared to the sample studied, Thailand receives the lowest amount of FDI. Intarkakumnerd et al. (2002) have

[29] Please see Annex 1 for detailed Tables on the data discussed in the following section
[30] Intarakumnerd, P., Chairatana, P. & T. Tangchitpiboon (2002). 'National Innovation System in Less Successful developing Countries: the case of Thailand'. Research Policy, no 31, pp. 1445-1457.

shown in a study for Research Policy that low levels of technological spill-over can be documented from transnational corporations: 'Unlike Singapore, where the strong links between TNCs and local firms has been consistently upgraded to help strengthen local technological capability, the links for technological development between TNCs and their subsidiaries in Thailand are rather limited... TNCs have not been active in developing subcontractors or giving assistance to local suppliers.'[31]

Compared to the sample studied, Thailand has the most open trading regime. With average exports in the last five years at 73% and imports at 68.4% of GDP, Thailand not only runs a trade surplus, but is an impressive example of international economic integration. Indeed, Thailand is placed well above regional averages in terms of exports and imports, which in 2009 were 25.2% and 23.3% respectively. It is also higher than the average for high-income OECD countries, which were 22.1% for exports and 23.3% for imports in 2009.

Table 3.1: Exports of Goods and Services as a percentage of GDP

	2005	2006	2007	2008	2009
BRAZIL	15%	14%	13%	14%	11%
INDIA	19%	21%	21%	24%	21%
POLAND	37%	40%	41%	40%	39%
THAILAND	74%	74%	73%	76%	68%
EAST ASIA AND PACIFIC	31.6%	33.5%	34.3%	34.5%	25.2%
HIGH INCOME (OECD)	22.6%	24.1%	24.9%	25.7%	22.1%

Source: World Bank data

Science & Technology

Thailand spends 0.2% of its GDP on R&D and this is by far the lowest amount of funding available for R&D among countries considered in this study, and is low compared to OECD countries' average spending of 2 to 3%. Thailand however intends to increase its R&D spending to 1% of GDP by 2016.[32]

As is typical for developing countries, R&D spending is mainly driven by the public sector with weak linkages between public research institutions and local business. Thus, it is impressive that high technology exports constitute 25% of manufactured goods, the highest percentage rate among the sample studied. It is also high by regional standards, where the average in 2009 was 19.6%.

[31] Intarakumnerd, P., Chairatana, P. & T. Tangchitpiboon (2002). 'National Innovation System in Less Successful developing Countries: the case of Thailand'. Research Policy, no 31, pp. 1445-1457.

[32] Danvivathana, P. (2002). 'What are the Needs for Technical Assistance from an Asian Developing Country's Perspective?'. Presented at a Conference on 'Implementation of the Doha Declaration on the TRIPS Agreement and Public Health.' Conference Contribution Geneva 28th of March 2002; Limsamarnphun, N. "Thai R&D lags far behind our competitors." http://www.nationalmedia.com

Table 3.2: High Tech Exports as percentage of Manufactured Goods

	2005	2006	2007	2008	2009
BRAZIL	13	12	12	12	n/a
INDIA	5	5	5	6	n/a
POLAND	4	4	4	5	n/a
THAILAND	27	27	26	25	n/a
HIGH INCOME (OECD)	20.5%	20.6%	18.1%	17.6%	19.3%
EAST ASIA AND PACIFIC	20.5%	20.6%	18.7%	18.2%	19.6%

Source: World Bank data

Similarly, Thailand's human resources in R&D need further development. According to the World Bank, Thailand had 18,114 researchers in R&D per million people in 2006. Consequently, Thai nationals in Thailand have published very few scientific and technical journal articles. The "Ten-Year Science and Technology Action Plan" (2004-13) aims to enhance the national innovation system and promote industrial clusters. Thailand's Science and Technology plan is based on five pillars:

- Strengthening of human resources in science, technology and innovation;
- Raising awareness about science, technology and innovation among youth and the public at large, and the development of a science knowledge society in Thailand;
- Research and development of new innovations to enhance S&T competitiveness and the strength of the national innovation system;
- Technology transfer and knowledge-sharing to increase productivity of commercials and of social services;
- Capacity building of basic infrastructure in S&T.[33]

Intellectual Property in Thailand

Thailand's commitment to providing effective and appropriate enforcement of intellectual property rights has triggered the enactment of IP-related judicial reform. These include the Copyright Act (1994), the Patent Act (1979), the Trademark Act (1991), Protection of Layout-Designs of Integrated Circuits Act (2000), Trade Secret Act (2002), Protection of Geographical Indications Act (2003) and Optical Disc Production Act (2005).[34] Most of these reforms were undertaken in the last thirty years, and IP is thus a fairly recent concept in Thailand. By the same token, the Department of Intellectual Property (DIP), Thailand's IP Office, has only existed for the last fifteen years. Thailand is not a signatory to most international treaties pertaining to IP and this stands in strong contrast to the country's open trading position. It is worthwhile to note that in the strategic plan of the IP Office, IP is continuously referred to as an economic asset and strategic questions such as the use of IP by SMEs are given a lot of consideration.[35]

Thailand's IP reforms, which aimed for TRIPS-compliance, yielded demonstrable results and significantly improved IP administration in terms of physical infrastructure, efficiency, clearance of backlog and computerisation. ICTSD (International Centre on Trade and Sustainable Development), the European Commission and the U.S. trade representatives have undertaken assessments of the

[33] The SEA-EU-Net Project, 'R&D Country Profile Thailand'. http://www.sea-eu.net/asia/info/10/thailand.html
[34] WTO (2007). 'Trade Policy Review – Thailand'. Geneva: WTO.
[35] "IP Capitalization." http://www.thailawonline.com/en/others/intellectual-property.html

state of IP reforms in Thailand with partially different results.[36] ICTSD concluded in 2005 that there is further need for IP TA as IP is quite new to Thailand; the EC and the US have in their most recent reports (2010) raised concern about the state of IP protection in the country. The US has blacklisted Thailand both for issuing compulsory licenses and for lacking adequate respect for IP. The EC has recently undertaken an impact assessment of IP enforcement in Thailand and has uncovered a serious lack of adequate enforcement mechanisms for IP.[37]

According to the Patent Cooperation Statistics of WIPO, patent applications by non residents are seven times higher than patent applications by residents; a trend typical for developing countries. It suggests that Thailand's indigenous innovation system is not yet at the same height as that of developed countries. There is thus substantial scope for IP TA, in order to bring the IP system closer to the local community of inventors and entrepreneurs. Thailand is not a member of the Madrid System for International Trademark Registration or the Hague System for the International registration of Industrial Designs and thus it is not possible to use these systems for IP protection in Thailand. Thailand is also not a Member of the Paris Convention.

3.3. Likely IP TA demands

In terms of the main policy priorities and challenges identified, it is helpful to return to the taxonomy identified previously to look at areas where IP TA interventions would appear logical.[38] Following this, the key priorities (and primary potential areas for assistance) over the 2006-10 period would likely have included the following:

Support to legislation, regulation and policy development

Intellectual Property laws are very recent in Thailand. The Patent Act, the Trademark Act and the Design Rights Act were all quite recently adopted and substantial uncertainty remains with respect to the de-facto enforcement of these laws. At the moment, major legislative reforms are in progress. This includes the modernization of Copyright law to provide better protection in the digital environment and the strengthening of law enforcement. The U.S. Trade Representative reports that in Thailand 8,000 people were arrested for IP violation and 5.1 million infringing goods were seized in 2010.[39]

For the period 2006-10, key legislative priorities in the area of IP were focused on developing appropriate mechanisms, strategies and safeguards to deal with sensitive IP-related issues such as traditional knowledge. Contrary to many other countries, Thailand has made IP a key policy cross-cutting area, as demonstrated by the establishment of the National Committee on IP Policy that is chaired by the Prime Minister, as well as the pro-active plan on prevention and suppression of IP violations. The Thai Government has equally initiated the Creative Economy Policy, which aims to promote knowledge-based and creative industries within the country.[40]

[36] Kuanpoth, J. (2005). 'Intellectual Property- Related Technical Assistance, Cooperation, and Capacity Building: The Thailand Experience'. ICTSD Dialogue on Technical Cooperation for IP Policy in Developing Countries: Geneva, 11-12 2005.
[37] DG Trade (2010). 'State of IP in Third Member Countries: Special 301 Report, Thailand's Progress in Protecting and Enforcing Intellectual Property Rights'.

[39] Ibid.
[40] Ibid.

Institutional support to IP Administration

Like many other patent offices in the world, the Thai Patent Office faces a backlog, and in 2007 the number of patent examiners had remained constant since 2002, which means that each examiner in 2009 handled an average of 253 applications per year.[41] The patent office further suffers from a lack of automation procedures, access to adequate databases to undertake prior art search and lack of adequately trained staff. ICTSD reports that there is a need to 'facilitate the better management of IP, such as the reorganization of the DIP to improve efficiency. Assistance is also needed to review the process for patent granting and repealing in order to improve the administration of the IP system. The same technical assistance is also required for the improvement of the plant variety protection registration system.'[42]

Particularly problems of insufficient capacity (both in terms of quantity of examiners and their training) within the IP system place a strain on its expansion. Further problems in this area include a lack of sufficient IT use, not enough training possibilities, and insufficient resources to IP offices. Addressing these issues through IP TA could be a means of making substantial improvements. The reasons for the backlog can thus be summarised as a lack of personnel, such as less expertise in some technical fields, the lack of training programmes as well language problems.[43] Importantly, databases and computer systems do furthermore not function effectively.[44]

Support for innovation, technology transfer, and IP awareness

Thailand has been described as a laggard in terms of technological catch-up.[45] It seems that Thai firms have not sufficiently leveraged technological innovation as a means to growth. Their technological learning capabilities have been characterized as slow and passive. Technological capabilities are mainly concentrated among transnational corporations. SMEs are mainly concerned with operational issues and lack adequate awareness. On the governance side, it is laudable that the Government has initiated a national Science and Technology plan, yet it has to be cautioned that this plan is one of the first of its kind. The National Economic and Social Development Plan only began to address Science and Technology in 1982.

Overall, science and technology in Thailand is characterized by weak linkages and weak cooperation, both among between firms within the same industry and firms within different industries. Consequently, low technological spill over effects can be observed. Trans-national corporations (TNCs) that have invested in Thailand have not spent a lot of resources on promoting the transfer of technology as the local industry was perceived as backwards and TNCs did not see the potential for returns on these types of investments. University-industry linkages are equally weak as local universities undertake relatively little research with industrial applicability and local business tends to mistrust the research potential of local universities. Also, linkages have not profited from adequate institutionalization. Successful technology transfer depends therefore on the adequate institutional infrastructure. As Kuanpoth argues, improved technological capabilities and increased capacity are also critical for the sustainable use of IP. In moving towards this, Thailand would benefit

[41] Subsompson, W. (2009). 'Thailand.' Intellectual Property in Asian Countries, WIPO: Geneva.

[42] Kuanpoth, J. (2005). 'Intellectual Property - Related Technical Assistance, Cooperation, and Capacity Building: The Thailand Experience'. ICTSD Dialogue on Technical Cooperation for IP Policy in Developing Countries: Geneva, 11-12 2005.

[43] Subsompson, W. (2009). 'Thailand.' Intellectual Property in Asian Countries, Geneva: WIPO.

[44] Ibid.

[45] Intarakumnerd, P., Chairatana, P. & T. Tangchitpiboon (2002). 'National Innovation System in Less Successful developing Countries: the case of Thailand'. Research Policy, no 31, pp. 1445-1457.

from long-term international cooperation and the provision of adequate technical assistance.[46] Thailand has initiated important programs in the area of IP education. These could be further enhanced through technical assistance aiming at adequately training the relevant interest groups.

Support to IP protection and enforcement

Support to IP protection and enforcement is a very pressing issue. With the increasing innovative capacity of the Thai economy, and a relatively low level of IP awareness among the judiciary body, innovators face problems and challenges mainly in the areas of protecting and enforcing their rights. This particularly points to the need to ensure that the IPR regime actually delivers its promises.

3.4. Assessment of the supply of IP TA

We thus proceed by documenting and assessing the type of IP TA that Thailand has received in the last five years according to TA provider. While this data is likely to be incomplete, and focuses on assistance specific to IPRs (rather than broader assistance to science and innovation systems) it nonetheless provides a helpful overview.

The major providers of IP TA to Thailand in the last five years have been Japan, WIPO, the USPTO, the WTO and the EPO. There has also been some TA provided by several European countries on a bilateral basis, such as the French Patent Office. An assessment of the various technical assistance programmes offered to Thailand does not show a great deal of overlap or duplication. In fact, various donors occupy quite distinct aspects of IP TA. WIPO's IP TA seems to mostly address economic and strategic aspects of IP, while the USPTO predominantly focuses on counterfeiting and piracy as well as enforcement issues. The WTO provides IP TA mainly related to the implementation of the TRIPS Agreement, the EPO focuses on enhancing the capacity of the Thai Patent Office and the Japanese Patent Office's development aid is mainly focused on Plant Variety Protection.

Smaller bilateral donors such as the French Patent Office have equally sought to foster a better understanding of Geographical Indications, which is an area of major importance for the French economy, and in turn, trade diplomacy. The type of TA received by various donors seems to reflect to a large extent the broader vision and agenda of the donor itself. WIPO provides a good example of this. Its previous Director General's mission and vision were to 'promote IP as a 'power tool for economic growth'. Consequently, most IP TA is in line with this idea. The USPTO again appears to be primarily concerned with IP enforcement issues and the promotion of the respect of IP rights, and this is unsurprising in that many U.S. corporations file for IP protection in Thailand and thus wish to have these adequately protected.

In terms of the number of activities carried out, the **United States** (USPTO jointly with USAID), follows Japan as the most active player in development aid in Thailand. USPTO and USAID are followed by the WTO and WIPO. As the chart below illustrates, the activities of the USPTO/USAID pertain, like in many other developing countries, primarily to issues related to IP enforcement and counterfeiting as well as piracy. The data suggests that the USPTO, with the support of USAID, is primarily concerned with the institutionalization of an effective judicial system where IP owners have the guarantee to claim their rights in case of a violation or an infringement.

[46] Kuanpoth, J. (2005). 'Intellectual Property - Related Technical Assistance, Cooperation, and Capacity Building: The Thailand Experience'. ICTSD Dialogue on Technical Cooperation for IP Policy in Developing Countries: Geneva, 11-12 2005.

WIPO IP TA focuses primarily on legal advice and TRIPS negotiations (see Table 3.3.). Overall, WIPO has not been very active in Thailand. As the chart below illustrates, WIPO's TA tends to be ad-hoc and possibly more continuity would be needed.

Table 3.3: Assistance by WIPO according to specific categories

WIPO	2005	2006	2007	2008	2009	2010
WIPO Development Agenda						
IP Management in SMEs						
National IP Strategy (including IP & Health & TK)						
Tech Transfer				1		
Legal Advice		1		3		
TRIPS Negotiations				1	1	
IP Administration at the Patent Office						
IP Enforcement			1			

Source: WIPO Database, Art. 67 returns

The IP TA provided by the **WTO** primarily addresses issues related to the TRIPS Agreement. TRIPS standards, TRIPS implementation, trade policy and IP are the issues that the WTO addresses in its IP TA. Only one seminar was held with the support of the WHO on TRIPS safeguards as they pertain to public health. The bilateral development aid of various **EU Member Countries** is rather patchy, unsystematic and does not show a particularly clear development pattern. It relates primarily to patent information and patent search. The EPO IP TA in Thailand was very intensive in 2005 and there was no follow up since then. The work of the EPO relates primarily to conducting patent examination.

The **Japanese Patent Office** forms an important exception. Japan is very active in Thailand. Japan is the only donor that provides consistent IP TA in selected key areas of major importance to Thailand (see Table 3.4).

Table 3.4: Assistance by Japan according to specific categories

Japan	2005	2006	2007	2008	2009	2010
IP Education		1	1	1	1	
Copyright	1	1	1	2	2	2
Plant Variety Protection	1	2	2	2	2	2
IP Enforcement	1	1	1	1	1	

Source: WTO Art. 67 returns

3.5. Matching Supply and Demand

Contrasting the IP TA received with Thailand's wider economic and IP-specific context provides a robust impact assessment of the IP TA received. If IP TA received in the last five years were to address the key challenges that Thailand is facing in building domestic capacity and leveraging IP as tool for economic, cultural and social prosperity, one may assume that it is having a desired impact. If, however, IP technical assistance received by Thailand does not address issues that, according to the data and research, should be focused on, then there would be scope for improving technical assistance in this area. In terms of the main policy priorities and challenges identified, it is helpful to

return to the taxonomy identified previously to look at areas where IP TA interventions would appear beneficial, and in turn to what extent these were addressed.

IP technical assistance, in turn only responded partially to these needs in the area of **legislation, regulation and policy development**. . The most substantial legislative assistance was received from WIPO on drafting various pieces of IP legislation and from Japan on plant variety protection (over many years). Given that Thailand passed many of its IP laws in recent years, it is not unlikely that WIPO and Japanese TA had some impact, though determining this with any degree of certainty would require far more detailed qualitative research on the nature of TA provided, the beneficiaries, and the role this had in the final outcome. Furthermore, the heavy focus by many providers on enforcement (particularly on counterfeits) may have had some impact on further raids of counterfeit goods, though it is likely that foreign pressure – especially through the US's Section 301 Priority Watch-list system – had a more substantial impact in this regard than TA.

As discussed earlier, the Thai Patent Office has faced a severe backlog. IP TA has in part addressed this: **institutional support to IP administration** had been a focus of many European IP TA providers, as well as by Japan and to a more limited extent, the US. Given the number of training courses offered, it is likely that many patent and trademark examiners received some form of training through IP TA providers. Given the higher level of capacity and skills in developed countries, this is an important source of skills transfer that can have a substantial, if not necessarily directly quantifiable or attributable, impact. Similarly, the WTO's focus on training IP teachers is likely to have a more sustainable downstream impact.

Considering the substantial importance placed on support for innovation, technology transfer, and IP awareness by the Thai government, and its centrality to ensuring that the IP system reinforces broader development objectives, this area seems to have been in part neglected by major IP TA donors. Some WTO and WHO training courses did address linkages to broader development priorities (such as public health). Most significantly, USAID's support focused on the improvement of technology transfer between business and universities. More IP TA would be needed in order to achieve adequate outreach. Possibly, business could be better leveraged so as to achieve the enhanced transfer of technology.

Support to **IP protection and enforcement capacities** has been given a strong priority in IP TA programmes. The USPTO appears particularly concerned with IP enforcement issues and the promotion of the respect of IP rights. It does seem that these activities may have contributed to an improving situation in the area of enforcement and there are discussions about taking Thailand off the 301 Priority Watch List of the U.S.

4. Impact Assessment of IP Technical Assistance in Poland

4.1. Main Findings

When examining the IP-related economic context of Poland since 2005, the following trends emerge:

- The major turning point of the Polish economy was the country's accession to the EU in 2004 when the Polish economy started growing at an annual average of 4.6%. Polish growth has to a significant extent been supported through EU cohesion funds.

- This overarching economic trend can however not be observed in the area of science and technology, an area that suffers from both a lack of funding and adequate linkages between industry and universities.

- Similar trends are exhibited with respect to IP. Licensing and royalty fees that Poland pays to third parties are 1,142 times higher than licensing and royalty revenues that Poland receives from abroad. Since 2008, patents in Poland are mainly leveraged by domestic entities. Yet, data and licensing revenues generated suggest that the local community of entrepreneurs and inventors have not yet fully taken advantage of the economic opportunities of IP. This is an area where IP TA could have a large impact.

The quantitative assessment of Poland's economy, and particularly the role of science and technology, suggest that IP TA should aim at helping Poland resolve the following issues in a concerted way:

- Address issues related to increasing spending on R&D and assess how the grip of the state on the economy may be reduced to offer a more entrepreneurial business environment.

- Bring licensing practices closer to the local community by raising awareness about the economic opportunities of the IP system and explaining to businesses and universities alike how to better extract value from the IP system.

- Continue to ensure that adequate enforcement mechanisms are in place so that right holders can claim their rights and have the certainty that what they own today they will also own tomorrow.[47]

With these types of issues becoming eminent as the most pressing issues that Poland would need to address to potentially leverage science and technology as an engine of growth, has IP TA met its goals? The following main findings emerge:

- IP TA in Poland is mainly driven by the EU. TA provided by the WIPO, the USPTO and the WTO has been minimal.

[47] See the stability of possession argument as expressed by David Hume.

- IP TA offered by the EU shows a strong degree of continuity and consistency. It addresses primarily issues related to building an IP-based economy and increasing linkages between universities and industry. The IP TA of the USPTO, the WIPO and the WTO shows little duplication in the sense that major providers (USPTO with the support of USAID, WIPO and WTO) occupy very different fields in the area of IP TA. The USPTO/USAID is primarily concerned with enforcement and the training of judges. WIPO seeks primarily to assist Poland with leveraging the role of IP in relation to business. The WTO does not record any TA provided to Poland during our sample studied. It seems that particularly the efforts of the EU are important milestones towards the achievement of an IP-based economy in Poland.

- The strong focus of IP TA provided by the EU to Poland stands to a certain extent in contrast to the IP TA provided to other Eastern European countries. Ultimately, the EU will have to ensure an equitable distribution of development assistance, so to ensure that development aid received by Poland does not create a crowding out effect.

4.2. Needs assessment

State of the economy[48]

In 2004, Poland became a member of the European Union. Between 2005 and 2009, Poland's GDP has grown on average by 4.6%. It is worthwhile noting that in spite of the global financial crisis in 2008, Poland's economy grew at 1.7%, a relatively high figure when compared to other OECD countries, which on average contracted by 3.4% the same year. Poland is the largest recipient of EU cohesion funds, with EU transfers reaching on average 3.3% of GDP in the next years. While these transfers may raise real growth by 0.5 to 1.5%, these may also generate inflationary pressure.[49]

Since 2005, Poland has important inflows of FDI relative to its size, which is indicative of substantial volumes of technology transfer. These inflows are an important source of capital, as domestic needs are not necessarily met by the capital available in Poland. Yet, in order to fully benefit from these FDI inflows, linkages between domestic firms and international investors would have to be reinforced.[50] Unless adequate institutional linkages are firmly established, these FDI flows will not be fully absorbed by the local economy and may thus not serve the purpose of technology transfer.

Table 4.1: FDI Inflows (BOP US $ Billions)

	2005	2006	2007	2008	2009
BRAZIL	15	18	35	45	26
INDIA	7.6	20	25	41	35
POLAND	10	20	23	15	11
THAILAND	8	9	11	8.5	5

Source: The World Bank

Poland's imports of goods and services slightly exceed exports. However, exports constitute nearly 40% of GDP, and this is high compared to other high-income OECD countries (22.1% for exports and 27.1% for imports in 2009). Poland's economy may thus be described as an open market-based

[48] Please see Annex 1 for detailed Tables on the data discussed in the following section
[49] OECD (2010). 'Economic Survey of Poland'. Policy Brief: www.oecd.org
[50] Ibid.

economy. It has been illustrated that Poland has made strong progress in increasing its international linkages and made a substantial transition from the communist centrally planned economy it once had. This being said, Poland's state intervention remains disproportionately strong compared to other market-based economies.

Science and technology

Poland spends 0.5% of its GDP on research and development. This is about the same level as Mexico spends on its R&D, but compared to other OECD countries, it is substantially below average. A lack of adequate investment in R&D is accompanied by inadequate linkages between local universities and local industries. According to OECD research, Poland also grants minimal amounts of tax credits to boost R&D spending. Possibly, the further privatisation of industry may also help to foster R&D linkages. It therefore comes as no surprise that high technology exports contribute to a moderate 4.25% of exports of manufactured goods in Poland. Compared to other high-income OECD countries (19.3% in 2009) and the European region at large (16.5% in 2009) this is very low.

While Poland does dispose of a reasonable mass of scientists, research output, as measured by international journal articles published, is however low. The OECD reports found that in 2007 there were four scientists per thousand people and 17% of students studied engineering. With an unemployment rate among recent graduates of 6.2%, young graduates face an unattractive job market.[51]

Poland's current Innovation Strategy (2007-2013) is based on the following pillars[52]:

- Develop Human Resources to build a knowledge-based economy
- Link public R&D activities to the needs of business
- Improve intellectual property rights
- Mobilise private capital to create innovative firms
- Build an infrastructure for innovation

Intellectual Property in Poland

The transition from Communism was accompanied by the institutionalization of adequate IP protection. Poland is a signatory to the Paris Convention on the protection of industrial property, the PCT and the Madrid System. As the notion of private property as expressions of the human mind is quite recent, Polish innovators still find it hard to come to grips with the concept. It thus comes as no surprise that Poland receives 1.4 BoP in current US $ billion through royalties and licenses, but pays on average 1,600 BoP in current US $ billion in royalties and licensing fees.[53]

According to the Patent Cooperation Statistics of WIPO, patent applications by residents are higher than patent applications by non-residents; an untypical trend for economies in transition. This may suggest several issues. On the one hand, it shows that Polish innovators are filing for patents, but do not fully understand how to extract value from these. On the other hand, the substantial drop in foreign patent applications, from 4,555 in 2005 to 290 in 2008 may be indicative of data or administrative issues, or be it may be influenced by the global financial crisis.

[51] OECD (2010). 'Poland, science and Innovation Country Notes'. OECD Science, Technology and Industry Outlook.
[52] Ibid.
[53] World Bank Data

Poland remains on the Section 301 Priority Watch List of the US, which reports that copyright piracy is commonplace in Poland. While the Polish Government has taken important efforts to strengthen enforcement mechanisms, such as criminal sanctions on optical disc regulation, more would be needed to make enforcement procedures more efficient and effective.[54]

4.3. Likely IP TA demands

Following the taxonomy of IP TA developed earlier, the key priorities (and primary potential areas for assistance) over the 2006-10 period would likely have included the following:

Support to legislation, regulation and policy development

Legislatively, the right to private property only came into force with the establishment of a market based economy. The late 1990s thus saw a substantial revision of the patent law that simplified procedural aspects of patent application and processing, making it TRIPS- and PCT-compliant, and incorporating provisions to protect the public interest in areas such health, biodiversity and traditional knowledge. In Poland, patents are not granted for plant variety. Legislation in the areas of designs, trademarks and geographical indications were also revised in the same time period.

For the period 2006-10, the need to raise of IP issues and IP priorities among policy-makers, regulators, private sector and civil society groups, and legislators beyond the immediate IP community in order to help mainstream IP issues and priorities into development planning (and to integrate broader development and poverty reduction priorities into IP policy) remains an important priority for IP TA. Assessing the impact of IP TA will depend in part how it addresses these issues.

Institutional support to IP Administration

The Polish patent office is well staffed. Since 2008 it is also possible to register inventions on-line. Major automation projects, as needed in other countries, are thus not a priority for Poland.

Support for innovation, technology transfer, and IP awareness (IP for Development)

Poland is a major beneficiary of E.U. programs that seek to raise awareness of IP among SMEs and promote IP as a tool for economic prosperity. Poland has for example fully benefited from the IP Europe Aware Program, which sought to promote IP among the European fashion and furniture industry. Poland also enjoys the benefits of the Priority Axis Innovative Economy Operational Program, which seeks to support SMEs in applying industrial property rights. Poland is also covered through the European Enterprise network. Thus, with the support of the national patent office, these programs should bear fruits in the medium term.

[54] The International Intellectual Property Alliance (2010). 'Special 301 Report: Poland'. www.iipa.com

Support to IP protection and enforcement

Among priorities listed in policy documents, this seems to remain an important issue. However, with the increasingly innovative capacity of the Polish economy, and a relatively moderate level of IP awareness in the judiciary, innovators face problems and challenges mainly in the areas of financial assistance and marketing of their innovation. The 'team for combating violations of copyright and related rights' was set up in 2000.[55] Its main tasks are to analyse the nature of piracy and suggest ways how to overcome it. This particularly points to the need to ensure that the IPR regime actually provides the level of protection suggested by the strong legal framework.

4.4. Assessment of the supply of IP TA

As in the prior case study of Thailand, contrasting IP TA received with Poland's wider economic and IP-specific context provides a robust impact assessment of IP TA received and allows us to address the key research questions. While this data is likely to be incomplete, and focuses on assistance specific to IPRs (rather than broader assistance to science and innovation systems), it nonetheless provides a helpful overview.

Poland has received substantial TA from the **EU** through programs such as 'IP Europe Aware', 'European Enterprise Network', 'IEOP activity 4.2 Stimulating the Research & Development Activity of Companies' and the 'IEOP Activity 5.4 Industrial Property Management.' All of these programs last over several years and show thus continuity in their delivery. Also, they are very well funded. The IP Europe Aware Program for example lasted for three years and had a budget of 5.9 million Euro at its disposal.[56] This stands in strong contrast to the very patchy and occasional TA received by the typical donors of TA, such as WIPO, the USPTO and the WTO. These donors have only very occasionally contributed to IP TA in Poland. On the other hand it must be said Poland itself is a major contributor to Development Cooperation. In 2008 Polish net ODA amounted to USD 372 million.[57]

TA by the **USPTO/USAID** to Poland has mainly focused on IP enforcement, counterfeiting and piracy, and plant variety protection. This is in line with the USPTO's overarching goals for IP TA and may also reflect interest of the U.S. to support the implementation of plant variety protection in Poland. What is striking, however, is the relatively low number of TA Projects undertaken. Compared to IP TA provided to other countries, what is offered to Poland is minimal. Once again, it reflects the interplay between a donor's geopolitical interests and its development aid.

Like in many other countries, **WIPO** IP TA focuses primarily on issues related to the role of IP in economic development. Thus, we find a range of seminars and training courses that assess the role of IP in SMEs, the improvement of technology transfer between business and universities, as well as a seminar on IP, women and business. Overall, WIPO's TA in Poland has been patchy and scarce. It mostly covered sending speakers to joint events with the Polish Patent Office.

The **WTO** IP TA addresses primarily issues related to the TRIPS Agreement. It is worthwhile noting that the WTO reports show that the WTO has not provided any TA during the timeframe studied. We thus contend that the WTO did not see a particular need to offer IP TA to Poland.

[55] See for example, http://www.ipeuropaware.eu/

[56] For a more detailed discussion of EC support to the Polish IP system, as well as other ongoing initiatives, see Klincewicz, K. et al. (unpublished) 'Economic Determinants for Development and Protection of Industrial Property in Poland'. WIPO.

[57] OECD (2010). 'DAC Special Review of Poland 2010'. www.oecd.org

4.5. Matching Supply and Demand

IP TA to support **legislation, regulation and policy development**, and directed towards raising IP issues and priorities among policy-makers, regulators, private sector and civil society groups, and legislators does not seem to have been provided on any large scale. Poland's accession to the EU in 2004 and its transition to a market-based economy has lead to some limited TA provided by the EU towards legislation. Its accession was accompanied by a series of assessment exercises, which served to reinforce Poland's judicial framework. The patchy seminars on Plant Variety Protection provided by the USPTO are unlikely to have had a direct impact on legislation or regulation in Poland. We could not find any evidence of institutional support provided that aimed at strengthening **IP administration** in Poland.

There has been a major focus on **promoting IP for the benefit of the local economy, and specifically local SMEs and universities**. This was primarily provided by the EU. As the overarching contribution of donors other than the EC was diminishingly small, their interference with the local economy may be described as close to nil.

Support to **enforcement capacities** seems to remain the major focus of the USPTO. While this is also a priority for Polish firms, it seems to reflect broader strategic business interests, especially considering the heavy focus on strengthening the judiciary on anti-counterfeiting.

5. Impact Assessment of IP Technical Assistance in India

5.1. Main Findings

When examining the IP-related economic context of India since 2005, the following trends emerge:

- Contrary to many other countries, India has seen continuous economic growth at 6.6% on average over the last five years. Growth rates are, however, unevenly distributed and gaps prevail between the rural poor and the urban population**.** India's growth is strongly supported by a relatively open trading regime, with exports constituting nearly 20% of GDP.

- This overarching economic trend is not observed in the area of science and technology. This area suffers from both a lack of funding and a strategic outlook, spending only 0.8% of its GDP on research and development. This is mainly driven by the public sector; private sector R&D spending is close to nil. The success story of India's computer sciences has thus not been repeated in the wider Science & Technology context. Very few people dispose of tertiary education and with a low level of tertiary education in itself, this is not likely to change in the near future.

- Intellectual property, which is both a core driver and output of science and technology in India, exhibits similar trends. Patents are to a large extent held by foreign entities and licensing and royalty fees paid by India to third parties by far exceed the licensing and royalty revenues that India receives from abroad. Intellectual Property in India is thus mainly leveraged by foreign entities and data suggests the local community of entrepreneurs and inventors has not yet fully grasped the economic opportunities of intellectual property. This is an area where IP TA could have a large impact.

- India is in the midst of a substantial IP modernization programme that is intended to foster IP's role within a growing knowledge economy. This has created substantial challenges and opportunities for repositioning the IP system to address medium and long-term priorities.

The quantitative assessment of India's economy, and particularly the role of science & technology in India, suggests IP-related technical assistance should aim to help India resolve the following issues in a concerted effort:

- Building IP administrative capacity to address a rapidly expanding system.

- Address issues related to increasing spending on R&D and assess what institutional setting the Government needs to provide help to businesses leverage patented R&D.

- Bring intellectual property closer to the local community by raising awareness of the IP system and explaining to businesses and universities alike the value proposition of the IP system.

- Improve the quality of the local IP system by ensuring that adequate enforcement mechanisms are in place.

With these issues exposed as the most pressing issues India needs to address to potentially leverage Science and Technology as an engine of growth, has IP Technical Assistance met its goals? The following emerges:

- IP Technical Assistance in India is mainly driven by the USPTO/USAID, the WIPO and the WTO. Bilateral assistance from various member states of the European Union, as well as from Japan is more sporadic and bilateral IP Technical Assistance displays less continuity.

- IP TA offered by various actors shows little duplication in the sense that major providers (USPTO with the support of USAID, WIPO and WTO) occupy very different fields in the area of IP Technical Assistance. The USPTO/USAID is primarily concerned with enforcement and the training of judges. WIPO seeks primarily to assist India with building an IP-based economy. Its various IP technical assistance programs are aimed at helping Indian SMEs take advantage of the IP system and at promoting a concerted national IP strategy. The WTO's IP Technical Assistance aims to raise awareness about various aspects of the TRIPS Agreement. All represent important efforts towards the achievement of an IP-based economy in India.

- However, one inevitably runs into problems of attribution. Initiatives from donors are diminishingly small when put in comparison to the size of the Indian economy, or even development assistance to India. Further, India has invested heavily in modernising its IP system and many of the larger capital expenditures have been funded exclusively by the Indian state. However, IP TA is likely to have had an impact on the development of human capacity, particularly in the area of administration and enforcement. That said, given India's strong focus on the role of IP in driving innovation and technology development, this area shows some neglect – perhaps indicative of a misalignment of TA provider and recipient priorities.

5.2. Needs assessment

State of the economy

Between 2005 and 2010 India's GDP grew on average by 6.6%. This is substantial growth compared to the sample studied for this paper, but it is slightly lower than other lower middle-income countries. It is worthwhile noting in 2008, the years in which global growth contracted most, India's economy grew at 5.1%. Possibly, this strong disparity may be explained by the socio-economic gap between rural India and India's highly diverse service sector, which contributes to more than 50% of India's GDP. As India becomes a major player in the global economy, issues related to equitable growth will continue to have a major policy role.

Since 2005, India has seen substantial inflows of Foreign Direct Investment (FDI), which is indicative of substantial volumes of technology transfer. In comparison to our sample studied, India is only rivalled by Brazil in terms of FDI Inflows received. The substantial inflows of FDI are complemented by substantial aid flows. The World Bank reports that India received over $2 billion of development aid in 2008 alone.[58]

Significant volumes of trade accompany financial flows channelled towards India. The export percentage for 2009 (21%) is slightly higher than other South Asian countries (18.9%), and the level

[58] To the best of our knowledge, there has been no study undertaken that assessed in greater detail what percentage of these $2 billion was invested in IP related technical assistance.

of imports (25%) is on a similar level (24.3%). India's imports of goods and services slightly exceed exports. However, with exports contributing to one quarter of GDP, India's economy may be described as an open market-based economy.

Science & Technology

India spends 0.8% of its GDP on Research & Development. This is substantially less than spending of other major developing countries such as Brazil, China, Russia or South Africa spend (OECD 2010). It is however more than countries such as Poland or Mexico spend. According to OECD research the government does intend to increase spending on R&D to 2%.

The level of R&D spending is low, even compared to other countries studied, such as Brazil. Most importantly, R&D expenditure is by and large driven by public spending, with a relatively moderate involvement of business spending on R&D. Since independence in 1947, India's R&D has been largely driven by the public sector. Data from the Patent Cooperation Treaty supports this trend. Indian public research institutions are – to a large extent – the drivers of international patenting activities. Overall, despite a low level of R&D, the OECD reports considerable growth rates of R&D. Yet, high technology exports only constitute 6% of Exports in Manufactured Goods, compared to 12% in Brazil or 25% in Thailand, 24.9% in 2009 for lower middle-income countries, and 7.8% in 2009 for South Asia in general.

Table 5.1: High Tech Exports as % of Manufactured Goods

	2005	2006	2007	2008	2009
BRAZIL	13	12	12	12	n/a
INDIA	5	5	5	6	n/a
POLAND	4	4	4	5	n/a
THAILAND	27	27	26	25	n/a
HIGH INCOME (OECD)	20.5%	20.6%	18.1%	17.6%	19.3%
SOUTH ASIA	4.1%	4.4%	4.7%	5.3%	7.8%

Source: World Bank data

By the same token, India's human resources in R&D need further development. According to the OECD there is less than one researcher per thousand employees. By consequence, very few scientific and technical journal articles have been published by Indian nationals in India and it is no surprise that even Mexico has outperformed India. The strong disparity between the urban and rural populations should be kept in mind. The interplay between these income disparities once more becomes evident, suggesting while India has been a successful exporter of computer and information services, this success story has not yet been paralleled in other areas of R&D.

India appears aware of the gaps in its innovation policy and is taking steps to address it. The National Innovation Council was set up by Prime Minister Singh to prepare a roadmap for "the Decade of Innovation 2010-2020". This council is composed of experts from S&T, industry, academia and administration. [59]

Intellectual Property in India

[59] See http://www.innovationcouncil.gov.in/

At the start of the century India conducted an extensive modernisation programme to substantially improve the infrastructure and administrative capacity of the IP system. This modernisation plan, which aimed for TRIPS-compliance, yielded demonstrable results, significantly improving IP administration in terms of physical infrastructure, functioning efficiency, clearance of backlog and computerisation.[60] Further, comprehensive legislative and policy reforms were carried out. However, there has been no structured evaluation to date looking at how modernization contributed to the progress of India on the whole.

The direction of IP policy and prioritization tends to occur through a broadly consultative process.[61] Other government departments, and industries, are quite influential in the direction of the IP Office. However, IP reforms were heavily controversial at first, among civil society and many industries, spurred by fears reforms would entail a net-loss for the country.[62] Over time, reforms have increasingly been complemented by a pro-IPR stance among Indian industry and some NGOs. Firms with the ability to transform their potential into patents became supporters of reform, and these shifted their interests towards promoting rather than opposing patent reform. This is particularly the case for the pharmaceutical, film and IT industry, which represent a growing source of domestic innovation. That said, the biggest sources of R&D remains public, where demand for strong IP protection is less likely to be as strong.

According to the Patent Cooperation Statistics of WIPO, patent applications by non-residents are nearly four times higher than patent applications by residents, a trend typical for developing countries. This suggests, like many developing countries India's indigenous innovation system is not yet at the same height as that of developed countries. Thus, there is substantial scope for technical assistance related to IP, to bring the IP system closer to the local community of inventors and entrepreneurs. The OECD reports that patents filed by non-residents are primarily originating from U.S. and E.U. corporations. With respect to international trademark registration there is no differentiation between foreign and domestic trademark owners. India is not a member of the Hague System for International registration of Industrial Designs and therefore it is not possible to use this system for design protection in India. It should also be noted that India has intentions to sign up to the Madrid Protocol for Trademarks.

5.3. Likely IP TA demands

In terms of the main policy priorities and challenges identified, it is helpful to return to the taxonomy identified previously to look at areas where IP TA interventions would appear logical.[63] Following the taxonomy of IP TA developed earlier, the key priorities (and primary potential areas for assistance) over the 2006-10 period would likely have included the following:

[60] Rambabu, V. (2007). 'Modernisation of intellectual Property Offices in India: The Experience of the Japan Patent Office'. Unpublished Report.

[61] Deere, C. (2009). 'The Implementation Game: The TRIPS Agreement and the Global Politics of Intellectual Property Reform in Developing Countries'. Oxford: Oxford University Press.

[62] In 2002, the World Bank estimated that TRIPS implementation would generate annual net losses of US$903 million for India. Questions arose about the fairness of requiring developing countries to devote scarce public resources to help private foreign multinational corporations collect licensing fees and royalties. Also, given the widespread nature of counterfeiting of foreign technologies and knowledge, there were complaints that stronger enforcement of IP rights would pose threats to the employment of millions of workers and raise the prices of products for poor consumers.

[63] Priorities for the IP regime are derived in large part from assessments made at the time in Rambabu, V. (2007). 'Modernisation of intellectual Property Offices in India: The Experience of the Japan Patent Office'. Unpublished Report. and Ranjan, R. (2006). 'India's Experience of IPRTA Reforms and Technical Assistance/Capacity Building Programme'. Prepared for IPRTA Forum Meeting 2006; and Ramanna, A. (n/d). 'Interest Groups and Patent Reform in India'. Indira Gandhi Institute of Research. as well as the annual reports from IP India.

Support to legislation, regulation and policy development

Legislatively, the patent system had been overhauled during the early years of this century with a substantial revision of the patent law, simplifying procedural aspects of patent application and processing, making it TRIPS- and PCT-compliant, and incorporating provisions to protect the public interest in areas such as health, biodiversity and traditional knowledge. Legislation in the areas of designs, trademarks and geographical indications were also revised in the time period 2000-05.

For the period 2006-10, key legislative IP priorities were focused on developing appropriate mechanisms, strategies and safeguards to deal with sensitive IP-related issues (bio-diversity and plant varieties, traditional knowledge, community patents, e-commerce and telecommunications), which are increasingly acquiring prominence in different fora worldwide. Similarly, the need to raise awareness of IP issues and priorities among policy-makers, regulators, private sector and civil society groups, and legislators beyond the immediate IP community to help mainstream IP issues and priorities into development planning (and to integrate broader development and poverty reduction priorities into IP policy) was recognised as a priority for IP TA. Assessing the impact of IP TA will depend in part how it addressed these issues.

Institutional support to IP Administration

There has been an enormous increase in the use of the IP system in recent years. Between 1999 and 2006 patent filings increased by over 600%; use of the copyright and trademark system has also been growing. At the same time, modernisation efforts during this time period decreased the average time taken to examine a patent from between approximately six to ten years, to between two and three years. The trademark backlog is also being addressed and the wait period has declined form seven to ten years, to two years.

This has continued over the 2006-10 period and further modernisation was recognised as a necessity by the Indian government. This was exacerbated by India's successful efforts to be recognised as an International Searching Authority and International Preliminary Examining Authority under the PCT, requiring the establishment of a digital database. Likewise, accession to the Madrid Protocol requires the digitisation of trademark records, the modernisation of trademark records to comply with strict timelines, and improvements in human resource capacity. This is currently being addressed, as the Indian IP Office has gone through a process of digitisation and it is also hiring and training new patent examiners.

Particularly problems of insufficient capacity within the IP system place strain on its expansion (both in terms of quantity of examiners and their training). Further problems include a lack of sufficient IT use, a lack of training possibilities, and insufficient resources to offices. Addressing these issues through IP TA could be a means of having substantial impact.

Support for innovation, technology transfer, and IP awareness (IP for Development)

Increasingly Indian priorities are shifting towards a more offensive posture within the IP realm. Ranjan argues that 'it is increasingly being realized that IP has an important role in the ongoing transformation of the Indian Economy from essentially 'a brick and mortar' economy to a knowledge economy.'[64] In view of the rapidly growing Indian economy there is a clear need to provide a competitive edge to Indian enterprises and the scientific community by exploiting IP resources

[64] Ranjan, R. (2006). 'India's Experience of IPRTA Reforms and Technical Assistance/Capacity Building Programme'. Prepared for IPRTA Forum Meeting 2006.

properly." This is manifests itself in India's tenth five-year plan, which places IP issues within the country's broader science and technological development.

In this context, it is helpful to explore the capital flows associated with patenting activities. The amount of royalties received is a good illustration of how much India has succeeded in leveraging the economic and financial aspects of patents. Data from the World Bank suggests that India receives and pays royalty and licensing fees. However, royalties and licensing fees that India is paying to third parties are substantially higher than royalties and licensing fees that India is receiving[65]. The contrast of royalties received in 2005 ($0.6 billion) and royalties paid ($588 billion) is very substantial suggesting IP Technical Assistance aimed at developing more active licensing markets in India would certainly benefit the local economy.

An effective integration of IP into development, and particularly science and technology strategies can be of substantial value here. Ranjan (2006) points to potential areas of IP TA that could address this issue:

- Develop and incentivise a culture for promotion of innovations.
- Develop and promote capabilities for commercial utilization of IPs through sale/licensing of IPs and transfer of technologies.
- Integrate IPRs more fully including the quality and the scope of IPRs, as a core enabling condition for innovation.
- Address the changing role of IPRs at the interface between science and innovation and in the interactions between different stakeholders.
- Develop new economic methodologies and economic indicators for measuring IPRs and understanding the increasingly critical role they play in stimulating innovation and economic performance.
- Help understand and calibrate the growing importance of IPRs in converging technologies, biotechnology, information technology and nanotechnology in which India can play a much bigger role.
- Provide comparative analyses and undertake "value-added" reviews concerning the intersection of IPRs and competition/antitrust policy.
- Focus on public health-related innovation as a principal policy challenge and develop new frameworks and polices for linking IPRs and health innovation.
- Analyse the role of markets for technology and the economic accounting for intellectual assets.

This makes the case for a much more substantial integration of IP issues into broader development assistance in the area of Science & Technology policy and industrial development. This approach, favoured by the World Bank's Science and Technology Programme in recent years, views IP as one aspect of a broader innovation policy and aims to integrate common IP TA interventions into comprehensive programmes that foster innovative and S&T capacity.

Support to IP protection and enforcement

[65] One must however recognize that data is scarce and at best indicative.

Among priorities listed in policy documents, this seems less pressing. However, with increasing innovative capacity of the Indian economy, and a relatively low level of IP awareness in the judiciary, innovators face problems and challenges mainly in the areas of financial assistance and marketing of their innovation. This particularly points out the need to ensure the IPR regime actually provides the level of protection suggested by the strong legal framework.

5.4. Assessment of the supply of IP TA

Contrasting IP Technical Assistance received with India's wider economic and IP-specific context provides a robust impact assessment of IP Technical Assistance received. We proceed by documenting and assessing the type of IP technical assistance India has received in the last five years, according to TA provider.

In addition to support received by WIPO and other multilateral organisations (WTO, WHO, UNCTAD), India has Memoranda of Understanding on IP issues with six TA providers. These include the EPO, as well as the respective ministries responsible for IP in Japan, the US, France, Germany and Switzerland. MoUs have a largely similar and quite generic structure, focusing on training, exchange of experiences, development of academic exchanges, exchange on best practices on automation, and awareness-raising. However, these MoUs also emphasise priorities that seem particularly important to the Indian government, including assistance on the protection of traditional knowledge and technology transfer. These memoranda, signed between 2006 and 2009 also indicate a shift in TA priorities. For example, the most recent MoU with the USPTO, signed in November 2009, also focuses on support on the administration of an International Search Authority and on administering an efficient trademark system under the Madrid Protocol.

The major providers of IP Technical Assistance to India in the last five years have been WIPO, the USPTO, the WTO, the EPO and the Japanese Patent Offices. There has also been some TA provided by several European countries on a bilateral basis, such as the Danish Patent Office, the Austrian Patent Office, and the Australian IP Office (limited)[66]. An assessment of the various TA programmes offered to India does not show a great deal of overlap or duplication. In fact, various donors occupy quite distinct aspects of IP TA. WIPO's IP TA mostly addresses economic and strategic aspects of IP, while the USPTO predominantly focuses on counterfeiting and piracy as well as enforcement issues and the promotion of respect of IP rights. The WTO provides IP TA mainly related to the implementation of the TRIPS Agreement and the EPO and the JPO mainly focus on enhancing the capacity of the Indian Patent Office. Smaller bilateral donors such as the Austrian Patent Office or the Danish Patent Office have equally sought to improve the state of the Indian Patent Office.

In terms of the number of activities carried out, the **United States** (USPTO, jointly with USAID), is the most active player in development aid in India. It is followed by WIPO and the WTO. The chart below illustrates that the USPTO/USAID primarily focuses on issues relating to UP enforcement, counterfeiting and piracy, and suggests the USPTO, with the support of USAID, is primarily concerned with the institutionalization of an effective judicial system where IP owners have the guarantee to claim their right in case of a violation or an infringement. USPTO/USAID's TA can therefore be said to primarily focus on assuring rights holders find themselves in an adequate judicial system where the enforcement of IPRs is assured.

Table 5.2: Assistance by USPTO/USAID according to specific categories

[66] Assistance provided was the Australian Leadership Awards Fellowship Program (ALA Program), which was an AusAid funded initiative aiming to strengthen relationships with, and develop leadership in the Asia-Pacific Region. It was aimed at leaders in the Asia-Pacific region as well as those with the potential to assume leadership roles in the future.

USPTO/USAID	2005	2006	2007	2008	2009	2010
IP Enforcement		1	2	2	8	
Counterfeiting					2	3
Training of Judges		1	1	1	4	
IP Awareness				2	1	2
IP Protection				4	4	1
IP Strategy/ Tech Transfer				1	1	
Trademarks/Geographical Indications				4		

Source: USAID database, WTO Art. 67 returns

The IP Technical Assistance of the **World Intellectual Property Organization** has focused primarily on issues related to the role of IP in economic development. Thus, a range of seminars and trainings assessing the role of IP in SMEs, the improvement of technology transfer between business and universities, as well as a series of seminars addressing the National IP Strategy of India have been carried out in recent years. It is worth noting WIPO is involved in setting up a national IP strategy for India, however, according to the author's own experience as well as that of interviewees involved in IP TA in WIPO, WIPO's TA tends to be quite ad-hoc and more continuity would be needed. The IP Technical Assistance of the **World Trade Organization** addresses primarily issues related to the TRIPS Agreement including TRIPS standards, TRIPS implementation, and trade policy.

The bilateral development aid of various **EU Member States** is rather patchy, unsystematic and does not show a particularly clear development pattern. Mostly, it relates to the management of the Patent Office and issues related to patent examination.

Table 5.3. : Assistance by EC countries according to specific categories

EC Countries, Bilateral Aid	2005	2006	2007	2008	2009	2010
Austria						
Conducting Patent Examination		1			1	
Germany						
Conducting Patent Examination				2		
U.K.						
Activities & Scope of a Patent Office					2	
Czech Republic						
IP Protection		1				
Denmark						
IT operations in the Patent Office		1				
France						
Counterfeiting		1				

Source: WTO Art. 67 returns

The IP Technical Assistance of the **European Patent Office** in India is scarce and relates primarily to conducting patent examination. The same may be said for the work of the **Japanese Patent Office**, which is not particularly active in India. This is also reflected in Japanese patenting activities in India. The majority of patents filed in India by foreign entities come from Europe or the U.S with relatively few patents filed by Japanese corporations. However, one interesting aspect of Japanese assistance

has been its focus on long-term fellowships for Indian officials in the JPO, aiming to build capacity and embed officials in a more advanced IP Office.

In terms of the key IP TA areas, all four major areas were supported extensively and many of the key policy priorities set by the Indian government – particularly in terms of capacity development of examiners and judicial authorities – were increased. There is inevitably a difficulty in determining the extent to which activities contributed to improvements in the system.

5.5. Matching Supply and Demand

In terms of the main policy priorities and challenges identified, it is helpful to return to the taxonomy identified previously to look at areas where IP TA interventions would appear beneficial, and in turn to what extent these were addressed.

The most substantial **legislative and policy assistance** was received by Japan on plant variety protection (over many years). Given India passed a *Plant Variety Protection Act* in 2009, it is not improbable that Japanese TA had some impact, though determining this with any degree of certainty would require far more detailed qualitative research on the nature of TA provided, the beneficiaries, and the role this had in the final outcome. Further, the heavy focus by many providers on enforcement (particularly on counterfeits) may have had some impact on the passing of the 2007 implementation of new *IPR (Imported Goods) Enforcement Rules*, though it is likely that foreign pressure – especially through the US's Section 301 Priority Watch-list system – had a more substantial impact in this regard than TA.

In light of **institutional support** needs, it appears that this has indeed been a focus of many European IP TA providers, as well as by Japan and to a more limited extent, the US. MoUs signed with European governments stress this aspect as well, and given administrative capacity constraints of the rapidly expanding system, training provided is likely to have had some impact on the Indian patent office's ability to review an ever-rising number of applications every year.

That said, whilst staff numbers have increased the quality of patent examiners - while improving according to many accounts - remains low. However, given the number of training courses offered it is likely many patent and trademark examiners received some form of training through IP TA providers. Given the higher level of capacity and skills in developed countries, this is an important source of skills transfer that can have a substantial, if not directly measurable or attributable impact. Similarly, the WTO's focus on training IP teachers is likely to have a more sustainable downstream impact.

It is interesting to see that, despite the substantial importance placed on **support for innovation, technology transfer, and SME use of the IP system** by the Indian government, and its focus on ensuring the IP system reinforces broader development objectives, this area has, in part, been neglected by major IP TA donors. Some WTO and WHO training courses did address linkages to broader development priorities (such as public health). Most significantly, WIPO's support focused on the role of IP in SMEs, the improvement of technology transfer between businesses and universities, as well as a series of seminars addressing the National IP Strategy of India. It is worth noting WIPO is involved in setting up a national IP strategy, which may represent an important step towards helping India develop a national Science & Technology plan.

An increase in IP TA would also be needed to achieve adequate outreach. Possibly, business could be better leveraged to achieve the enhanced transfer of technology. These broader linkages, central to

developing country demands within the WIPO Development Agenda, do not feature prominently in IP TA currently provided. Further, IP TA does not address the substantial inequalities in India's industrial and innovation structure. Given its more questionable profitability, IP TA providers could place a greater focus on using the IP system for poverty reduction through activities that foster technology transfer and innovation capacity in ways that promote more formal R&D efforts for the poor.

In looking at the **support to enforcement capacities** that has been provided, there seems to have been a disproportionately larger focus, especially for some TA providers (such as the USPTO) on this issue. While this is still a priority for Indian firms, it also seems to reflect broader strategic business interests, especially considering the heavy focus on strengthening the judiciary on anti-counterfeiting. The USPTO appears mostly concerned with IP enforcement issues and the promotion of respect for IP rights, which comes as no surprise given that U.S. corporations file to a large extent in India and wish to have their IP rights adequately protected.

That said, it does appear these activities may have contributed to an improving situation in the area of enforcement. A 2008 EC country survey of firms operating in India found that "cooperation between the enforcement departments has also considerably improved, resulting in more enforcement actions, and greater IP awareness amongst officials has been reported."

6. Impact Assessment of IP Technical Assistance in Brazil

6.1. Main Findings

When examining the IP-related economic context of Brazil since 2005, the following trends emerge:

- The Brazilian economy has undergone a substantial transformation in recent years and has grown considerably, with high GDP growth rates and substantial influx of FDI as well as gradually increasing exports. However, poverty and inequality remain high and growth has yet to benefit large parts of the population.

- Brazil spends 1.02% of its GDP on Research & Development, the highest value among the sample of countries studied. Brazil also investing heavily in education. However, actual human resources in this area need further development with a low level of researchers in the population. The OECD argues that 'enhancing the contribution of innovation to productivity growth and competitiveness is one of the three structural challenges facing Brazil, and the main challenge for Brazil's innovation policy is to encourage business sector innovation.'[67]

- While Brazil had a relatively weak IP protection for many decades, a comprehensive Patent Reform Act in 1996 made the country TRIPS-compliant. Other relevant IP laws have been revised in recent years. However, like many developing countries Brazil's indigenous innovation system is not yet at the same height as that of developed countries. Therefore, there is substantial scope for technical assistance related to IP, to bring the IP system closer to the local community of inventors and entrepreneurs.

The quantitative assessment of Brazil's economy, and particularly the role of science & technology in Brazil, suggest IP-related TA should aim at helping Brazil resolve the following issues in a concerted way:

- Raising awareness of IP issues and priorities among policy-makers, regulators, private sector and civil society groups, and legislators beyond the immediate IP community in order to help mainstream IP issues and priorities into development planning (and to integrate broader development and poverty reduction priorities into IP policy).

- Improving a weak patent administration system.

- Developing more active licensing markets to support the growing prioritisation of technology transfer.

In examining the above, how did supply compare to demand? The following main findings emerge:

- The major providers of IP TA to Brazil in the last five years have been to an equal extent Spain, France, the USPTO, WIPO and EPO. Brazil also received some TA from the U.K. and Japan.

- An assessment of the various TA programmes offered to Brazil does not show a great deal of overlap or duplication. WIPO's IP TA mostly addresses economic and strategic aspects of IP,

[67] OECD (2006). 'Economic Survey of Brazil'. OECD Science and Innovation Outlook.

while the USPTO predominantly focuses on counterfeiting and piracy as well as enforcement issues. The WTO provides IP TA related to the implementation of the TRIPS Agreement and the German, French and Spanish Patent Offices focus on enhancing the capacity of the Brazilian Patent Office. What is striking is that the TA provided by the various donors reflects, to a large extent, the strategic and political interests in the area of IP the donor itself (i.e. Japan's interests in Plant Variety Protection or French interest in geographical indications) and do not necessarily take the economic context of the recipients under consideration.

- The bilateral development aid of various E.U. member countries is very intensive and cohesive, and occasionally more frequent that that of multilateral donors. Various bilateral donors address the institutional shortcomings of INPI and also seek to help with technical issues, such as patent examination.

- IPTA has had some impact on the state of current legislation, though determining this with any degree of certainty would require far more detailed qualitative research on the nature of TA provided, the beneficiaries, and the role this had in the final outcome. Given administrative capacity constraints of the rapidly expanding system, training provided is likely to have had some impact on the Brazilian patent office's ability to review an ever-rising number of applications every year. Particularly USPTO TA on enforcement may have contributed to an improved situation in this area.

- IP TA to support innovation and technology transfer has been given substantial consideration by various donors, and particularly by WIPO and Spain. Yet, the amount of funding made available is very small and given the size of the Brazilian economy, this type of development work may be considered insufficient. More funding would be needed to help Brazil fully grasp the economic benefits and pitfalls of the IP system. Possibly, businesses could be better leveraged so as to achieve enhanced transfer of technology. These broader linkages central to developing country demands within the WIPO Development Agenda do not feature prominently in IP technical assistance currently provided. Further, IP TA does not address the substantial inequalities in Brazil's industrial and innovation structure.

6.2. Needs assessment

State of the economy

Between 2005 and 2008 Brazil's GDP grew on average by 4.6%. This is considerable growth compared to the sample studied for this paper. It is also more than double the growth of GDP in the previous five years that followed the floating of the 'real', the national currency.[68] The global financial crisis of 2008 did impact Brazil's economy. In 2009 Brazil experienced a recession with a contraction in GDP to -0.2%. From mid 2008 throughout the end of 2008 the national currency, the real, depreciated by 40% and domestic borrowing rose sharply.[69] However, when compared to other upper middle-income countries (-2.6% in 2009) and by regional standards (2% in 2009), the effects were not as severe as in other countries.

Brazil is a upper-middle income developing countries, according to the World Bank, but its wealth levels nevertheless varies considerably at the time IP reforms were initiated in the late 1990s (World Bank, 1997). The United Nations Development Program (UNDP) equally ranks Brazil as a medium human development country; Brazil ranks 63 out of 177 countries. Brazil has an adult illiteracy rate

[68] OECD (2006). 'Economic Survey of Brazil'. OECD Science and Innovation Outlook.

[69] Ibid.

of about 10%. Income disparities (the gap between the richest 20% to the poorest 20%) is substantial in Brazil.

Brazil is one of the world's most bio-diverse country and possesses substantial natural resources, including oil reserves. Since 2005, Brazil has seen substantial inflows of Foreign Direct Investment (FDI), which is indicative of substantial volumes of technology transfer. In comparison to our sample studied, Brazil is only rivalled by India in terms of FDI Inflows received.

Table 6.1: FDI Inflows (BOP US $ Billions)

	2005	2006	2007	2008	2009
BRAZIL	15	18	35	45	26
INDIA	7.6	20	25	41	35
POLAND	10	20	23	15	11
THAILAND	8	9	11	8.5	5

Source: World Bank data

Relatively moderate volumes of trade accompany these financial flows channelled towards Brazil. Brazil's average exports between 2005 and 2009 slightly exceed imports of goods and services. However, with exports contributing to roughly 13% of GDP, Brazil's economy may be described as a moderately open market-based economy. The levels of exports and imports are low by regional standards (21.1% and 21% respectively in 2009).

Science & Technology

Brazil spends 1.02% of its GDP on R&D. Among our sample studied, this is the highest amount of R&D expenditure. Yet, it still remains below that of China or Russia and remains, compared to the typical spending among OECD countries, quite low. Public expenditure on R&D and business expenditure on R&D are well balanced, with business expenditure on R&D at 0.49% and public expenditure at 0.53%. It is remarkable that Brazil spends nearly 9% of its GDP on education and health care, important prerequisites for prosperous IP regimes. High technology exports constitute on average 12% of GDP, which is substantial, given that overall exports of Brazil constitute 13% of GDP. This is in line with other upper middle-income countries and other Latin American countries.

By the same token, Brazil's human resources in R&D need further development. According to the OECD there were only 1.48 researchers per 1000 total employment in 2006. Only about 8% of the population have completed tertiary education and 18.4% of total employment was in Science and Technology.[70] By consequence, very few scientific and technical journal articles have been published by Brazilian nationals in Brazil. The OECD argues that 'enhancing the contribution of innovation to productivity growth and competitiveness is one of the three structural challenges facing Brazil, and the main challenge for Brazil's innovation policy is to encourage business sector innovation.'[71]

Brazil's science, technology and innovation plan aims to increase the number of qualified human resources, investment in R&D and enterprise innovation. It seeks to strengthen the national science and technology system; R&D in strategic areas such as biotechnology, nanotechnology, information technology, energy, climate change and the Amazon; and science and technology for social development.[72]

[70] OECD (2008). 'Science and Innovation Country Notes.' OECD Science, Technology and Industry Outlook.

[71] OECD (2006). 'Economic Survey of Brazil'. OECD Science and Innovation Outlook.

[72] OECD (2006). 'Economic Survey of Brazil'. OECD Science and Innovation Outlook.

Intellectual Property in Brazil

Brazil was a late 19th century signatory to the Paris Convention on Industrial Property, a time when Brazil's future as the industrial powerhouse of the South seemed assured. However, Brazil's national leaders determined, like others in Latin America in the post-war, post-colonial era, that technological independence could best be achieved through import substitution industrialization and a weak intellectual property system. Comparative political economy studies show that Brazil stagnated technologically and industrially while first the East Asian and later the Southeast Asian developing countries grew because of the different approaches to trade and investment.

A study of Brazil in the early 1990s explained that Brazil had been one of the fastest growing economies in the world in the 1970s but faltered thereafter because of debilitating problems with its technology innovation system.[73] They identified public sector commitment to investment into university and public laboratory research as the key strength of the Brazilian system. However, they explained the lack of private sector R&D capability and investment and lack of public-private linkages prevented technology from becoming commercialized in the marketplace.

Brazil's Amazonia has long been understood to offer tremendous development potential, but these efforts have largely focused on extraction by drilling for oil and natural gas, mining for minerals, deforestation, and the planting of agricultural crops. All this has been done in ways that may be putting Amazonia's ecology at risk.[74] Amazonia possesses the world's greatest supply of biodiversity, but current leadership has not generally viewed Brazil's flora and fauna as natural resources for bio-medical R&D opportunities.

Within this context the 1996 Patent Reform Act likely owed more to the Brazilian government's commitment to the WTO TRIPS implementation and compliance than to fundamental reform of the innovation system. However, as is shown below, there have been some institutional reforms taking place in Brazil toward this end. The Patent Reform of 1996 nevertheless not only introduced a change with respect to technology policy in Brazil, but offered the prospect for profound change in the technology culture as well. Brazilian patent law, since these reforms took place, provides for product and process patents, provides for a 20-year term of exclusive rights, and prevents parallel imports of patented products. Thus, Brazil has for a decade provided a patent law that complies with the central obligations of the TRIPS agreement.

According to the Patent Cooperation Statistics of WIPO, patent applications by non-residents are 4.4 times higher than patent applications by residents; a trend typical for developing countries. This suggests that Brazil's indigenous innovation system, like many developing countries, is not yet at the same height as that of developed countries. There is therefore substantial scope for TA related to IP in order to bring the IP system closer to the local community of inventors and entrepreneurs.

6.3. Likely IP TA demands

In terms of the main policy priorities and challenges identified, it is helpful to return to the taxonomy identified previously to look at areas where IP TA interventions would appear logical. In line with the

[73] Dahlman, C. J. & Frischtak, C. R. (1993). 'National Systems Supporting Technical Advance in Industry: The Brazilian Experience'. In R. R. Nelson; eds., *National Innovation Systems. A Comparative Analysis,* pp. 414-450. New York: Oxford University Press.

[74] Hall, A. (2000). 'Environment and development in Brazilian Amazonia: from protectionism to productive conservation'. In Hall, A., eds. *Amazonia at the crossroads: the challenge of sustainable development*, pp. 70-89. London: Macmillan.

taxonomy, identified key priorities (and primary potential areas for assistance) over the 2006-10 period would likely have included the following:

Support to legislation, regulation and policy development

Legislatively, the patent system had been overhauled during the early years of this century with a substantial revision of the patent law that simplified procedural aspects of patent application and processing, making it TRIPS and PCT-compliant, and incorporating provisions to protect public interest in areas such as health, biodiversity and traditional knowledge. In 2007 Brazil issued a compulsory license for an anti-retroviral drug.[75]

Legislation in the areas of designs, trademarks and geographical indications were also revised in the same time period. Similarly, the need to raise awareness of IP issues and IP priorities among policy-makers, regulators, private sector and civil society groups, and legislators beyond the immediate IP community, to help mainstream IP issues and priorities into development planning (and to integrate broader development and poverty reduction priorities into IP policy), was recognised as a priority for IP TA. Assessing the impact of IP TA will depend in part how it addressed these issues.

Institutional support to IP Administration

Furthermore, the public administration of the patent system by INPI has become legendary among domestic and multinational companies alike for its glacial decision-making pace and its backlog of applications. INPI typically takes eight to ten years to reach a decision regarding patentability and is said to have a backlog of 60,000 applications. A practical consequence of this is that Brazil's patent office is not itself a useful storehouse of information regarding technological innovation in Brazil. It further appears that INPI is also not serving as a communication link on behalf of Brazilian technologists to the databases of the major patent offices of the world. Thus, Brazilian technology innovators are missing strategic opportunities given the weak patent public administration system. The Brazilian patent administrators are not diffusing technological information within the R&D community and among potential innovators.

The weak patent administration situation means the Brazilian patent bar is small and there are few experienced patent prosecutors. Thus, American and European patent counsels are recruited to manage their IP. The patent law reforms of 1996 established the legal grounding in Brazil for technology licensing. The de facto administrative weaknesses of INPI, however, would render the de jure legal reforms meaningless for potential Brazilian license partners if not for the solution provided by local innovators: They simply file for patents in the United States, Europe, and at the World Intellectual Property Organization.

Support for innovation, technology transfer, and IP awareness

In 1994 the Governing Board of FAPESP (Sao Paulo Research Foundation) reformed its mission to include "the transformation of knowledge into wealth" (FAPESP, 2005:4). FAPESP would henceforth devote substantial financial resources to technology diffusion by funding public-private R&D projects. Since 1995, FAPESP's Partnership for Technological Innovation Program has invested R$90 million (about US$37.5 million) by funding over 90 specific projects through peer-reviewed competitive bid processes. Since 1997 FAPESP's Technological Innovation in Small Businesses program has invested another R$71 million (about US$29.5 million) to support R&D projects carried out by small enterprises. The projects have concerned agriculture, health and biology, engineering,

[75] Latha Jishnu, http://business.rediff.com/column/2010/mar/19/guest-intellectual -property-brazil-vs-us.htm

and earth sciences. The public investment made by FAPESP ameliorates the decisive problem of capital shortage confronted by industrial R&D aspirants.

In this context, it is helpful to explore the capital flows associated with patenting activities. The amount of royalties received is a good illustration of how much Brazil has succeeded in leveraging the economic and financial aspects of patents. According to WTO data, Brazil pays US$2.25 billion in royalties and license fees annually and received US$319 million in licensing fees and royalties. The contrast of royalties received and royalties paid is very substantial. It suggests that IP TA aimed at developing more active licensing markets in Brazil would certainly benefit the local economy. This could, for example, be achieved by raising awareness about the economic opportunities of the IP system and by explaining to businesses and universities alike how to better extract value from the IP system.

Support to IP protection and enforcement

According to a review carried out by the WTO in 2009, Brazil has taken important steps towards the enforcement of IP.[76] The Brazilian Government established a national Council to Combat Piracy and Crimes against intellectual property (CNPC). The CNPC is an Inter-ministerial Committee to Combat Counterfeiting. It is composed of public and private sector representatives..

While the U.S. recognises progress on Brazil's IP enforcement system, but urges it to continue to reinforce the adequate enforcement of IP, the European Commission continues to see major shortcomings in the way IP is enforced in Brazil.

6.4. Assessment of the supply of IP TA

The major providers of IP TA to Brazil in the last five years have been to an equal extent Spain, France, the USPTO, WIPO and EPO. Brazil also received some technical assistance from the U.K. and Japan. An assessment of the various TA programmes offered to Brazil does not show a great deal of overlap or duplication. WIPO's IP TA seems to mostly address economic and strategic aspects of IP, while the USPTO predominantly focuses on counterfeiting and piracy as well as enforcement issues. The WTO provides IP TA mainly related to the implementation of the TRIPS Agreement and the German, French and Spanish Patent Office mainly focusing on enhancing the capacity of the Brazilian Patent Office. TA provided by various bilateral donors reflects to a large extent the strategic interests (and comparative advantages) of the donor itself, (i.e. Japan's focus on Plant Variety Protection or French interest in geographical indications). It is unclear to what extent these take the economic context of the receiving country into consideration.

In terms of the number of activities carried out, the **USPTO**, jointly with **USAID**, is not the most active player in development aid in Brazil; rather the contribution to development is equally shared among the various donors. As the chart below illustrates, the activities of the USPTO/USAID pertain primarily to issues related to IP enforcement and counterfeiting and piracy. In this sense IP TA received by Brazil is no different to the IP TA provided to many other countries. The data suggests the USPTO, with the support of USAID, is primarily concerned with the institutionalization of an effective judicial system where IP owners have the guarantee to claim their right in case of a violation or an infringement. USPTO/USAID's TA in the area of IP is thus primarily focused on

[76] see Mara, K. (2009) "WTO Review Finds Brazil Progressing on Trade Policy, IP Protection" in IP Watch, 11.3.2009. http://www.ip-watch.org/weblog/2009/03/11/wto-review-finds-brazil-progressing-on-trade-policy-ip-rights-protection/.

assuring that rights holders find themselves in an adequate judicial system where enforcement of IPRs are assured.

Table 6.2: Assistance by USPTO/USAID according to specific categories

USPTO/USAID	2005	2006	2007	2008	2009	2010
IP Enforcement	1	1		4	5	1
Patent Protection		1		5		
Trademarks/Geographical Indications			1	2		
Innovation & Development						1
Plant Variety Protection & UPOV					1	
Industrial Designs				1		

Source: USAID database, WTO Art. 67 returns

The IP TA of the **World Intellectual Property Organization** focuses primarily on issues related to the role of IP in economic development. Thus, we find a range of seminars and training that assess the role of IP in universities, and the improvement of TT between businesses and universities. WIPO also remains involved in helping draft or reformulate legislation in Brazil. IP Technical Assistance provided by the **World Trade Organization** primarily addresses issues related to the TRIPS Agreement, including activities focused on TRIPS standards, TRIPS implementation, and trade policy and IP.

The bilateral development aid of various **EU Member States** is very substantial and cohesive; activities on the whole are more frequent than IP TA provided by multilateral donors. Bilateral donors tend to address the institutional shortcomings of INPI and seek also to help with technical issues, such as patent examination. France's emphasis on Geographical Indications may be due to France's own focus on GIs, meaning they consider themselves more competent to provide expertise and a comparative advantage to supply this form of assistance. Alternatively, this could be viewed as a means to reinforce the country's own trading position.

Table 6.3: Assistance by EC countries according to specific categories

EC Countries, Bilateral Aid	2005	2006	2007	2008	2009	2010
France						
Geographical Indications	4	4			1	
Training of INPI Officials				1	3	
Counterfeiting & Piracy	1					
IP Diplomacy		1				
Germany	2005	2006	2007	2008	2009	2010
Training of INPI Officials		1		1	4	
IP Enforcement					2	
Patent Search					1	
Portugal	2005	2006	2007	2008	2009	2010
Training of INPI Officials					2	
INPI IT Support					1	
IP Diplomacy					2	
IP Protection	2					
Spain	2005	2006	2007	2008	2009	2010
Trademarks (Madrid, examination, management)	1	1		1	1	
IP Enforcement	2			1		
Patent Search		1		1	1	
Economic Aspects of IP	4	1		1	2	
Patent Cooperation Treaty				1		
IP Policy	3				1	
Copyright	1	4				
Patent Seach	2					
U.K.	2005	2006	2007	2008	2009	2010
IT Training for INPI					1	
Patent Information	1					
IP Management						1

Source: WTO Art. 67 returns

The IP TA of the **European Patent Office** in Brazil is infrequent according to available data. This comes as no surprise as Brazil is not a member of the EPO. The work of the EPO relates primarily to conducting patent examination. It does not seem to show particular continuity over time. The same may be said of the work of the **Japanese Patent Office**. Japan is not very active in Brazil, which is also reflected in Japanese patenting activities. Japan provides TA on plant variety protection; a program it is pursuing across a range of countries.

In terms of the key IP TA areas, all four major areas were supported extensively and many of the key policy priorities set by the Brazilian government – particularly in terms of capacity development of examiners and judicial authorities – were increased. There is inevitably a difficulty in determining the extent to which activities contributed to improvements in the system.

6.5. Matching Supply and Demand

Legislative assistance has been received by WIPO, as well as by Spain and Japan. Given that Brazil had to become TRIPS-compliant, it is not improbable that TA had some impact on the state of current legislation, though determining this with any degree of certainty would require far more detailed qualitative research on the nature of TA provided, the beneficiaries, and the role this had in the final outcome. Further, the heavy focus by many providers on enforcement (particularly on counterfeits) may have had some impact on the creation of the Council to Combat Piracy and Crimes against intellectual property.

Institutional support to IP administration has been a focus of many European IP TA providers and given administrative capacity constraints of the rapidly expanding system, training provided is likely to have had some impact on the Brazilian patent office's ability to review an ever-rising number of applications every year. That said, the Brazilian patent office still faces significant backlog in IP examination and while this type of work was important to help INPI perform better, it was very likely not enough to bring about a radical change in INPI's performance.

Support for innovation, technology transfer and increasing SME use of the IP system has been given substantial consideration by various donors over recent years, and most notably by WIPO and Spain. Yet, the amount of funding made available is very small and given the mere size of the Brazilian economy, this type of development work is likely insufficient to have a substantial impact. More funding would be needed to help Brazil fully grasp the economic benefits and pitfalls of the IP system. Further, IP TA could have been geared more substantially towards increasing outreach and better leveraging business ties to enhance technology transfer. These broader linkages, which are central to developing country demands within the WIPO Development Agenda, do not feature prominently in IP TA currently provided. Further, IP TA does not address the substantial inequalities in Brazil's industrial and innovation structure. Given its more questionable profitability, IP TA providers could place a greater focus on using the IP system for poverty reduction through activities that foster technology transfer and innovation capacity in ways that promote more formal R&D efforts in the interest of the poor.

Some donors such as the USPTO strongly emphasized providing training on adequate **IP enforcement**. It is not clear whether these activities may have contributed to an improving situation in the area of enforcement. The WTO 20008 Trade Policy Review for Brazil did mention positive progress in that respect.

7. IP TA in Least Developed Countries

7.1. The role of IP TA in the least-developed country context

In the previous chapters we considered case studies of middle-income countries that have been major receivers of IP TA in recent years. These countries are emerging economies, for whom IP is likely to be of growing significance. However, it is important, in order to gain a more comprehensive overview of the types of IP TA that has been provided, and their respective associated costs and benefits, to include a discussion of IP TA offered to least developed countries (LDCs). For this we must first consider the particular challenges that LDCs face.[77]

In the process of creating a sound and viable technological base, and modernising the national IPR and innovation infrastructure, LDCs face particular challenges. Both the design of the appropriate policy framework and ensuring capacity within a range of institutions in LDCs are, in the long term, daunting tasks. Most LDCs do have some form of IPR protection regime, but these are frequently outdated inheritances from the former colonial power. As a response to the TRIPS agreement many have begun a process of policy, legal and institutional reforms which have in turn highlighted the challenges which are to be faced in designing, implementing, enforcing and regulating development-orientated and pro-competitive IPR regimes tailored to the individual needs and circumstances of the countries themselves.

We must remember that LDCS are far from homogenous meaning that particular care and attention in the provision of TA must be given to these countries, especially with respect to their scientific and technological capacities, along with their social and economic structures, and inequities in income and wealth. One of the major differences to be found in providing IP TA to LDCs lies in the diminished ability of these countries to absorb assistance[78]. Also, LDCs often do not prioritise IP issues in their wider development strategies in light of the large number of competing concerns. Along with a lack of prioritization, there is also a lack of focus on IP priorities amonst donor development strategies. LDCs face deficits in IP policy, their legal and regulatory frameworks, weaknesses in the promotion of innovation and technology transfer, their IP administration, and in the enforcement and regulation regimes for IPRs.

7.2. Providers of IP TA to LDCs

In addition to the activities described in Chapter one, many multilateral and bilateral donors provide assistance to LDCs. These are discussed in more detail with examples below.

WIPO, as the largest provider of IP TA, has had limited involvement in assisting LDCs. However, through the Development Agenda and its recent Extra-Budgetary Resource mobilization strategy (2011), which has been developed to acquire additional resources directed towards assistance to LDCs and transition economies, this could potentially change. The Development Agenda explicitly emphasizes the importance of supporting LDCs in the future. WIPO is directing itself towards a greater focus on using IP as a tool for development and is currently developing the tools for officials to conduct projects on IP and the Public Domain, IP and Competition Policy, and IP and Access to Knowledge.

[77] This section draws on Pengelly, T. and Engel, J. (forthcoming). Using technical and financial assistance for implementation of the TRIPS Agreement: A guidebook for LDCs. Geneva: WTO.

[78] Leesti, M. (2006). 'Special Challenges for IP TA in Capacity Building in an LDC'. http://www.iprsonline.org/ictsd/docs/LDCToolkit-final.pdf

UNCTAD is a key actor in the provision of IP TA to LDCs, and particularly in helping these countries use TRIPS flexibilities. The joint UNCTAD-ICTSD Project on Intellectual Property Rights (IPRs) and Sustainable Development, is intended to address the concerns voiced by developing countries with respect to the implementation of the TRIPS agreement and new developments in the area of IPRs contained in multilateral treaties and regional and bilateral free trade agreements. The project aims to improve the understanding of the development implications of IPRs by facilitating informed participation in ongoing multilateral, regional and bilateral negotiations as well as assisting national authorities in the implementation of international IP commitments and the adoption of forward-looking national IPR policies. Research and policy analysis to date has seen numerous publications, including a resource book on TRIPS and development, an issue paper series on various topical IPR issues including transfer of technology and public health, and a regional research agenda made up of a series of policy-orientated research papers on specific IP issues.

Under the new phase of the joint **UNCTAD-ICTSD** Project (funded by DFID, among others) on IPRs and Sustainable Development, UNCTAD is producing, upon request by a developing country or least-developed country, a number of reports on the development dimensions of intellectual property (DDIP). The objective of a DDIP report is to examine developing countries´ and LDCs´ policy, legal and institutional framework for IPRs, particularly as these relate to important development objectives such as innovation, technology, FDI, competition and health. Based on this analysis, the reports will incorporate medium to long-term recommendations on how governments and other stakeholders could make these frameworks more coherent and transparent, with a view to making IPRs contribute to a country's sustainable economic and human development goals, and respond to emerging global opportunities.

The aim will be to present an analysis and recommendations designed to promote innovation and technology transfer from abroad, as well as a pro-competitive and transparent domestic IP system. The DDIPs will take due account of the importance of maintaining an appropriate public domain and the means to pursue public interest objectives. A DDIP will not be limited to a legal analysis but will also examine, through fact-finding missions and interviews with stakeholders, the domestic circumstances that are affected by the extent of dissemination of knowledge which are the subject of IPRs. A noteworthy aspect of this project, and broader ICTSD work on IP is that it has been externally evaluated and is subject to a more rigorous monitoring and evaluation system (number of citations in publications by IGOs, researchers, news, media, etc.) than is the case for most research and analytical TA.[79]

The **World Health Organisation** has also focused significantly on the needs of LDCs and is currently undertaking a project on improving access to medical products in developing countries through local production and related technology transfer, in partnership with UNCTAD and ICTSD, and with funding by the European Union. The project involves identifying the main challenges and obstacles of local production in developing countries and providing evidence-based recommendations on their feasibility and sustainability (see Box 7.1).

[79] Source: http://www.unctad.org/templates/Page.asp?intItemID=3443&lang=1

Box 7.1. WHO- Improving access to medicines

This project, carried out by the WHO in partnership with UNCTAD, ICTSD and with funding from the EU, aims to improve access to medical products in developing countries through local production and related technology transfer. The project involves identifying the main challenges and obstacles of local production in developing countries and providing evidence-based recommendations on their feasibility and sustainability.

Over the project lifetime of two years, it aims to identify perceived obstacles to acquiring/developing technology and enabling local production, as well as mechanisms for overcoming such obstacles. Several project outputs have been prepared and reviewed, including the stakeholder analysis, a report on trends in health-related technology transfer and local production, and a landscaping of current initiatives. In 2010 additional project outputs took place, including case studies, a final report and a methodology to help guide future work in these areas. All of the findings will be made available in early 2011.

The scope of the project was expanded at the end of 2009 and with further support from the EU to include studying local production and related technology transfer in the important areas of vaccines and diagnostics. Activities to cover these areas have been incorporated into existing work and will be further developed in 2011

Source: http://www.who.int/phi/documents/TechnologytransferactivitiesforElement4.pdf

wider issues such as how best LDCs can utilise the TRIPS flexibilities and concepts that can be of high importance in the case of LDCs (such as of compulsory licensing, for example). Rather, a primary focus has been on implementation and enforcement. The **United Kingdom** has tended to, in recent years, focus more extensively the specific challenges of IP for LDCs. DFID has been instrumental in piloting LDC needs assessments, and has also demonstrated a willingness to support LDCs' use IP for development purposes.

Chapter one highlighted the Innovative support for LDCs in the case of UK funding of Light Years IP (LYIP), which helped numerous African countries explore the possibility of using trademarks to export domestic products with a premium. LYIP provides assistance to producers, exporters and governments to identify the value of intangibles and in turn analyse the export potential of goods and services. Since 2004, LYIP has conducted over 30 training courses and workshops across Africa for the producers of distinctive products, ranging from tea, honey, artistic work and cultural brands. Light Years IP assistance to Ethiopian coffee farmers provides an excellent example of where the immediate tangible benefits can be seen- an additional US $100 million per annum was raised for coffee farmers in 2006-07 (see Box 7.2). The obvious financial benefits of the Ethiopian coffee project provides a striking example of how IP-based business strategies can generate value for producers in poor countries and raise awareness of the benefits of such activities to the general public. The USPTO are currently funding a programme with Light Years IP to support workshops and capacity building exercises on value capture

Box 7.2. Capturing intangible value through branding: Ethiopian Coffee

In collaboration with the Ethiopian Government, and with DFID funding, the non-profit organization Light Years IP designed and managed an initiative, which saw Ethiopia take a degree of control over the distribution of three of its finest coffees from retail markets worldwide. Successful use of trademarks and licensing a large number of distributers radically changed the fine coffee stakeholders' negotiating position to a stronger position making them no longer subject to commodity market fluctuations or domination by foreign buyers. Ethiopia was receiving export income of $100m in 2006/7 from the export of three highly respected fine coffees, this coffee was generating over $1,500m in retail markets worldwide. The negotiating position of the fine coffee export sector was strengthened sufficiently to capture an extra $100m for Ethiopia out of this retail value in 2007/8 (June year, reported by the Ethiopian Ministry of Trade and Industry, July 2008, attached).

At the request of DFID, LYIP conducted a study to identify and research a variety of other distinctive products throughout Sub-Saharan Africa. The study revealed that most producers in developing countries rarely benefit form the high retail prices of products that may be unique to a region, such as. Ghana's cocoa, Kenyan tea,and Sudanese Barakat Cotton. The study highlighted the potential for developing countries to utilize business tools to increase their export revenue and take ownership of their assets. The report was launched at the World Economic Forum on Africa in Cape Town in June 2008. Since then the G8, the OAS, the African Union, CIDA, WIPO and the US Departments of State and of Commerce have all shown interest in LYIP's method and concepts Light Years IP has been invited to make presentations to these organizations about the effectiveness of Value Capture as a way of low-income producers moving out of poverty.

For more information see http://www.lightyearsip.net/

Funds-in-trust (FIT) and there is now a FIT arrangement specifically created to provide assistance to LDCs. As we have already noted in Chapter one, **Switzerland** provides IP TA to countries that its development agency views as priority countries, which includes a number of low-income countries and LDCs. In the last year the Swiss Intellectual Property Institute and the Kenyan Industrial Property Institute (KIPI) launched a cooperation project to establish a protection system for geographical indications in Kenya (see Box 7.3).

A number of developing countries are increasing provision IP to LDCs. **Brazil** is exemplary of this and has recently launched the "Technical Cooperation Project between Developing Countries," financed by the Brazilian Cooperation Agency, with the main purpose of the project to strengthen the capacity of the Mozambican Drug Regulatory Authority in the regulation of the country's pharmaceutical sector, aiming at providing the society with medicines of assured quality, safety and efficacy.

Box 7.3. Swiss-Kenyan Project on Geographical Indications (SKGI)

The Kenyan government is preparing to implement new laws on Geographical Indications (GIs) in order to allow its producers to benefit from GI protection and take measures against the illegitimate use of Kenyan GIs. Both Kenya and Switzerland are members of the informal WTO group "Friends of GIs" which aims to ensure a more effective protection for GIs within the framework of the WTO/TRIPS Agreement. Kenya's experience in the field of GIs remains limited, as does its capacity to finance additional measures to implement a suitable and sustainable GI protection system.

In January 2006, the Kenyan Industrial Property Institute (KIPI) sent a proposal for a technical cooperation project in the field of GIs to the Swiss IPI. The IPI Board of Directors approved the proposal in December 2007. The overall strategic goal of the project is to contribute to the economic success of Kenyan products by giving Kenyan GI products the opportunity to fill new market niches and to achieve higher profits across the entire value-chain. The project objective is to make a key contribution to the establishment of a functional GI-protection system and to support the country in raising awareness on GIs within EAC member states.

GI legislation should be in place and selected by Kenyan producers should be in a position to prepare applications for the registration of their GIs. They should also have the necessary information to organise their marketing accordingly and effectively enforce their rights both nationally and internationally. The public sector needs to be able to deliver the services corresponding to an effective GI-protection system e.g. in the administration of the GI register; examination of the applicants; as well as support for producers (mainly through information for the preparation of the application and on the enforcement of their rights.

Swiss IPI will provide expert input to KIPI to draft comprehensive and coherent GI-Legislation, support KIPI staff in establishing the capacities and focus on creating national support for the legislation. Following this, there will be the identification of pilot GIs and the project will see the provision of expert input in the preparation of registration documents for certain pilot GIs. The final phase will support the registration and administration procedures at KIPI, and activities within the EAC will take place to raise awareness on GI protection among Kenya's neighbouring countries.

Source: Source: https://www.ige.ch/fileadmin/user_upload/Juristische_Infos/e/MoU_swiss_kenya_e.pdf

countries, and especially LDCs. Oxfam's past campaigns, for example, includes "patents and access to medicines", as part of a larger "Make Trade Fair" campaign calling on governments, institutions, and multinational companies to change the rules so that trade can contribute more to poverty alleviation.

The **IPRTA forum** has also had a significant focus on LDC IPTA needs. One of the IPRTA Forum's key achievements has been to catalyse the pilot project on TRIPS and LDCs, which resulted in the development of the first diagnostic toolkit for IPTA and the first needs assessments submitted to the TRIPS Council by Sierra Leone and Uganda.

7.3. Addressing LDC needs comprehensively through needs assessments

On 29th November 2005, the WTO TRIPS Council decided to prolong the transition period granted to LDCs to comply with the TRIPS Agreement to 1st July 2013 taking into account that these countries were also not required to fully protect pharmaceutical products until 2016.[80] This decision also meant that LDCs were required to provide the TRIPS Council with their specific technical and

[80] When the TRIPS Agreement was established in 1994 Least Developed Countries were not required to apply the provisions of the TRIPS Agreement, other than that of the most favoured nation and national treatment discipline, for a period of 10 years, in view of their special needs and requirements, financial and administrative constraints, and need for flexibility to create a viable technological base. In addition, TRIP Article 66.1 also stated that extensions to this period should be accorded upon duly motivated requests.

financial assistance needs assessments, to accompany the TRIPS Agreement Since then, five countries, Sierra Leone, Uganda, Rwanda, Tanzania and Bangladesh have submitted their IP needs assessments to the WTO TRIPS Council. Cambodia is also expected to follow suit in 2011.

The process of IPR reform represents an essential element in implementing the objectives, principles, rights and obligations of the TRIPS Agreement, but can at the same time, also be used to support social and economic development goals of the countries themselves. The extension deadline offers an important opportunity for LDCs and technical assistance providers to not only ensure enhanced and effective assistance but also to address some of the inherent weaknesses of IP technical assistance which have been identified over time.[81]

The UK has been instrumental in enabling the piloting of LDC needs assessments. This was carried out by ICTSD in co-operation and Saana Consulting, who not only developed a toolkit for this process, but piloted this approach in Uganda and Sierra Leone. The priority needs assessment process provides countries with a significant opportunity to analyse their domestic strengths and weaknesses related to IP issues and aimed to review the current status of the IPRs regime in LDCs and to provide assistance for the next stage of the required legal administrative reforms, together with a tailored program of capacity building and awareness-raising for key stakeholders from government, the private sector and civil society. The needs assessment diagnostic studies aimed to identify the needs for financial and technical cooperation in the context of the WTO TRIPS Agreement.

In Table 7.1, we outline some of the key priorities that have became apparent through the needs assessments conducted for Sierra Leone, Bangladesh and Uganda[82]. More specifically these include deficits related to IP policy, legal and regulatory framework, the promotion of innovation and technology transfer, IP administration, and enforcement. Given that these needs are in a large part informed by the priority needs identified in these countries, and their subsequent national IP plans, these components of an IP modernization programme will differ in their degree of importance from country to country.

[81] Musungu, S. (2007). 'A Conceptual Framework for Priority Identification and Delivery of IP Technical Assistance for LDCs during the Extended Transition Period under the TRIPS Agreement'. Geneva: Quaker United Nations Office.

[82] These needs assessments can be found at: http://www.iprsonline.org/ictsd/LDCneeds.htm.

Table 7.1: LDC IP TA Needs common for Uganda and Sierra Leone[83]

IP POLICY & LEGAL FRAMEWORK	IPR ADMINISTRATION
- Support for co-ordination of IP policy development and coherence. - Training for policymakers on IPR concepts, international IPR conventions and best practices from other countries. - Development of a multi-disciplinary IP policy teaching, research and analysis capacity in the academic community. - Enabling participation in meetings of the WTO Council for TRIPS and at WIPO.	- Modernizing the organizational status of IPR administration. - Developing an optimal business model for intellectual property administration by benchmarking against international best practice. - Enhanced human resources and skills for IPR administration. - Automation of registries for trademarks, industrial designs and patents.
ENFORCEMENT AND REGULATION OF IPRs	**INNOVATION, TECHNOLOGY TRANSFER AND USING IP FOR DEVELOPMENT**
- Improving consumer education and public awareness about IPRs. - Training and qualification of private sector attorneys and agents. - Training of enforcement agencies and rights holders organizations in IPR concepts national legislation and enforcement strategies. - Provision of access to networked computerized national intellectual property registries. - Enhancing co-operation with foreign enforcement agencies on combating counterfeiting and piracy.	- Development of a domestic innovative and creative base. - Improving business education and support on IP management for small and medium enterprises. - Development of a Patent Information Service to support innovation and technology transfer. - Development of a multi-disciplinary IP teaching capacity in the University of Sierra Leone. - Identification of the potential economic value of national creative & cultural industries.

Leesti argues that factors for success in these projects included a participatory and open process that included all national stakeholders including the civil society and private sector.[84] This was essential in generating a successful outcome, as well as the extensive participation of businesses, academia, consumers and civil society ensured a transparent and open assessment process. Further, national ownership of the process was a central concern. Outcomes in the entire process were ensured through national stakeholder consultation, where stakeholders identified national priorities and technical assistance needs. A further manifestation of national ownership was in that that the needs assessments reports were presented by the governments themselves to the WTO TRIPS Council.

Another example of a successful initiative can be seen through the ICTSD/UNCTAD Rwanda IP Needs Assessment and IP Policy/Strategy for implementation (see Box 7.4). The two organisations, together with Rwandan partners, recently completed a "*Draft Report of Needs Assessment Diagnostic: Technical and Financial Cooperation Needs for the Implementation of the TRIPS Agreement in Rwanda"* and a *"Draft Rwanda Intellectual Property Policy and Implementation Strategy*." These have been followed by Rwanda's submission of its needs assessment to the TRIPS council. In this case, donors have effectively come together to reduce the risk of duplication

[83] Leesti, M. & Pengelly, T. (2007). 'Technical and Financial Co-operation Needs for Implementation of the WTO TRIPS Agreement in Sierra Leone. Final Report of Needs Assessment Diagnostic'. Geneva: ICTSD Programme on IPRs and Sustainable Development, International Centre for Trade and Sustainable Development.

[84] Leesti, M. (2006). 'Special Challenges for IP TA in Capacity Building in an LDC'. http://www.iprsonline.org/ictsd/docs/LDCToolkit-final.pdf

between two projects, thereby improving cost-effectiveness and increasing the likely benefits and outcomes of both projects.

Box 7.4. Rwanda: IP Needs Assessment and IP Policy/Strategy for Implementation

In this case, an example can be seen of separate projects being brought together to maximize synergies between two donors, UNCTAD and ICTSD. Rwanda is making efforts to ensure that IP technical assistance needs are also reflected in the EIF/Aid for Trade framework. This synergy was proved to be quite complementary as the needs that were identified were determined in function of the objectives and priorities established in the national IP strategy and DDIP report, ensuring coherence between needs, technical assistance provided by donors and broader policy of objectives relating to IP protection.

In this example, based on UNCTAD'S 2009 "Draft Rwanda Intellectual Property Policy and Implementation Strategy", Rwanda's Cabinet in March 2010 adopted the Rwanda Intellectual Property Policy, which provides for guidance and a road map on how to align the country's IP framework with Rwanda's national development policy, *Vision 2020*. The technical assistance to support the elaboration of an IP policy in Rwanda was undertaken between UNCTAD and ICTSD, side-by-side, supporting the establishment of the country's priority needs for technical and financial cooperation for submission to the TRIPS Council. UNCTADs draft IP policy and ICTSDs draft report on technical and financial cooperation needs respond to two requests from Rwanda's Ministry for Trade and Industry (MINICOM) made in 2008. Both documents were based on stakeholder interviews and were unanimously endorsed at a stakeholder workshop in March 2009, Kigali.

By combining the process of developing an Intellectual Property Policy and Implementation Strategy with the establishment of the country's needs assessment, UNCTAD and ICTSD's collaboration has ensured the national policy is in line with the needs of the country and is being incorporated into the national development policy as a whole.

lead ministry (such as the Ministry of Trade & Industry) and comprising several sub-projects led by relevant key agencies. IP TA Projects should aim to foster the creation of an innovative base centred towards the achievement of each countries development objectives, and ensure that legal and administrative reforms offered take full account of public policy priorities and exploit TRIPS flexibilities. Thus, within the identified priority needs and the respective projects to meet these needs, further prioritisation should then be undertaken.

To date, only five LDCs have submitted their needs assessments to the TRIPS Council. This has a number of reasons. There is of course no guarantee that these projects/programs will have the desired outcomes in addressing broader development priorities. Further, the mobilisation of resources has been an arduous and frustrating process for those LDCs piloting the process. Support from developed countries has also been limited. Given the large web of donors, one would expect these particular LDCs would have now begun implementing those needs arising from the assessments, however these LDCs that have conducted their needs assessments have struggled to receive adequate funding to make substantial progress on the implementation of their national IP plans. Uganda was able to secure two contracts towards the financing of the Uganda Trade and Intellectual property (UTIP) programme, through the EU's TradeCom and BizClim facilities, while Bangladesh has also received some funding for priority projects in its needs assessment (most notably through the Swiss IPI). However, the bulk of the projects - including the highly important "Using IP for Development" cluster, have remained unfunded. Sierra Leone has yet to secure any IP TA funding for the implementation of any of the proposed activities in its IP programme.

It appears that many donors are prioritizing support to those non-LDC developing countries with which they have more substantial strategic trade and investment interests and where the greatest impact is likely to be made.[85]

[85] As a result of this slow progress, some donors have suggested they would they would rather see an extension to the TRIPS deadline for LDCs, than to push for compliance in the absence of sufficient TA.

Moreover, as mentioned at the start of this section, development agencies frequently do not view IP modernisation as a high priority, given the many other competing interests, which are present in LDCs, making them reluctant to fund these sorts of programmes. The knock-on effect is discouraging; this reluctance is being transferred to the LDC officials themselves, who also tend to lack the determination on whether or not to embark on this process of IP modernization and reform – especially as many are also responsible for a number of other trade-related sectors.

8. Conclusions and recommendations

Intellectual property rights regimes can allow market participants to engage in entrepreneurial activities and to overcome market failures associated with publicly available knowledge. This makes knowledge economically functional and managerially controllable. As such, IP facilitates hedging against risk and provides the inventor with the opportunity to turn a new idea or invention into an innovation and engage in some sort of commercial interaction. This falls within the paradigms for entrepreneurship and innovation developed by scholars such Joseph Schumpeter.[86]

However, benefiting from IP and IPR systems is not straight-forward or inevitable and particularly for developing countries, technical and financial assistance is essential to ensure that the gains from IP are maximised and costs and risks associated are kept to a minimum. In this study, the degree to which IP TA addresses the type of issues that are needed to build an IP-based knowledge economy and meet the country's most urgent IP-related needs were the basis on which effectiveness of IP TA was assessed. The novel impact assessment methodology devised for case study analysis here has allowed us to develop an indicative assessment of IP-related needs that allowed with a matching of IP TA provided. While naturally full needs assessments require extensive interviewing, field visits, and access to documents and key sources, given time and resource constraints this methodology nonetheless provides a reasonably robust assessment of how supply responded to demand, and allows for some important implications for the provision of IP TA.

All four countries examined are emerging knowledge economies in which IP is rapidly increasing in importance for the country's future economic development. Their economies are growing steadily and they are increasingly integrating into the global economy. While the pace of this process varies across time and between countries, in all four cases IP is becoming a significant part of strategic planning in the area of science, technology and industrial development. Well-targeted IP TA that addresses the country's position at the knowledge frontier can have substantial impact. However, the respective contexts through which IP can make a difference varied significantly. In Brazil's case, problems were mainly focused on a weak administrative system, while in Poland and India the need to improve licensing opportunities and raise IP awareness to SMEs and researchers were central. In Thailand's case, challenges were mainly of a legal and regulatory nature.

In this context, there was only a partial alignment between country needs and the direction of IP TA. On the whole most IP TA providers tended to focus on similar areas in each country, regardless of the respective country context. In some cases this was well aligned with he most urgent needs (such as in Brazil) and in others this was less well aligned. For example, considering the substantial importance placed on fostering innovation and technology transfer by the Indian government, and its centrality to ensuring that the IP system reinforces broader development objectives, this area seems to have been in part neglected by major IP TA donors.

Further, the data shows that technical and financial assistance in this area could be of great use. Poland, for example, primarily issues patents owned by Polish individuals and companies, but pays 1600 times more in royalties and licensing fees than it receives. Similarly Thailand, a very open economy in most areas, is not member to many of the international treaties on IP, potentially making life difficult for Thai traders, investors and inventors. In Brazil, innovators are confronted

[86] Schumpeter, J. (1942). 'Capitalism, Socialism and Democracy.' New York: Harper and Brothers. See also Knight, F. H. (1942). 'Profit and Entrepreneurial Functions'. Journal of Economic History, pp 126-132.

with an administrative patent system in need of support and reform. Finally, in LDCs countries have completed needs assessments as stipulated under TRIPS Article 67 but are only receiving tepid support from donors to implement IP programmes. There is clearly a need for well-targeted IP TA and much scope for useful IPTA interventions. *It is time that IP TA stops reflecting the reality of the donor and starts to address the true issues of concern for the receiving country*.

This should not detract that many IP TA programmes are likely to have provided significant value-for-money. In Brazil and India's case, training on IP administration may have influenced increased efficiency (from a low base) at the INPI and IP India, while the substantial EU support to raise SME IP awareness in Poland is likely to have had some significant impacts (though these were difficult to assess on the basis of indicators used). In India, sustained TA in this area likely influenced legislation on plant variety protection, as did WIPO TA on legislative reforms in Thailand. In all cases, the substantial US (and to a more limited extent EC) focus on TA directed towards enforcement coincided with improvements in this area. However, it is hard to say whether this outcome is attributable to the carrot (TA efforts), or the stick (EC and US pressure, particularly under the US's Section 301 system). Finally, as domestic innovation has become more important it is also not unlikely that an increasing number of domestic private sector actors will favour stronger enforcement measures.

This leads to ten important lessons:

1. **The direction of IP TA is frequently not driven by considerations of cost-effectiveness:** The lack of alignment between supply and demand in the case of some case study countries can in part be explained by donors focusing on their comparative advantages, ensuring little duplication in the sense that major providers occupy very different fields in the area of IP technical assistance. However, it does reflect a lack of flexibility by some providers to respond to country needs and there seems to be little evidence of coordination in the delivery of specific activities. This is particularly the case for bilateral assistance, where for example US TA (geared towards improving enforcement) and French support (on Geographical Indications) was very closely tied to country's political agenda and trade diplomacy and didn't necessarily address issues of obvious priority importance of the respective country's development prospects. As such, it is important to understand that IP TA is highly political – a fact that is concealed in its "technical" nature. However, the nature and the nature and direction of IP TA reflects political and diplomatic interests, trade priorities and colonial ties, among many other things.

2. **Attributing outcomes in IP TA, and assessing value for money, is complex:** Despite the likelihood that the results of IP TA sustainably contributed the country's long-term development in this area, one inevitably runs into problems of attribution. Initiatives from donors are diminishingly small when put in comparison to the size of these economies. Further, IP TA was generally only one small part of heavy investments these countries were undertaking in modernising its IP system. This complicates determining cost-effectiveness but should not detract from the fact that IP TA is likely to have had a considerable benefits and impacts beyond the likely cost of the programmes. However, the nature of IP-related outcomes is the product of a highly complex political economy that requires a sophisticated blend of qualitative and quantitative methods to assess.

3. **Improved coordination of IP TA interventions in recipient countries is essential:** While the different niches that IP TA providers indicate a lack of duplication, this by no means implies there is substantial coordination to increase effectiveness. Local donor coordination groups that meet regularly with government officials, which have become part and parcel of

development assistance in other sectors, don't seem to be a significant aspect for IP TA delivery, but would, in countries with a substantial presence by multiple donors (including three of the four countries under investigation) provide substantial gains.

4. **Moving beyond the IP Office as the main provider and beneficiary of IP TA:** It is important to note that the extent to which IP TA was aligned with pre-existing priorities was a significant factor in its effectiveness. Alignment was significantly aided if linkages from the IP offices to ministries and relevant ministers are substantial. If IP offices in donor and recipient countries focus excessively on relationships with partner country IP offices in isolation of relationships with institutions focused on broader economic development planning (e.g. the Ministry of Trade, Ministry of Science and Technology, Planning Commission, etc.), this not only limits the ability of TA to respond to broader IP-related S&T priorities and ensure that interventions are demand-driven. It is important to know whose demand one is responding to and how broadly shared demands are across the country's institutional framework. Thus, national IP commissions with high-level leadership (as was the case in Thailand, where the president chaired the commission) can be effective in raising the profile of IP among many competing priorities and also allow for easier more representative interfacing with IPTA providers. In addition, it is important for providers to consider the provision of assistance to stakeholders outside of the government, for example, the UK IPO recently completed a project in South Africa, which involved working with university technology transfer departments. The project aimed to build capacity in the commercialisation of intellectual property at South African Technology Transfer Officer, using real projects as examples. It also aimed to assist universities and science councils in prioritising which intellectual property to develop commercialisation for and how to develop those strategies.

5. **Integrating IP TA into broader science and technology, and social and economic development priorities:** On a related note, in all countries IP-related needs were on two levels: those narrowly related to IP systems (such as the training of patent examiners) and those linking IP to the broader economy. Particularly this latter aspect becomes increasingly important as countries develop substantial industrial and innovative capacities. This calls for a much more substantial integration of IP issues into broader development assistance in the area of S&T policy and industrial development. This approach, which has been favoured by the World Bank's Science and Technology Programme in recent years, views IP as one aspect of a broader innovation policy and aims to integrate common IP TA interventions into comprehensive programmes that foster innovative and S&T capacity. This will require both IP TA recipients and providers to develop greater linkages to other ministries across government, the private sector, and civil society, and move beyond the silo culture common to IP institutions in many countries.

6. **Sustaining IP TA over extended periods of time:** IP TA was most effective when support to a narrowly focused priority area was sustained over a long period of time. This points to substantial value-for-money gains if programmes are sustained, rather than if IP TA is structured around one-off ad-hoc training or workshop events. As a result, the most substantial impact donors can have in middle-income countries, unless they are willing to radically scale up assistance, is through the *sustained* provision of high-level expertise and analysis in areas prioritised by the respective government.

7. **Understanding the institutional context of projects:** While it has become axiomatic to claim that context matters and that programmes should be based on robust and extensive needs

assessments, this is still not the case for many donors. Efforts to devise coherent policies, laws, and regulations should be linked to broader development and public policy objectives and tailored to respond to the specific needs and problems of individual countries. This also calls for a broader scope of analysis in determining needs and also the usefulness of different types of IP TA interventions, including comprehensive institutional and political risk assessments to understand the opportunities and constraints within the political economy context in which IP TA is being carried out.

8. **Recognising the changing aid environment in providing IP TA to LDCs:** There is a substantial efficiency gains if IP TA providers aim to recognise the changing architecture of aid and particularly Aid for Trade (AfT). As regional integration has become an increasing priority among developing countries, a greater focus on re-contextualising IP TA towards regional initiatives (such as the successful EC-ASEAN programmes) would yield substantial gains. In this regard, IP TA providers and recipients should make themselves aware of the substantial funding now being provided to multi-donor AfT delivery vehicles like TradeMark East Africa and TradeMark Southern Africa, as well as the EC's contribution agreements with Regional Economic Communities, like ECOWAS and UEMOA in West Africa. This would also allow developing countries to use IP office expertise while linking into regional aid-for trade funds to scale up programmes.

9. **Measuring results:** While some organisations, such as WIPO, are beginning to take concerns raised about insufficient results frameworks more seriously, there is still no significant culture of regular *independent* impact assessments and external evaluations among IP TA providers or beneficiaries. Efforts in this study to gain access to project cost data, which in the case of many development agencies is readily available online, has been largely unsuccessful. The CIPR report called for an external high-level evaluation of IP-related technical assistance and this remains a desirable objective that IP TA providers should consider pursuing. Thus, focusing more extensively on how to assess impact of these highly qualitative interventions will be crucial. This may entail, as the EPO has attempted in recent years, to agree on shared indicators and results frameworks.

10. **Focusing on the special needs of LDCs:** The different contexts of IP TA provision in LDCs, as opposed to emerging economies, cannot be overstated. While these countries also have IP-related needs, the level of capacity, IP relevance and prioritisation is different. While having a basic IP administrative, legal and regulatory apparatus in place is important and generally desirable, the greatest value-for-money lies in ensuring IP can be used directly for short-, medium- and long-term development goals. This points to a lower level of importance of ensuring TRIPS compliance and a much more substantial need to ensure a strong development-orientation and substantial linkages to other sectors. The development of IP systems should therefore build on a country's national IP and technological infrastructure on a sustainable, pro-development basis, and draw on existing social and economic policy priorities elaborated in national development plans, Poverty Reduction Strategy Papers (PRSPs) and Diagnostic Trade Integration Studies (DTISs).

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Annex 1: Tables of data for case study countries

GDP Growth

	2005	2006	2007	2008	2009
BRAZIL	3.2%	4.0%	6.1%	5.1%	-0.2%
INDIA	9.3%	9.4%	9.6%	5.1%	7.7%
POLAND	3.6%	6.2%	6.8%	5.0%	1.7%
THAILAND	4.6%	5.1%	4.9%	2.5%	-2.2%
HIGH INCOME (OECD)	2.5%	2.8%	2.5%	0.2%	-3.4%
LATIN AMERICA AND THE CARRIBBEAN	5%	5.8%	5.9%	4.3%	-2%
SOUTH ASIA	8.7%	8.6%	9%	4.7%	8.1%
EUROPE AND CENTRAL ASIA	2.4%	3.6%	3.3%	0.9%	-4.3%
EAST ASIA AND PACIFIC	4.5%	5%	5.8%	2.4%	-0.1%

Source: World Bank data

FDI Inflows (BOP US $ Billions)

	2005	2006	2007	2008	2009
BRAZIL	15	18	35	45	26
INDIA	7.6	20	25	41	35
POLAND	10	20	23	15	11
THAILAND	8	9	11	8.5	5

Source: World Bank data

Exports of Goods and Services as a percentage of GDP

	2005	2006	2007	2008	2009
BRAZIL	15%	14%	13%	14%	11%
INDIA	19%	21%	21%	24%	21%
POLAND	37%	40%	41%	40%	39%
THAILAND	74%	74%	73%	76%	68%
LOW-INCOME	24.2%	25.4%	25.8%	25.6%	23.1%
LOWER MIDDLE INCOME	35.8%	36.9%	36.2%	35.3%	28.9%
UPPER MIDDLE INCOME	29.8%	30.0%	29.1%	29.2%	25.4%
HIGH-INCOME NON-OECD	106.0%	109.8%	109.6%	114.3%	N/A
HIGH INCOME (OECD)	22.6%	24.1%	24.9%	25.7%	22.1%
LATIN AMERICA AND THE CARRIBBEAN	24.5%	24.6%	24.1%	24.0%	21.1%
SOUTH ASIA	19.1%	20.7%	20.0%	22.1%	18.9%
EUROPE AND CENTRAL ASIA	37.1%	28.2%	28.7%	29.3%	24.2%
EAST ASIA AND PACIFIC	31.6%	33.5%	34.3%	34.5%	25.2%

Source: World Bank data

Imports of Goods and Services as a percentage of GDP

	2005	2006	2007	2008	2009
BRAZIL	12%	11%	12%	14%	11%
INDIA	22%	24%	25%	29%	25%
POLAND	38%	42%	44%	44%	39%
THAILAND	75%	70%	65%	74%	58%
WORLD	26.9%	28.3%	28.6%	29.8%	24.3%
LOW-INCOME	35.5%	36.5%	37%	39.1%	35.9%
LOWER MIDDLE INCOME	34.5%	34.2%	33.4%	34.9%	28.3%
UPPER MIDDLE INCOME	25.4%	25.9%	26.5%	27.6%	24.2%
HIGH-INCOME NON-OECD	89.4%	93%	93.3%	100.1%	N/A
HIGH INCOME (OECD)	23.9%	25.5%	25.9%	27.1%	22.5%
LATIN AMERICA AND THE CARRIBBEAN	21.9%	22.2%	23%	24.1%	21%
SOUTH ASIA	22.9%	25.2%	25.1%	27.8%	24.3%
EUROPE AND CENTRAL ASIA	35.6%	38%	38.4%	39.3%	34.2%
EAST ASIA AND PACIFIC	28.9%	30.4%	30.7%	32.6%	23.3%

Source: World Bank data

High Tech Exports as % of Manufactured Goods

	2005	2006	2007	2008	2009
BRAZIL	13	12	12	12	n/a
INDIA	5	5	5	6	n/a
POLAND	4	4	4	5	n/a
THAILAND	27	27	26	25	n/a
WORLD	20.5%	20.6%	18.7%	18.2%	19.6%
HIGH INCOME (OECD)	20.5%	20.6%	18.1%	17.6%	19.3%
LATIN AMERICA AND THE CARRIBBEAN	12.2%	12.0%	11.7%	11.4%	12.7%
SOUTH ASIA	4.1%	4.4%	4.7%	5.3%	7.8%
EUROPE AND CENTRAL ASIA	17.0%	17.2%	14.2%	13.9%	16.5%
EAST ASIA AND PACIFIC	20.5%	20.6%	18.7%	18.2%	19.6%

Source: World Bank data

Patent Applications by Residents and Non-Residents

Patent Applications by Residents	2005	2006	2007	2008	2009
BRAZIL	3905	3810	4023	0	0
INDIA	4521	5314	0	0	0
POLAND	2028	2157	2392	2488	2899
THAILAND	891	1040	945	802	n/a
Patent Applications by Non-Residents	**2005**	**2006**	**2007**	**2008**	**2009**
BRAZIL	16100	20264	17802	0	0
INDIA	19984	23626	0	0	0
POLAND	4555	655	361	290	241
THAILAND	5449	5221	5873	5939	n/a

Source: WIPO Patent Statistics

Annex 2: List of IP Technical Assistance projects in case study countries

Thailand

Assistance by USPTO/USAID according to specific categories

USPTO/USAID	2005	2006	2007	2008	2009	2010
IP Enforcement				3	3	4
Counterfeiting					2	
Training of Judges				2		
IP Awareness				1		
IP Protection/Examination				3	3	2
IP Strategy/ Tech Transfer				1	1	
Trademarks/Geographical Indications				1		

Source: USAID database, WTO Art. 67 returns

Assistance by WIPO according to specific categories

WIPO	2005	2006	2007	2008	2009	2010
WIPO Development Agenda						
IP Management in SMEs						
National IP Strategy (including IP & Health & TK)						
Tech Transfer				1		
Legal Advice		1		3		
TRIPS Negotiations				1	1	
IP Administration at the Patent Office						
IP Enforcement			1			

Source: WIPO Database, Art. 67 returns

Assistance by WTO according to specific categories

WTO	2005	2006	2007	2008	2009	2010
TRIPS Implementation		1				2
Teaching IP at University		1			1	
TRIPS Standards						1
Trade Policy Course	2	2		3	1	
TRIPS & Public Health				1	1	
IP & Asian Economies				2		

Source: WTO Art. 67 returns

Assistance by EC countries according to specific categories

EC Countries, Bilateral Aid	2005	2006	2007	2008	2009	2010

Austria						
Patent Information, Patent Search	1				1	
Germany						
Enforcement	1				1	
Capacity Building of the Patent Office	1					
Patent Information, Patent Search					1	
TRIPS					3	
France						
Counterfeiting	1	1				
Geographical Indications	1	6				
IP Protection		1				
Capacity Building of the Patent Office		2			1	

Source: WTO Art. 67 returns

Table 7: Assistance by EPO according to specific categories

EPO	2005	2006	2007	2008	2009	2010
Conducting Patent Examination						
Counterfeiting	1					
Patent Information	4					
Enforcement	5					
IP Protection	4					
Patent Search	1	1		1		
Geographical Indications	1	1				
IP Diplomacy	1					
IP Education at Universities	1					

Assistance by Japan according to specific categories

Japan	2005	2006	2007	2008	2009	2010
IP Education		1	1	1	1	
Copyright	1	1	1	2	2	2
Plant Variety Protection	1	2	2	2	2	2
IP Enforcement	1	1	1	1	1	

Source: WTO Art. 67 returns

Article 67 TRIPS Returns 2005-2010	
DATE	**TITLE**
USPTO	
July 2010	USPTO-ASEAN Sub-Regional IPR Border Enforcement (USPTO)
July 1, 2010	Thailand Copyright Training Programme (USPTO)
June 2010	USPTO-ASEAN Seminar on Trademark Administration (USPTO)
June 1, 2010	USPTO-ASEAN Workshop on Design Protection (USPTO)
June 2010	Seminar for Judiciary on IP Enforcement (USPTO)
May 2010	Workshop for Public Prosecutors on IPR (USPTO)
July 29- 31 2009	USPTO/WIPO 5 day IP Enforcement

July 01- 03 2009	USPTO/ASEAN 3 day Programme on Technology Transfer
June 29- 30 2009	2 day Technology Transfer Programme for Patent Officials of SMEs
June 08-11 2009	APEC/ASEAN/USPTO 4 day programme for Public Prosecutors on enforcement of IPR
May 10- 23 2009	Study Tour for Judges and Prosecutors
April 21- 24 2009	4 day programme on Geographical Indications for Trademark Officials Commerce officials and others
March 31- April 1 2009	ASEAN/USPTO 2 day Seminar on Patent Examination
March 20- April 4 2009	Workshop on Patent Registration and Examination
November 2009	USPTO-ASEAN Sub-Regional 5 day Enforcement Training (USPTO) for Police, Customs officials, Organized crime task force members, other enforcement officials, Prosecutors,
December 15- 18 2008	4 day Trademark IP Administration programme
October 28- 31 2008	GIPA 4 day Enforcement Programme
October 21- 24 2008	4 day Enforcement Judges Programme
May 1, 2008	5 day Advanced Patent Program (USPTO) on topics that included biotech and pharmaceuticals.
April 1, 2008	Training on Patent Program/Tech Transfer (USPTO)
March 1, 2008	Patent Program in Industrial Design
March 1, 2008	4 day Enforcement Program for prosecutors, justice officials, legal professionals, other
March 1, 2008	Patent Enforcement Program for Judges
March 1, 2008	SME Awareness Seminar
March 1, 2008	IP Needs Assessment Visit
November 1, 2007	USPTO, GIPA – 5 day IPR Border Enforcement workshop focusing on challenges and procedural aspects of enforcement of IPR at the border.
August, 2006	USPTO Global IP Academy Copyright Program
May 19, 2006	USPTO GIPA Patents Program on the US system of patent examination and procedures. In addition, part of the course focused on international IP agreements
February 21-24, 2006	USPTO GIPA Enforcement of Intellectual Property Rights
January 24-27, 2006	USPTO Global IP Academy (GIPA): Enforcement Academy
July 25-29, 2005	USPTO-WIPO Academy for Judiciary - IPR Enforcement
June 29-30, 2005	ASEAN-USPTO Seminar on IPR Capacity Buildingn (IIPI/USPTO)
April 4-8, 2005	ASEAN-USDOJ USPTO Workshop on Effective Practices in combating Trade in Hard Goods Counterfeiting
October 21-24, 2004	ASEAN/USPTO Workshop on effective practices in the regulation of optical media production and the implementation of effective anti-piracy efforts and activities
October 5-8, 2004	USPTO Fall 2004 Enforcement Academy which included Training, interactive exercises and case studies on IPR enforcement, including criminal prosecution, civil infringement actions and border measures, with focus on provisional measures, investigative techniques, Customs best practices, deterrent penalties and digital infringement.
July 25-29, 2005	USPTO-WIPO Academy for Judiciary - IPR Enforcement
June 29-30, 2005	ASEAN-USPTO Seminar on IPR Capacity Building fro SMEs and a seminar for government officials responsible for economic development, trade promotion, exports, and SME development, and representatives of the private sector from NGOs concerned with same.
April 4-8, 2005	ASEAN-USDOJ USPTO Workshop on Effective Practices in combating Trade in Hard Goods Counterfeiting

21- 22 October, 2004	ASEAN/USPTO Workshop on effective practices in the regulation of optical media production and the implementation of effective anti-piracy efforts and activities
October 2-8, 2004	USPTOFall 2004 Enforcement Academy Training, interactive exercises and case studies on IPR enforcement, including criminal prosecution, civil infringement actions and border measures, with focus on provisional measures, investigative techniques, Customs best practices, deterrent penalties and digital infringement
WIPO	
June-July 2008	WIPO-WTO Colloquium for Teachers of Intellectual Property from Developing Countries
September 2008	Workshop on Effective Enforcement of IPRs: Strengthening Border Measures
October 2008- September 2009	Legislative Advice
October 2007- September 2008	Legislative Advice
April 2008	Training for Diplomats on Intellectual Property
	Further Legislative Advice
December 2007	Colloquium on the Role of the IP Courts in Enforcement of IPRs
May 1, 2009	WIPO Academy specialized programmes for government officials, judges, customs officers, diplomats, university professors, students and young professionals, and heads of IP Offices
2006	Legislative Advice
EPO	
September 1, 2008	EPOQUE Net Training (EPO, DIP) to familiarise DIP staff with the basic functionalities and search features of EPOQUE.Net.
May 1, 2006	Workshops on Patent Information, Bangkok, 2 May 2006 (ASEAN Institute of Technology)
April 1, 2006	Seminar on Geographical Indications (GIs), (Khon Kaen, 21 April 2006)
November 1, 2005	Workshop “Application of Targeted Risk Management for Customs” (Bangkok, 21–25 November 2005)
Ongoing	Preparation of a Thai database on patents (Bangkok, ongoing)
	Preparation of ECAP II Work Plan for 2006
October 1, 2005	Preparation of ASEAN DVD Video on IPR Protection
August 1, 2005	ECAP II Annual National Committee Meetings: Philippines, Thailand, Indonesia, Malaysia,
September, 2005	Supply of literature to the CIPITC research centre
September 12, 2005	Supreme court delegation visits the EPO
July, 2005	Seminar on "IPR Protection in Europe: Reaching the European market"
April, 2005	Geographical indications, a land of opportunities seminar
April 11-15, 2005	Study visit to Europe on collecting societies (Budapest and London,
March, 2005	EPO President meets European business community in Thailand to hear their concerns on IPR protection at a forum entitled "IPR-Powering the Growth Engine"
April 2005, October 2005	Overhaul of procedures/ streamlining (part 2) This was and is a European expert's mission to examine the backlogs in the office and streamline the system. (Bangkok, 1st week in April and October 2005)
Ongoing	Preparation of a Thai database on patents
October, 2004	Training in prosecution techniques for police and prosecutors
October, 2004	Creation of a research centre for intellectual property and international trade laws (expert mission)
September, 2004	Registration, administrative procedures, marketing and control of geographical

	indications (expert mission)
	ECAP II website (continuous) on-line, updated once a month (www.ecap-project.org)
	ASEANPAT: Patent databases from the main patent offices of the world are available to the ASEAN IP Office for patent information purposes as well as for search within the granting procedure. Following a mission of two EPO experts in July 2003, the data from the main countries of the region were collected in electronic format and an update delivery procedure was jointly established with the IPOs. As a result of this mission, an ASEANPAT database containing the patent documents of VN, PH, ID, TH, MY and some of BR and SG are being produced, duplicated and distributed under the form of CD-ROM as of July 2004
	ASEANTM to undertake an analysis of the databases that currently exist and assess the feasibility as well as the costs that would be required to create a common database containing trademark information which could be accessed via the Internet and/or produced and distributed on CD-ROM.
(ASEAN, September 2004)	Mission to finalize regional and national ECAP II work plans
November 2004-April 2005	IPR Laws Scholarship in Europe (Munich, London and Zurich)
(on-going)	Regional handbook on enforcement for customs
(on-going)	ASEANPAT database
(on-going)	ASEANTM database
September, 2004	Participation in Working Group Intellectual Property Committee Meetings
(November 2004)	Edition of IP newsletter
	Website on ECAP II activities and news
	ECAP II website (continuous) on-line, updated once a month (www.ecap-project.org)
JAPAN	
2010	Cooperation through the East Asia Plant variety protection forum: Seminar on Plant Variety Proetction
2008, 2010	Technical and Financial cooperation in the field of Copyright, APACE (Asia-Pacific Copyright Systems Enhancement) Programme: Sub-Regional Roundtable (JCO)
2008-2010	Cooperation through the East Asia Plant variety protection forum: Workshop on Harmonization of Test Guidelines and DUS Test
2008-2010	Cooperation through the East Asia Plant variety protection forum: Training Course in Japan on PVP administration management
2009	Seminar on Intellectual Property Rights for Alumni Association Members
2004-2009	Technical and Financial cooperation in the field of Copyright: JICA Group Training Course
2006- 2009	Technical and Financial cooperation in the field of Copyrigh, APACE (Asia-Pacific Copyright Systems Enhancement) Programme: Training Programme (JCO)
2004-2009	Technical and financial cooperation in the field of border measures: a training course, expert mission on the TRIPS Agreement in the field of border measures for the enforcement of intellectual property rights and and APEC Workshop on the TRIPS Agreement
2008	Cooperation through the East Asia Plant variety protection forum: Dispatch of Expertys for in-country training
2005-2007	TECHNICAL AND FINANCIAL COOPERATION IN THE FIELD OF PLANT VARIETY PROTECTION: Asian Regional Technical Meeting
2004- 2006	TECHNICAL AND FINANCIAL COOPERATION IN THE FIELD OF PLANT VARIETY PROTECTION: JICA Group Training Course
2005	Alumni Association Members Seminar on Intellectual Property Rights
2005	TECHNICAL AND FINANCIAL COOPERATION IN THE FIELD OF COPYRIGHT: Training on Collective Management

2005	TECHNICAL AND FINANCIAL COOPERATION IN THE FIELD OF PLANT VARIETY PROTECTION: National Seminar
EC countries	
FRANCE	
June- July 2009	Organization of a seminar on industrial property in cooperation with WIPO (INPI/WIPO)
June 1, 2009	Asia regional seminar in cooperation with EU (PRCC*) and AFD (MAAP)
June 30, 2006	ASEM seminar on the protection of geographical indications (Economic Mission of Bangkok)
June 30, 2006	fifth meeting of the ASEM GI working group in Bangkok (France/Thailand)
June 28-29 2006	ASEM seminar on geographical indications (EPO, ECAP European programme, Economic Mission)
June 28, 2006	Visit of Thai Supreme Court judges for a presentation by the Department of Trademarks and Opposition.
June 28, 2006	Geographical Indications (INPI/Thai Office): Participation in the ASEAN seminar on geographical indications
June 21, 2006	Industrial property (INPI/Thail Office): Participation in the seminar "Industrial Property in China".
June 19, 2006	Fight against counterfeiting, intellectual property rights (INPI/Thai Office): Training course for 200 Thai police officers on industrial property, copyright and counterfeiting
June 1, 2006	Registration in Thailand of seven GIs and two foreign GIs, including champagne. (MAP)
Mid 2005	expert mission (MAP)
2004-2005	Support programme for the development of geographical indications (MAP.INAO)
December 13, 2005	Fight against counterfeiting, intellectual property rights (INPI): Visit by Thai prosecutors for introduction to France's experience in legal proceedings against counterfeiting and piracy.
GERMANY	
June 2009, November 2009, December 2009	E-Learning Course Flexibilities of the TRIPS Agreement for Participants from South East Asia.Introductory workshop24 - 26 June 2009, HanoiOnline courseJuly - November 2009Follow-up workshopDecember 2009(InWEnt)
	Free search Exchange of literature (DPMA)
March 1, 2009	Visit to the Federal Patent Court and lecture on the court's functions (Federal Patent Court Germany)
November 9, 2005	Delegation of judges of the IP court and the Intellectual Property and International Trade Court of Thailand
June 9, 2005	Visit of a delegation of the Thai Department of Intellectual Property (DIP) (DPMA)
AUSTRIA	
June 6-17, 2009	Training course on patent documentation and information, protection of trademarks and designs, international treaties (APO/WIPO)
June 6-17, 2005	Training course on patent documentation and information, protection of trademarks and designs, international treaties (Austrian Patent Office, in cooperation with WIPO)
WTO	
July 27-29, 2010	WTO Workshop for LDC Members and Observers from the Asia-Pacific Region on the "Assessment of Priority Needs to Implement the TRIPS Agreement"
July 12-13, 2010	TRIPS Sessions in WTO Regional Trade Policy Course for the Asia-Pacific Region
January 25-29, 2010	Workshop on TRIPS Standards and Public Policy Options

June 22- July 3, 2009	WIPO-WTO Colloquium for Teachers of Intellectual Property
2010	WTO regional trade policy courses
February 2-6, 2009	Workshop on the TRIPS Agreement and Public Health
2009	WTO regional trade policy courses
June 30- July 10, 2008	WIPO-WTO Colloquium for Teachers of Intellectual Property
January 30- February 7, 2008	WHO Mission on TRIPS Flexibilities
October 18-20, 2008	WTO Regional Workshop on Certain Topical Issues in regard to Intellectual Property for Latin America
April 1-3, 2008	WTO Regional Workshops on Certain Topical Issues in regard to Intellectual Property for Asia-Pacific Economies
April 22-23, 2008	WTO Trade Policy Course for Asia-Pacific Economies, Singapore
2008	WTO regional Trade Policy Courses
June 26- July 7, 2006	WIPO-WTO Colloquium for Teachers of Intellectual Property
2006	WTO regional trade policy courses
June 29-30, 2006	3rd Asia-Pacific WTO Regional Trade Policy Course, organized in partnership with the University of Hong Kong, China
March 28-30, 2006	WTO Regional Workshop on Certain Topical Issues in Regard to the TRIPS Agreement for Asian Economies
2005	WTO regional trade policy courses
June 23-24, 2005	2nd Asia-Pacific WTO Regional Trade Policy Course, in partnership with the University of Hong Kong, China

Source: http://www.wto.org/english/tratop_e/trips_e/intel9_e.htm

Poland

Assistance by USPTO/USAID according to specific categories

USPTO/USAID	2005	2006	2007	2008	2009	2010
IP Enforcement				2		
Copyright Protection/Piracy					1	
Plant Variety Protection & UPOV provisions					1	
Patents in Biotechnology & Pharmaceuticals				1		

Source: USAID database, WTO Art. 67 returns

Assistance by WIPO according to specific categories

WIPO	2005	2006	2007	2008	2009	2010
IP Teaching at Universities					1	
IP in Pharmaceutical Industries					1	
Provision of Speakers in Bio Business Innovation				1		
Provision of Speakers in Copyright Conference				1		
Provision of Speakers in IP & women in business				1		
Hague Agreement						
PCT/Patent Procedures						

Source: WIPO Database, Art. 67 returns

Assistance by WTO according to specific categories

WTO	2004	2005	2006	2007	2008	2009-2010
TRIPS Implementation	1					

Source: WTO Art. 67 returns

Article 67 TRIPS Returns 2005- 2010	
DATE	**TITLE**
WIPO	
June 1, 2009	Inter-Regional Symposium on Teaching Intellectual Property in Universities in Countries in Transition, Cracow
April 1, 2009	Conference on Intellectual Property in the Pharmaceutical Industry
April 1, 2008	Provision of speakers for such events as: The European Committee Meeting of the International Confederation of Societies of Authors and Composers, Budapest, Hungary, 22-23 April, 2008; National Conference on Bio-Business Innovation, 26-27 April, 2008, Gdynia, Poland.
March 1, 2008	Conference on the protection of IP as a condition for Women's Success in Science and Business
October 2007, December 2007, March 2008	Provision of speakers for ongoing cooperation activities between the WIPO and the Technical Assistance Exchange Office (TAIEX)
USPTO	
June 15- 19 2009	UPOV – 5 day Technical Working Party on Automation
January 26- 30 2009	5 day Copyright Programme on rules and practices at USPTO Headquarters.
May 1, 2008	5 day Advanced Patent Program
Mar-08	Patent Enforcement Program for Judges
March 1, 2008	4 day Enforcement Program
WTO	
October 19-24, 2004	WIPO-WTO Regional Workshop on the TRIPS Agreement and Certain Topical Issues in the Field of Intellectual Property for Countries of Central and Eastern Europe and Central Asia (CEECA)

Source: http://www.wto.org/english/tratop_e/trips_e/intel9_e.htm

India

Assistance by USPTO/USAID according to specific categories

USPTO/USAID	2005	2006	2007	2008	2009	2010
IP Enforcement		1	2	2	8	
Counterfeiting					2	3
Training of Judges		1	1	1	4	
IP Awareness				2	1	2
IP Protection				4	4	1
IP Strategy/ Tech Transfer				1	1	
Trademarks/Geographical Indications				4		

Source: USAID database, WTO Art. 67 returns

Assistance by WIPO according to specific categories

WIPO	2005	2006	2007	2008	2009	2010
WIPO Development Agenda						1
IP Management in SMEs						2
National IP Strategy (including IP & Health & TK)					3	1
Tech Transfer				2	2	
Sector Specific IP Strategy					1	
TRIPS Negotiations				2	1	
IP Administration at the Patent Office				1		
IP Enforcement		1				

Source: WIPO Database, Art. 67 returns

Assistance by WTO according to specific categories

WTO	2005	2006	2007	2008	2009	2010
TRIPS Implementation		1		1	1	2
Teaching IP at University	1	1		1	1	1
TRIPS Standards						1
Trade Policy		1			1	1
TRIPS & Public Health				1	1	1

Source: WTO Art. 67 returns

Assistance by EC countries according to specific categories

EC Countries, Bilateral Aid	2005	2006	2007	2008	2009	2010
Austria						
Conducting Patent Examination		1			1	
Germany						
Conducting Patent Examination				2		
U.K.						
Activities & Scope of a Patent Office					2	
Czech Republic						
IP Protection		1				
Denmark						
IT operations in the Patent Office		1				
France						
Counterfeiting		1				

Source: WTO Art. 67 returns

Assistance by EPO according to specific categories

EPO	2005	2006	2007	2008	2009	2010
Conducting Patent Examination				4		

Source: WTO Art. 67 returns

Assistance by Japan according to specific categories

Japan	2005	2006	2007	2008	2009	2010

TRIPS Compliance					1	
IP Awareness (copyright related & Plant variety)	1	2		1	1	1

Source: WTO Art. 67 returns

Article 67 TRIPS Returns 2005- 2010	
DATE	**TITLE**
USPTO	
Feb-10	GW 7th India Project IPR Summit
Feb-10	CSIR-USPTO Workshop on IP Protection
Aug-10	2 day International Conference on Counterfeiting
Aug-10	4 day CS India Retreat programme on IPR and administrative procedures on intellectual property
Aug-10	Counterfeit and Piracy for Police Programme
Jun-10	Study Tour for Indian Customs Officials
Oct-09	Workshop on Intellectual Property and Innovation
September 28-20 2009	Rospatent 3 dayTeleworking Study Tour
September 15 2009	Anti-counterfeiting Programme
September 12 2009	IPR Workshop for Lower Courts
August 17-21 2009	5 day Enforcement of IPR Workshop
August 16-21 2009	6 day Coordinated Action for Cross Border Enforcement
July 27-31 2009	5 day USPTO/WIPO on IP Enforcement
June 08-11 2009	APEC-ASEAN-USPTO Colloquium on IP Enforcement
May 10-23 2009	Study Tour for Judges and Prosecutors
May 05-07 2009	3 day WIPO National Seminar on IP
April 30 2009	PTO-AMCHAM Roundtable on IPRs
April 28 2009	Seminar on "Protection of Intellectual Property"
April 21-24 2009	4 day programme on Geographical Indications
April 20-24 2009	5 day programme on Enforcement for Judges Programme
March 23- 27 2009	5 day programme on Enforcement Programme
March 16 2009	8 day Advanced training on Pharma/Biotech Patent for Indian Examiners
February 09 2009	Life Sciences Programme
February 02-13 2009	10 day programme- Indian Technical Assistance Patent Programme
January 26- February 06 2009	10 day Trademark FEIR Programme
January 30 2009	Half day National Workshop on IP Strategy
January 14 2009	Effective use of IP Recordation System: programme to exchange best practices and experiences with the intellectual property recordation system in the US and India.
January 10-12 2009	3 day Customs Programme
December 15-18 2008	4 day programme on Trademark IP Administration
December 01- 02 2008	Geographical Indications and Enforcement Programme
October 27-31 2008	5 day IPR Case Management Workshop: Indian Judges
October 21- 24 2008	4 day Enforcement Judges Programme
Sep-08	4 day Trademark Program: Madrid Protocol (USPTO)

Jun-08	5 day Patent Program (TK/GR) (USPTO)
May-08	5 day Advanced Patent Program
Apr-08	Industry Roundtable Discussion
Apr-08	USTDA India Patent Examination Program (USPTO/USTDA)
Apr-08	Patent Program/Tech Transfer (USPTO)
Mar-08	Training on the challenges in Enforcement of Intellectual Property (USPTO)
Mar-08	GIPA/USTDA India Patent Examination Training Program (USPTO/USTDA)
Feb-08	4 day IP Enforcement (USPTO) programme on challenging procedural aspects of IP Enforcement
June 27-28, 2006	Resolving Complex IPR Disputes (DOJ)
May 1-31, 2005	IPR Crime Law Enforcement Training
WIPO	
June- July 2008	WIPO-WTO Colloquium for Teachers of Intellectual Property from Developing Countries
July 1, 2009	Patent related Activities: WHO Executive Course for Policy Makers "Towards an Intellectual Property Regime that Protects Public Health, Bungalore – July 6 to 10, 2009
	Copyright in the Digital Environment: Workshop on Digital Identifiers and IPRs: Enabling Access to Content within the Internet Governance Forum in Hyderabad
April 1, 2008	Presentations to Regional workshops
January 1, 2008	Training Course on Industrial Property Administration
April, 2006	High-Level Asia-Pacific Policy Forum on Traditional Knowledge (TK) and Traditional Cultural Expressions (TCEs)
April 1, 2006	National Seminar on Patents and Industrial Designs
June, 2006	WIPO-Asia and the Pacific Sub-regional Colloquium for the Judiciary on Protection of Intellectual Property Rights
EPO	
Oct-08	Joint EPO-DPMA training at IP India Chennai, New Delhi, Kolkata (EPO DPMA)
Dec-08	EPO expert mission on quality management & control New Delhi
Jan-09	EPO access to TKDL database (EPO, CSIR)
Mar-09	EPOQUE.Net test access IP India, New Delhi (EPO): The EPO granted test access to EPOQUE.Net (five workstations) to IP India in New Delhi. The system was installed in March 2009 and the training was provided in April.
JAPAN	
2009	Long-term Fellowship (WIPO FIT/JP)
	Training Programmes for Government officials (JPO)
2009	Seminar on Intellectual Property Rights for Alumni Association Members
2009	JPO/IPR Training Course on the Patent Examination Practices for India
2004- 2006	Technical and Financial cooperation in the field of Copyright, APACE (Asia-Pacific Copyright Systems Enhancement) Programme: **Training Programme (JCO)**
2005, 2008, 2010	Technical and Financial cooperation in the field of Copyright, APACE (Asia-Pacific Copyright Systems Enhancement) Programme: **Sub-Regional Roundtable (JCO)**
2006	Technical and financial cooperation in the field of plant variety protection: **JICA**

	Training Course
2004- 2006	Technical and financial cooperation in the field of plant variety protection: **Asian Regional Technical Meeting**
EC countries	
AUSTRIA	
Jun-09	Training course on patent documentation and information, protection of trademarks and designs, international IP treaties (Austria Patent Office in cooperation with WIPO ("WIPO-Austria-Course"))
June 12-13 2006	Training course on patent documentation and information, protection of trademarks and designs, international IP treaties. (Austrian Patent Office in cooperation with WIPO ("WIPO–Austria–Course"))
GERMANY	
	Carrying out of free search Exchange of literature (DPMA)
Oct-08	On-site-training Chennai, Kolkata, New Delhi (DPMA, EPO, CGPDTM)
Jun-09	Informative Talk (DPMA, DAAD)
UK	
Jan-09	Expert Missons: three senior IPO staff to India to continue discussions on agreeing a Joint Plan of Action on Bilateral Cooperation.
CZECH REPUBLIC	
Geneva, 5–9 June 2006 and Prague, 12–23 June 2006	Interregional Intermediate Seminar on Industrial Property – Practice training course on Industrial Property (WIPO Worldwide Academy and Industrial Property Office of the Czech Republic)
DENMARK	
June 2-7, 2006	TIDP – Intellectual Property Rights (Danish Patent and Trademark Office (DKPTO))
FRANCE	
June 9, 2006	Intensive training course at CEIPI in Strasbourg, patent and trademark law, copyright, fight against counterfeiting in Paris
2005	Identification of prospects for cooperation (INPI/MAP): Statement of intent to cooperate issued by the joint Franco Indian Commission of December 2004. Continuation of the exchange of views between partners from the two countries (2005).
WTO	
July 27-29, 2010	WTO Workshop for LDC Members and Observers from the Asia-Pacific Region on the "Assessment of Priority Needs to Implement the TRIPS Agreement"
July 12-13, 2010	TRIPS Sessions in WTO Regional Trade Policy Course for the Asia-Pacific Region
June 28- July 9, 2010	WIPO-WTO Colloquium for Teachers of Intellectual Property from Developing Countries
January 25-29, 2010	Workshop on TRIPS Standards and Public Policy Options
2010	WTO regional trade policy courses
November 3-5, September 21-24, 2009	Fith & Sixth Workshops on the TRIPS Agreement and Public Health
June 22- July 3, 2009	WIPO-WTO Colloquium for Teachers of Intellectual Property
February 2-6, 2009	WTO Workshop on the TRIPS Agreement and Public Health for WTO Members and Observers in Southeast Asia and the Pacific
2009	WTO regional trade policy courses
December 2-4, 2008	Fourth Workshop on the TRIPS Agreement and Public Health

June 30- July 10, 2008	WIPO-WTO Colloquium for Teachers of Intellectual Property
April 1-3, 2008	WTO Regional Workshops on Certain Topical Issues in regard to Intellectual Property for Asia-Pacific Economies
June 26- July 7, 2006	WIPO-WTO Colloquium for Teachers of Intellectual Property
June 29-30, 2006	3rd Asia-Pacific WTO Regional Trade Policy Course, organized in partnership with the University of Hong Kong, China
May 16-18, 2006	WTO Regional Workshop on Certain Topical Issues in Regard to the TRIPS Agreement for Central Eastern European and Central Asian Countries
March 28-30, 2006	WTO Regional Workshop on Certain Topical Issues in Regard to the TRIPS Agreement for Asian Economies
2006	WTO regional trade policy courses
June 27-July 8, 2005	WIPO-WTO Colloquium for Teachers of Intellectual Property
October 12-13, 2004	WHO Regional Workshop on Trade amd Health

Source: http://www.wto.org/english/tratop_e/trips_e/intel9_e.htm

Brazil

Assistance by USPTO/USAID according to specific categories

USPTO/USAID	2005	2006	2007	2008	2009	2010
IP Enforcement		1	2	2	8	
Counterfeiting					2	3
Training of Judges		1	1	1	4	
IP Awareness				2	1	2
IP Protection				4	4	1
IP Strategy/ Tech Transfer				1	1	
Trademarks/Geographical Indications				4		

Source: USAID database, WTO Art. 67 returns

Assistance by WIPO according to specific categories

WIPO	2005	2006	2007	2008	2009	2010
WIPO Development Agenda						1
IP Management in SMEs						2
National IP Strategy (including IP & Health & TK)					3	1
Tech Transfer				2	2	
Sector Specific IP Strategy					1	
TRIPS Negotiations				2	1	
IP Administration at the Patent Office				1		
IP Enforcement		1				

Source: WIPO Database, Art. 67 returns

Assistance by WTO according to specific categories

WTO	2005	2006	2007	2008	2009	2010
TRIPS Implementation		1		1	1	2
Teaching IP at University	1	1		1	1	1

TRIPS Standards						1
Trade Policy		1			1	1
TRIPS & Public Health				1	1	1

Source: WTO Art. 67 returns

Assistance by EC countries according to specific categories

EC Countries, Bilateral Aid	2005	2006	2007	2008	2009	2010
Austria						
Conducting Patent Examination		1			1	
Germany						
Conducting Patent Examination				2		
U.K.						
Activities & Scope of a Patent Office					2	
Czech Republic						
IP Protection		1				
Denmark						
IT operations in the Patent Office		1				
France						
Counterfeiting		1				

Source: WTO Art. 67 returns

Assistance by the European Patent Office according to specific categories

EPO	2005	2006	2007	2008	2009	2010
Conducting Patent Examination				4		

Source: WTO Art. 67 returns

Assistance by Japan according to specific categories

Japan	2005	2006	2007	2008	2009	2010
TRIPS Compliance					1	
IP Awareness (copyright related & Plant variety)	1	2		1	1	1

Source: WTO Art. 67 returns

Article 67 TRIPS Returns 2005- 2010	
DATE	**TITLE**
USPTO	
Sep-10	Innovation and Development (USPTO) programme related to the protection and enforcement of patents, copyrights and trademarks
Sep-10	3 day Brazilian Police IP Enforcement Training (USPTO)
July 29- 31 2009	3 day Judges and Prosecutors Programme
July 20-23 2009	4 day APEC/ASEAN/USPTO Border Enforcement Programme
June 15-19 2009	5 day UPOV - Technical Working Party on Automation
May 10-23 2009	Study Tour for Judges and Prosecutors
April 27-28 2009	2 day Federal Judges Academy Seminar

April 21-24 2009	4 day programme on Geographical Indications
January 26- February 06 2009	10 day programme on Trademark FEIR Programme
January 26-30 2009	5 day Copyright Programme
December 15-18 2009	4 day programme on Trademark IP Administration
October 21-24 2009	4 day Enforcement Judges Programme
Sep-08	4 day Trademark Program: Madrid Protocol
Aug-08	3 day capacity building seminar on Customs IPR Border Enforcement Practices
Aug-08	5 day course on Patent Program Basics
Jul-08	5 day USPTO-WIPO IPR Enforcement Workshop for Prosecutor
Jun-08	5 day course Patent Program (TK/GR)
Jun-08	5 day Patent Program/General Advanced
Jun-08	5 day IPR Criminal Investigations Training
Jun-08	5 day USPTO Enforcement program
May-08	5 day Advanced Patent Program
Apr-08	Road Shows in Brazil on IP- 3 locations to discuss policies in Brazil
Mar-08	Training Patent Program in Industrial Design
Dec-07	4 day USPTO, GIPA - Trademark Examination Program
August 1-4, 2006	USPTO GIPA Enforcement of Intellectual Property Rights- training
May 19, 2006	Detailed view of the US patent system - USPTO GIPA Patents Program
February 13-24, 2006	USPTO GIPA Visiting Scholars Program
April 1-30, 2005	IPR Crime Law Enforcement Training
WIPO	
July 1, 2009	WIPO-WTO Colloquium for Teachers of Intellectual Property from Developing Countries
July 1, 2009	Brazil –Asia meeting on IP Institutional Policies for Universities
June 1, 2009	Seminar on Intellectual Property for Economic Regulation
November 1, 2008	Seminar: "Industrial Property- Its Legal, Economic and Social Implications"
October 1, 2008	Copyright International Seminar
October 1, 2008	International Congress of the ABDA: The importance of Social and Cultural aspects of Intellectual Creations",
October 1, 2008	Collective Management Training in SUDEI
2005-2006	Legislative advice
2005-2006	Capacity Building and IP Awareness Studies
October, 2005	Capacity Building and IP awareness Workshop on Intellectual Property, São Paulo, Brazil,
EPO	
01-Aug-09	Signature of the extension contract relating the granting of access to the EPOQUE Net Service of the EPO to the Brazilian INPI
Dec-09	Implementation in INPI of integrated biotechnological services
Sep-08	Seminar "How to train EPOQUE Net Search (train the trainers)"
Oct-08	XI Intellectual Property and Technology Commercialization Meeting, INPI Brazil /WIPO/EPO

Oct-08	4 day Seminar on Computer implemented inventions - Examination Practices, EPO / INPI Brazil
Nov-08	Seminar on PCT International Search and Preliminary Examination Practices , WIPO /EPO/ INPI Brazil
Dec-08	International Seminar on Traditional Medicine , SIPO/EPO
Jun-09	Seminar "Oppositions and Appeals Procedures at the EPO"
JAPAN	
2009	Long-term Fellowship: funded by WIPO FIT/JP, three trainees, one from India, Indonesia and the Philippines, were invited to Japan in FY 2009 to study intellectual property issues for a period of six months. In FY 2009, the JPO accepted two trainees on the long-term fellowship, one from China and one from Brazil, for about six months under an independent project.
2006	Technical and financial cooperation in the field of plant variety protection: JICA Group Training Course
EC Countries	
FRANCE	
September 2008- February 2009	University-level training (INPI)
Jul-09	Pre-diagnosis study visit (INPI)
Apr-09	Meeting (INPI): Fifth Franco Brazilian meeting on intellectual property
Jun-09	University-level training (INPI)
May-09	International training on GIs and rural development in Switzerland (Geneva) (Organization: UMR Innovation (SupAgro* CIRAD INRA)/AGRIDEA (Switzerland). Financing: AFD and MAAP (France), WIPO, IPI* (Switzerland))
January, 2006	Working meeting with representatives of the Brazilian Patent and Trademark Office in the scope of the Preparation of the Ministerial Conference on Industrial Property for Portuguese Speaking Countries (CPLP) (INPI PT)
August 2005, March 2006, May-June 2006	August 2005: MAP mission to the new "Coordination unit for the promotion of geographical indications of agricultural products" in MAPA (Ministry of Agriculture, Livestock and Supply of Brazil) March 2006: INAO participation in a training seminar in Brasilia 28 May – 2 June 2006: training in France of the "coordinator for the development of GIs for agricultural products" in MAPA (Brazilian Ministry of Education) (MAP/INAO)
March, 2006	visit of institutional representatives to the SIA Paris (MAP/INAO/EMATER)
September, 2005	2nd International anti–counterfeiting seminar (Chamber of Deputities of Brazil)
2004-2005	Raising awareness of the notions of geographical indication and registered appellation of origin (MAP/INAO)
2005	Institutional cooperation in the area of geographical indications (MAP)
2004-2005	Technical support and raising awareness of geographical indications (SEBRAE (Brazilian Small Enterprise Support Service) / CIRAD)
GERMANY	
Sep-08	Study Visit (DPMA , INPI Brazil)
Mar-09	Study Visit (DPMA , INPI Brazil) : 3 INPI patent examiners to the DPMA within the scope of the cooperation project.
March- April 2009	Study Visit (DPMA , INPI Brazil) 2 INPI patent examiners to the DPMA within the scope of the cooperation project. Topic: activity on quality management.
Apr-09	Study Visit (DPMA , INPI Brazil): , 6 INPI patent examiners working in the areas of

	pharmacology, chemistry and biotechnology received training at the DPMA.
May-09	Study Visit (DPMA , INPI Brazil): 6 INPI patent examiners working in the areas of telecommunications, nanotechnology and computer-implemented inventions, mechanical technology, metallurgy and agriculture received training at the DPMA.
Sep-09	Visit at the Federal Patent Court and lecture on the court's position adnd function within the German and European legal system (Federal Patent Court Germany)
May-09	Visit at the Federal Patent Court and lecture on the court's position and function within the German and European legal system (Federal Patent Court Germany)
	Free search Exchange of literature (DPMA)
PORTUGAL	
Mar-09	Ibero-American Summit Preparatory Meeting (Portugal, Spain and Sixteen Industrial Property Central Services of Latin American countries.)
Apr-09	Technical Joint co-operation meeting (The Industrial Property Central Services of the Portuguese Speaking Countries (except East Timor))
Jun-09	Technical co-operation meeting (INPI PT)
Jun-09	Inter-regional training programme (INPI PT)
Jul-09	Technical cooperation in the scope of IT
June, 2006	Interregional Intermediate Seminar on Industrial Property – Practice training course on Intellectual Property (Geneva, 7–9 June 2006) and (Lisbon, 12–23 June 2006) (WIPO/ INPI PT)
April, 2006	Ministerial Conference on Industrial Property for Portuguese Speaking Countries (CPLP) (WIPO, INPI PT)
June, 2005	Long Distance Course Programme on Intellectual PropertyInterregional Intermediate Seminar on Industrial Property - Practice training course on Intellectual Property (WIPO/INPI PT) (GDA/WIPO Gabinete do Direito de Autor Ministeria da Cultura)
2004-2005	Inter-regional seminar on Intellectual Property
	Practice training course on Intellectual Property
June, 2004	Training course in the relevant areas of IP (INPI PT, WIPO Academy)
SPAIN	
Nov-08	Online course on trademark management and evaluation (CEDDET/OEPM)
Nov-08	Seventh Regional IP Seminar for Judges and Prosecutors. (WIPO/CEDDET/OEPM)
Dec-08	Training seminar on patent search and examination Madrid (WIPO/CEDDET/OEPM)
	Regional meeting on the challenge of industrial property for Latin American chambers of commerce. Held in Lima (WIPO/OEPM)
	Project on documentation mechanisms and access to judicial and administrative decisions on IP in Latin America. (WIPO/OEPM)
	Regional seminar on use of the PCT. Held in Montevideo (WIPO/OEPM)
Feb-09	Drafting and publication of a practical guide on establishing and managing technology transfer units for Latin American universities (WIPO/OEPM)
Mar-09	Regional meeting of heads of IP offices of Latin America. (WIPO/EPO/OEPM)
Mar-09	Subregional meeting of trademark experts from the countries of Central America and the Dominican Republic. (WIPO/OEPM)

June	Fifth LATIPAT refresher course. (WIPO/EPM/EPO)
May-09	Study visit by a Brazilian delegation. (Sub-directorate General for Intellectual Property(Ministry of Culture of Spain) Intellectual Property Office in Brazil)
August, 2006	IV Forum on copyright and related rights (Ministry of Culture Spanish International Cooperation Agency General Council of the Judiciary)
November 2-15, 2005	Theoretical and practical training course on copyright and related rights. (Ministry of Culture)
October, 2005	Fourth regional seminar on intellectual property (Spanish Patent and Trademarks Office (OEPM) in conjunction with the Ministry of Culture.)
August 22-23	Andean meeting on harmonized rules on border measures for intellectual property (OMPI/SGCA(General Secretariat of the Andean Community of Nations)/OEPM/Peru)
August 19- September 2	Training course within the LATIPAT project (WIPO/OEPM/EPO)
October 2- November 27	Online course on patent management and evaluation (OEPM/CEDDET (Distance learning centre for economic and technological development))
Oct-05	Regional seminar on intellectual property. (OEPM/WIPO/EPO)
2005-2006	Hands–on phase of the course on patent management and evaluation (OEPM)
November, 2005	ELDIPAT (EPO/WIPO/OEPM IP Office El Salvador): Meeting held with a view to promoting the use of the technological information of patent documents.
November, 2005	Regional seminar–workshop on intellectual property in university policies. (WIPO/Government of Guatemala/OEPM/Central American University Council)
November, 2005	Seminar on technological information (OEPM/AECI (Spanish international cooperation agency))
November, 2005	Regional meeting on documentation and access to legal and administrative decisions on IP in Latin America. (WIPO/OEPM/Government of Panama)
November, 2005	Subregional workshop on the Nice and Vienna classifications of trademarks. (WIPO/OEPM/DNPI (National Industrial Property Directorate) of the Eastern Republic of Uruguay)
May- June 2005	II Meeting on technological cooperation and information (OEPM/AECI)
2005-2006	Online course on patent management and evaluation (OEPM/CEDDET)
2005-2006	Inter–regional practical seminar on trademarks and common aspects of IP (OEPM/WIPO)
2005-2006	Bilateral cooperation programme with intellectual property offices in Latin American countries (OEPM)
November 2-19, 2004	Theoretical and practical training in copyright and related rights (Ministry of Culture)
April 11-15 2005	III Forum on Copyright and Related Rights (Ministry of Culture/ Spanish International Cooperation Agency (AECI)/ General Council of the Judiciary)
April 4-7, 2005	Seminar on "Audiovisual works: creation, production and exploitation"
October 25-29, 2004	Third Regional Seminar on Intellectual Property (Spanish Patent and Trademarks Office (OEPM) in conjunction with the Ministry of Culture)
September 2-3, 2004	Cooperation meeting (OEPM/ WIPO)
October 25-29, 2004	Regional Seminar for Latin American Judges and Prosecutors (OEPM-WIPO-EPO-AECI)
November 15-16, 2004	Technical Seminar on the Madrid System (OEPM/WIPO)
April 18-19, 2004	Seminar in Bolivia: "Ten years of TRIPS: experiences relating to its implementation and study of its impact in Latin America and Europe" (OEPM/Univsersity of Alicante)
April 18-19, 2004	Nicaragua: "Regional seminar on global protection systems (trademarks, industrial designs and appellations of origin) as tools for business competitiveness and efficient rights management" (OEPM / WIPO / Nicaraguan office)
April 19-21, 2004	Day refresher courses for Latin American officials within the framework of the Patent Cooperation Treaty (PCT) and a Specialization Seminar on the Patent Cooperation

	Treaty (OEPM / WIPO / IMPI)
UK	
Mar-09	IT training – Project planning and management of EPTOS (UK IPO)
December 5-8, 2005	Visit from IP Brazil (UKPO)
May 23- July 10, 2004	Second on-line course on patent management and evaluation (OEPM/CEDDET)
June 6-17, 2004	Spain: Practical inter-regional seminar on trademarks and common aspects of industrial property (OEPM/WIPO)
2004-2005	Bilateral cooperation programme with intellectual property offices in Latin American countries (OEPM)
WTO	
June 28- July 9, 2010	WIPO-WTO Colloquium for Teachers of Intellectual Property from Developing Countries
March 15-17, 2010	TRIPS Sessions in WTO Regional Trade Policy Course for Latin America
2010	WTO regional trade policy courses
June 22- July 3, 2009	WIPO-WTO Colloquium for Teachers of Intellectual Property
2009	WTO regional trade policy courses
June 30- July 10, 2008	WIPO-WTO Colloquium for Teachers of Intellectual Property
September 17-19, 2008	WTO Regional Workshop on Certain Topical Issues in Regard to Intellectual Property for Latin American and Caribbean Countries
September 18-20, 2006	WTO Regional Workshop on the TRIPS Agreement and Certain Topical Issues in Regard to Intellectual Property for Latin American countries
June 26- July 7, 2006	WIPO-WTO Colloquium for Teachers of Intellectual Property
2006	WTO regional trade policy courses
November 7-9, 2005	WTO Regional Trade Policy Course for Latin American countries, organized in partnership with the Institute for International Studies, University of Chile
August 15-16, 2005	International Seminar on Geographical Indications, organized by SEBRAE (Brazilian Micro and Small Business Support Service) and supported by EMBRAPA (Brazilian Agricultural Research Corporation)
June 27-July 8, 2005	WIPO-WTO Colloquium for Teachers of Intellectual Property
November 8-10, 2004	WTO Regional Workshop on the TRIPS Agreement and Certain Topical Issues in the Field of Intellectual Property for Latin American Countries
October 25-29, 2004	Third Short Trade Policy Course for Countries Members of the Latin American Integration Association (Asociación Latino Americana de Integración (ALADI)

Source: http://www.wto.org/english/tratop_e/trips_e/intel9_e.htm

Annex 3: Individuals consulted

The list below includes all officials that the research team interacted with to acquire data and information to inform the study.

Name	Affiliation
Developing Country Officials	
T.C. James V. Bhaskar Chandni Rania	IP India
Wiboonlasana Ruamraska Khun Auramon	IP Thailand
Marcin Gedlek	Patent Office of the Republic of Poland
Iloana Roche Claudia Campos	IP Brazil
Developed Country Officials/ Multilateral/Bilateral Agencies	
Carol Jenkins Sarah Jones Beverly Perry	UK IPO
Denis Dambois	EC
Christoph Spennemann Ermias Biadgleng	UNCTAD
Peter Beyer Padmashree Gehl Sampeth	WHO
Luana Stragmalia Ahmed Abdel Latif	ICTSD
Maya Bachner Allan Roach Dimiter Gantchev	WIPO
Mark Dutz Al Watkins	WB
Valentin Mir	EPO
Matthew Forno Sharon Thomas	IP AUS
Roger Kampf	WTO
Michel Patenaude	CIPO
Martin Girsberger Angela Deppeler	Swiss IPI
Susan Anthony	UPSTO
Independent Consultants/Researchers	
Charlie Schwartz	
Arno Hold	
Mart Leesti	
Michael Blakeney	