Commission on Intellectual Property Rights

Study Paper 9

Institutional Issues for Developing Countries in Intellectual Property Policymaking, Administration & Enforcement

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This report has been commissioned by the IPR Commission as a background paper. The views expressed here are those of the authors and do not necessarily represent those of the Commission.

Table of Contents

Acknowledgements
About the Authors
List of abbreviations and acronyms
Executive Summary

1. Introduction
1.1 Key issues to be addressed
1.2 Approach to this study

2. Designing IPR regimes in poor countries: points of departure
2.1 Balancing incentives for IPR holders with access for users
2.2 Low levels of domestic formal intellectual property creation
2.3 Capturing benefits from IPRs through holistic institutional frameworks
2.4 IPRs as private rights
2.5 Compliance with international obligations

3. Institutional challenges in developing countries
3.1 Policy and legislation development
3.2 Participation in international rule making and standard setting
3.3 Administration
3.4 Enforcement and regulation of IPRs
3.5 Costs and revenues
3.6 Regional and international co-operation

4. Technical co-operation programmes 1996-2001
4.1 Major donors and types of activities
4.2 Scale and coverage of technical assistance programmes
4.3 Effectiveness and impact

5. Recommendations

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About the Authors

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List of abbreviations and acronyms

ARIPO	African Regional Industrial Property Organisation
Berne	Berne Convention for the Protection of Literary & Artistic works
CBD	Convention on Biological Diversity
DAC	Development Assistance Committee
EC	European Commission
EPO	European Patent Office
EU	European Union
FDI	Foreign Direct Investment
GCCPO	Gulf Co-operation Council Patent Office
Hague	Hague Agreement Concerning the International Deposit of Industrial Designs
ICC	International Chamber of Commerce
IMF	International Monetary Fund
INPI	Institut National de la Propriété Industrielle
IPRs	Intellectual Property Rights
ITC	International Trade Centre
JPO	Japanese Patent Office
LDC	Least Developed Country
Madrid	Madrid Agreement Concerning the International Registration of Marks (and Protocol)
OAPI	Organisation Africaine de la Propriété Intellectuelle
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
Paris	Paris Convention for the Protection of Industrial Property
PCT	Patent Co-operation Treaty
TRIPS	Agreement on Trade Related Aspects of Intellectual Property
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UPOV	International Convention for the Protection of New Varieties of Plants
USAID	United States Agency for International Development
USPTO	United States Patent and Trademark Office
WIPO	World Intellectual Property Organisation
WTO	World Trade Organisation

EXECUTIVE SUMMARY

The study examines the institutional capacities for intellectual property policy making, administration and enforcement which exist in poor countries and the recent technical co-operation programmes which have sought to re-enforce them. It is based on a review of available existing literature, the preparation of a number of case studies, interviews with representatives of both developed and developing countries, and the creation of an institutional model for national IP administration in low income countries.

Designing IP regimes in poor countries: points of departure

The study is based on a set of assumptions and criteria that: (a) attempt to balance incentives for IP rights holders with access for the users of subject matter covered by IPRs; (b) recognize the relative low levels of domestic creation of intellectual property in poor countries; (c) accept that benefits may flow from IPRs through adoption of a "holistic" approach to the design of relevant institutions, (d) address the institutional implications of viewing IPRs as private rights; and (e) acknowledge the need for compliance with international obligations in the national administration and enforcement of IPRs.

Institutional challenges in developing countries

The study examines current levels of institutional capacity for addressing the challenges related to (a) formulating policy and legislation on IP; (b) participating in international rule making through organizations such as WIPO and WTO; and (c) administering and enforcing IPRs at the national level in line with international obligations.

The study highlights the lack of IP expertise in the national academic institutions of developing countries. This in turn results in a serious shortage of domestic legal professionals and a lack of policy development capacity in the area of IP. Secondly, the study notes that there tends to be a low awareness and understanding of IP among key stakeholder groups, including the business sector, the scientific community and public officials, as well as the public (consumers) at large. Further, the study concludes that institutional capacity of developing countries for policy coordination across government, and participatory processes for IP policymaking (including active participation of poorest groups) vary widely and may, in some countries, be one of the weakest areas of the IP system. The study also notes an undesirable discontinuity in the continuum from the development of policy and legislation to the implementation of the latter through regulations, new institutional arrangements and modernization of office operating procedures.

In terms of participation in international rule making, the study concludes that there exists a duality among developing countries. Some, including 20 LDCs, have no permanent representation in Geneva, have limited or no travel resources to permit experts to attend from capitals and are often little more than spectators in WTO and WIPO. Others are active and influential participants in the international rule making processes.

The study examines the institutional arrangements and capacity for both administration and enforcement of IPRs. In the area of administration, the study concludes that arrangements vary widely but that, in general, most developing countries face serious financial and human resource constraints in implementing new legislation and modernizing (including computerizing) office procedures. With regard to enforcement of IPRs, the study confirms the view that institutional weaknesses are likely to be greatest in the poorest countries, and examines options that may be viable to strengthen enforcement. The study also considers some institutional issues for developing countries in the regulation of IPRs in relation to matters of special public interest, including compulsory licensing and prevention of anti-competitive practices.

Finally, in this section the study examines cost, revenue and expenditure issues and options for IP institutions and proposes the rationalization of operations and increased participation in regional and international cooperation agreements.

Technical co-operation programmes 1996-2001

The study proposes that technical assistance programmes in very poor countries should be accelerated and increased, with emphasis on institutional reforms and capacity building. The financing of these should be increased. The paper reviews the major donors and the types of activities that have been undertaken, and offers some observations on the apparent effectiveness and impact of such programs. The study concludes that coordination among donors should be strengthened in order to improve the effectiveness of technical assistance programmes.

Recommendations

The study makes the following recommendations to address the issues and problems discussed.

a. Developing countries should establish a single institution responsible for IPR administration, either as semi-autonomous agency or government department operating on a trading account basis, under the supervision of a suitable government ministry. As well as IPR administration, the institution should be responsible for providing policy and legal advice to the government on all matters relating to intellectual property (in conjunction with other concerned ministries and agencies); liaison with the enforcement agencies and competition regulators (including providing training and advice as required); expert representation in international organisations and rule-making; and co-ordination of public awareness and consultation programmes regarding intellectual property subjects.

b. Developing countries should ensure that their intellectual property legislation and procedures emphasize, to the maximum possible extent, enforcement of IPRs through administrative action and through the civil rather than criminal justice system. To address the enforcement of copyright infringement in particular in low-income

countries, responsibility should lie with rights holder organisations to increase their co-operation with the enforcement agencies and to agree with national governments appropriate cost-recovery mechanisms for any large-scale anti-counterfeiting operations and public awareness campaigns undertaken by government agencies.

c. Developing countries should aim to recover the full costs of upgrading and maintaining all aspects of the national intellectual property infrastructure through national IPR registration and administration charges. A tired-system of fees should be employed and fee levels regularly reviewed. IPR administration agencies should generally only offset one-time and recurrent expenditures with revenues from such charges, but a fixed percentage of revenue income should be returned to the government's consolidated fund each year as a contribution towards IPR enforcement costs.

d. Developing countries should seek to exploit the maximum possible benefits in terms of cost reduction and administrative efficiency from existing regional and international co-operation mechanisms (such as the PCT and the Madrid system). LDCs and small developing countries in particular should adopt a patent registration regime and should make use of the verification systems offered by the international search and examination authorities such as the EPO and others. Countries within the African region, particularly the LDCs, should give serious consideration to becoming full member states of ARIPO or OAPI.

e. Like-minded countries and donors should also re-double their efforts to support high-level dialogue on new regional and international co-operation initiatives in IPR administration, training and IPR statistical data collection involving developing countries. Donors should stand ready to provide substantial technical and financial assistance to support such initiatives, particularly over the short term as cost-recovery mechanisms are developed, not least because they offer excellent opportunities for scale economies in the delivery of region-based technical assistance, training and IPR statistical data collection.

f. Developing countries should encourage policy research and analysis on intellectual property subjects in the national interest (eg protection of plant varieties; traditional knowledge and folklore; technology transfer etc) within academic organizations, policy think-thank institutes and other stakeholder organizations in civil society that can contribute to the intellectual property policy and legislative development processes. To support these efforts and channel technical and financial assistance, a Preparatory Group of donors and developing countries should be formed to examine the feasibility of establishing a Foundation for Intellectual Property and Development Research, either as a new entity or under an existing non-governmental organisation, based in Geneva. The UK Government should initiate discussion with like-minded countries and donor organisations such as WIPO and the World Bank on the formation of the Preparatory Group and should provide funding for the completion of a feasibility study and other preparatory work.

g. Delivery of technical and financial assistance to IPR administration institutions in low-income countries should be through multi-year, broad-based programmes. They should cover support for one-time expenditure such as premises, automation, equipment, communications, staff training, consultancy support, international travel, public awareness raising programmes, patent information systems, website development (linked to WIPONET), policy research and legislation development. Financial sustainability of such institutions should be a key objective from the outset. Where a recurrent budget deficit is projected before sufficient revenues from cost-recovery come on stream, non-staff recurrent cost support should be provided for an agreed period under enhanced monitoring arrangements.

h. In order to meet the special needs of LDCs in developing the modern intellectual property regime and wider institutional infrastructure they require, WIPO, EPO and developed countries should plan to commit US$100 million in technical and financial assistance specifically to LDCs over the next 5 years, raised though income from IPR service user-fees. To facilitate better integration with national development plans and donor assistance strategies, the planning, delivery and management of this assistance should be fully incorporated within the Integrated Framework for Trade-Related Technical Assistance to LDCs.

i. To take forward recommendation (h) above, the UK Government should quickly move to propose that WIPO and EPO be formally invited to join as donor agencies of the Integrated Framework alongside the World Bank, UNDP, UNCTAD, WTO, and ITC. Developed countries should also review their participation as donor agencies in the Integrated Framework, with a view to increasing the contribution of their national IPR offices. Both EPO and WIPO (and ideally developed country national IPR offices also) should then each make an initial contribution of US$1.5 million to the Integrated Framework Trust Fund as soon as possible to enable consideration of intellectual property-related capacity building needs within those pilot country diagnostic studies that have already been prepared and for the next wave of pilot country diagnostic studies to be undertaken.

j. To streamline donor co-ordination, UNDP, the World Bank and UNCTAD should co-operate with EPO, WIPO and developed country agencies in implementation of intellectual-property related programmes under the Integrated Framework. To facilitate effective management between the agencies and national governments on the ground in LDCs, a portion of the WIPO and EPO contributions to the Integrated Framework Trust Fund should be used to fund the provision of up to 6 Field Managers, to based in selected UNDP or World Bank missions in Africa (4), Asia (1) and the Pacific (1).

k. WIPO should make funds available to cover the travel, accommodation and subsistence expenses of two representatives from all LDC Member States or Observers of WIPO or WTO to participate in all WTO TRIPS Council meetings and in those meetings at WIPO which such countries are eligible to attend. In addition, along with other donors, WIPO should make a commitment to contribute through

technical support and financial aid to initiatives being planned or undertaken by other international organisations for developing countries without permanent representation in Geneva (eg AITEC). To complement these initiatives, the UK Government, through the Department for International Development (DFID), should expand its current support to UNCTAD's TRIPS-related capacity building project to include provision for a full-time post of Intellectual Property Adviser to developing countries' delegations in Geneva (the funding should also cover associated resources along the lines of DFID's support for the UNCATD GATS Adviser post).

l. To improve monitoring of technical co-operation provided to developing countries under Article 67 of the TRIPS Agreement, all developed countries and the relevant international organisations should include summary financial information and evaluation results in their annual submissions to the WTO TRIPS council. Based on this data, the WTO Secretariat should prepare and update a summary matrix showing technical co-operation activity for all developing countries and LDCs.

m. WIPO should strengthen the present systems for monitoring and evaluation of its development co-operation programmes. A rolling programme of external impact-evaluations should be undertaken and published, commencing with a review of WIPO training activities including the WIPO Worldwide Academy. At the same time, the structure and organization of WIPO's Permanent Committee on Development Co-operation should be examined, with a view to enabling it to provide more effective strategic oversight of development cooperation. As initial tasks for a re-organised Committee, Working Groups under its auspices should be established to steer the evaluation programme and to develop detailed due-diligence and procedural guidelines for the Secretariat in the provision of assistance to developing countries for reform of domestic intellectual property legislation.

n. With a view to encouraging best-practice and better co-ordination amongst donors, a work programme on Guidelines for Modernising Intellectual Property Systems for Development should be established under the auspices of the OECD Development Assistance Committee, commencing 2003. The work programme would be undertaken by the OECD Secretariat in conjunction with a Steering Group of experts from donors and developing countries and should be based on a series of case studies on different developing countries/regions. The output of the work programme would be a set of detailed DAC guidelines for improving the delivery of intellectual property-related technical co-operation but the process in itself would also be useful in improving dialogue and information sharing. The UK and other countries should contribute funding for this initiative and should offer to send suitable representatives to the Steering Group.

1. Introduction

This study was commissioned by the UK Government's Commission on Intellectual Property Rights, which was established in April 2001 to examine how intellectual property rights can work better for poor people[1]. Whilst the Commission is examining evidence across a wide range issues related to intellectual property rights, innovation and development, the purpose of this study is to focus more narrowly on the institutional capacities for intellectual property policy making, administration and enforcement which exist in poor countries and the recent technical co-operation programmes which have sought to re-enforce them.

1.1 Key issues to be addressed

The key questions that the Commision has asked this study to address are as follows:

- What levels of national and regional institutional capacity do developing countries currently have in IP policymaking, regulation and enforcement? What resources do developing countries currently allocate to IP protection and rule making via national and regional institutions? To what extent are developing countries able to participate effectively in international IP rule making and regulation?

- What levels of national institutional capacity do developing countries currently have in other fields of economic regulatory policy relevant to IP policymaking, regulation and enforcement, such as competition policy and law; judicial and legal systems; and police and customs administration? How important is institutional capacity building in this area for maximising the benefits of IPRs and minimising abuse from restrictive business practices? What are the key constraints?

- What are the key priorities for building capacity in IP policymaking, regulation and enforcement, and related areas of economic regulatory policy, within national and regional institutions in developing countries? What are the key constraints and resource costs? Could developing countries make greater use of regional organisations and international co-operation in IP regulation?

- What are the likely financial costs of providing an IP system consistent with current international agreements? Who should meet these costs: developing countries or the international community? Should developing countries be asked to accept new undertakings in international IP rule making if they have inadequate levels of institutional capacity?

- What technical and financial assistance programmes have been made available to developing countries in the last five years? How many countries have such

[1] See the Commission website at www.iprcommission.org for more information about the mandate, membership and activities of the Commission on Intellectual Property Rights.

programmes covered? How effective have such programmes been in building institutional capacity in IP regulation and enforcement? How could these programmes be improved in the future?

In line with the Commission's mandate, we have attempted wherever possible to take account of the heterogeneity of developing countries and to focus our recommendations mainly on the issues facing the poorest. In some cases, evidence and analysis is presented explicitly regarding the 49 Least Developed Countries (LDCs) to the exclusion of other poor countries or countries with large populations of poor people (eg India and China): this is because the LDCs are often recognised as a specific group within the literature and data sets of international organisations such as WIPO and WTO. By the same token, some of our conclusions and recommendations are aimed exclusively at LDCs, not least because there appears to be a broad international consensus regarding their low levels of development and their corresponding special needs.

1.2 Approach to this study

In order to address these questions, we have approached the writing of this study using a four-part methodology comprising (a) a review of the available relevant literature; (b) a number of country case studies; (c) interviews with representatives from both developed and developing countries both in Geneva and in capitals, as well with representatives from the Secretariats of EPO, WIPO, WTO and UNCTAD; and (d) development of an institutional model for a national IPR administration appropriate to low income countries.

a) Literature review. A key constraint in preparing this study was the lack of up-to-date, detailed relevant literature. This is partly attributable to the fact that until developing countries began implementing the TRIPS Agreement in 1996, issues affecting intellectual property institutions in poor countries (such as these institutions existed) understandably had a low profile. In 1996, WIPO commissioned four studies on "The Financial and Other Implications of the Implementation of the TRIPS Agreement for Developing Countries", which included evidence from case studies and interviews with officials from developing countries. Useful as these studies are, they are of course only *predictions* of what the implications of implementing TRIPS would be based on information available at the time. More recently, the World Bank has provided a good summary of the challenges and opportunities for designing IPR regimes and institutions in developing countries (World Bank, 2001). But essentially the four WIPO studies need to be revisited now that a year has passed since the deadline for implementation of TRIPS in Developing Countries (LDCs have until 1 January 2006, however).

There were similar problems in obtaining good literature specifically on technical co-operation in this area. Publicly available data from donor organisations about technical co-operation programmes tends to lack important details (such as country or programme specific financial information) that make a meaningful analysis very difficult. Crucially, we were also unable to obtain any literature concerning external evaluation of such programmes. Likewise, there appear to be no "sector level" reviews of this area of technical co-operation such as those undertaken by the OECD Development Assistance

Committee. As a result, the principal data sources used in this study were the submissions on implementation of Article 67 of the TRIPS Agreement made annually to the WTO TRIPS Council by developed countries and some international organisations, as well as a number of publications and other documents provided mainly by the EPO, WIPO and WTO.

b) Case studies. In order to complement the existing body of literature, a number of developing country case studies were commissioned from consultants with experience in the countries and regions concerned. The case studies commissioned were on the following developing countries: India, Jamaica, Kenya, St Lucia, Tanzania, Trinidad & Tobago, Uganda and Vietnam[2]. Although the case studies provide many useful insights, they sometimes suffer from non-availability of basic data (such as patent and trademark statistics) especially in the LDCs. We also received some more general submissions from the EPO based on their experience of working with a number of developing nations, countries in transition and regional industrial property organisations[3], as well as a paper from Mr Anderson Zikonda regarding the situation in sub-Saharan Africa[4].

c) Interviews. Informal interviews were held with a large number of delegates from developed and developing countries at the WIPO Assemblies in September 2001, and with members of the WIPO, UNCTAD and WTO Secretariats in Geneva. Interviews were also conducted with delegates from ARIPO member countries attending an ARIPO/EPO conference in Gaborone in October 2001, and subsequently with officials and academics during a two day visit to Botswana hosted by the Department of the Registrar of Companies, Trademarks, Patents, and Designs. Interviews were also conducted with representatives from the European Patent Office during a visit to Munich in December 2001. Informal discussions were held on several occasions with representatives from the World Bank and the UK Department for International Development.

d) Preparation of an institutional model for low-income countries. The model was prepared by Mart Leesti in order to examine more closely some of the operational issues for policy making, administration and enforcement in low-income countries, as well as the feasibility of potential options available for addressing these challenges (eg alternative institutional arrangements, modes of regional/international co-operation, technical assistance, cost recovery from user fees etc). Using a set of assumptions on

[2] These case studies are available on the Commission website at www.iprcommission.org/meetingsSubs.asp?primary=24

[3] Submission by Dr. K. Karachalios, "Current situation of regional organisations in the IPR field and future challenges" (2002). The paper draws on the experience of Dr Karachalios and his colleagues in the Directorate for International Technical Co-operation, European Patent Office. www.iprcommission.org/meetingsSubs.asp?primary=24

[4] Submission by Mr Anderson Zikonda "An Overview of Intellectual Property Policy, Administration and Enforcement in Selected African Countries" (2002). The paper draws on the author's experience of WIPO-funded assignments in Eritrea and Liberia and his previous posts as the Zambian Registrar of Patents and Director-General of ARIPO. www.iprcommission.org/meetingsSubs.asp?primary=24

factors such as volumes of applications and registrations for patents, trademarks and other IPRs based on evidence from low-income countries, the model endeavours to cover the essential institutional capacity across public and private sector institutions necessary to ensure both compliance with the TRIPS Agreement and a reasonably well functioning intellectual property regime from the perspective of rights holders (both foreign and national), users and consumers[5].

Before moving on to the substantive parts of this paper, we wish to add a preface to our remarks in the rest of the study regarding the institutional capacities of developing countries and the programmes of technical co-operation that have been undertaken by donor organisations to re-enforce them. Our intention in writing this study has been to examine honestly the evidence regarding the challenges faced by developing countries, particularly the poorest; and to assess critically the scope and impact of technical assistance in this area over the last five years. We have sought to make our remarks and draw our conclusions and recommendations in the most constructive fashion possible. By pointing up problems and suggesting improvements that could be undertaken, it is not our intention to in any way diminish the significant achievements which have been made in modernising the intellectual property infrastructure in many countries and regions of the developing world in recent years, as a result of the professionalism and commitment of developing countries and their donor agency partners.

2. Designing IPR regimes in poor countries: points of departure

2.1 Balancing incentives for IPR holders with access for users

Economic theory tells us that IPRs exist to strike a balance between the needs of society to encourage innovation and commercialisation of new technologies, products, artistic and literary works on the one hand, and to promote the use of those items on the other. Empirical evidence too, while inconclusive, suggests that stronger IPR regimes can potentially generate both benefits and costs for poor countries. On the benefits side, stronger IPR regimes can lead to greater trade and inflows of Foreign Direct Investment (FDI), as well as more transfers of technology, which in turn increases productivity performance. On the costs side, IPRs can reduce social welfare by restricting access to protected technologies and knowledge and by raising prices for items essential to poor people's livelihoods like medicines, agricultural inputs and educational materials.

From an institutional perspective, the implication of this for designing IPR regimes[6] is that poor countries require quite sophisticated technical expertise and decision-making processes in order to formulate policy and adopt legislation that carefully balances the different public policy objectives and stakeholder interests within the context of their economic and technological development. As a recent article in the journal *Science* put it:

[5] The institutional model is available on the Commission website at www.iprcommission.org/meetingsSubs.asp?primary=24

[6] The national set of intellectual property-related policies, legislation and institutions existing in a country.

> "Normally, society opposes monopolies because they create artificial scarcity and raise prices for consumers. Intellectual property, on the other hand, creates monopolies to encourage new products. The trick is to get the best possible bargain by restricting new rights to products that are valuable and cannot be obtained by other means. Careful legislators do this by imposing threshold requirements (such as "novelty" and "creativity") that dole out rights as sparingly as possible." (Maurer et al, 2001)

Moreover, the level of sophistication required is increasing as the realms of intellectual property protection expand following technological or political change. For example, it is not a simple task for a government minister responsible for intellectual property in an LDC to decide whether his country should, say, develop a new system for protecting its traditional knowledge or extend copyright laws to protect electronic databases.

2.1 Low levels of domestic formal intellectual property creation

Our second point of departure is the observation that poor countries can devote few resources to innovation and generate very low levels of (industrial) intellectual property that could be protected by the formal system of patents, trademarks etc (poor countries may generate other kinds of knowledge but these are outside the formal IPR system and harder to measure). Whilst we should note the heterogeneity of developing countries – there are of course huge differences between the innovation capabilities of countries like Taiwan, South Africa and Eritrea – Table 1 shows that almost 90% of patents granted in 2000 in the US (the world's biggest single market) originated from the USA, Europe and Japan. Poor countries are essentially users, not producers, of innovation and as Table 2 shows, their IPR regimes will essentially protect knowledge assets produced in the industrialised countries for some time to come. There are wide variations, however, between developing countries as to the volume of IPR applications. This has important implications for the financing and design of the institutional intellectual property infrastructure and we discuss these in detail in Part 3.

Table 1: Grants of US Patents by Country of Origin, 2000

Country	Total US Patents grants (Number)	Total US Patents grants (%)
USA	96,920	55.07%
Japan	32,922	18.71%
European Union	27,190	15.45%
Other Developed Countries [a]	6,695	3.80%
Taiwan	5,806	3.30%
South Korea	3,472	1.97%
Israel	836	0.48%
China	711	0.40%
Eastern Europe [b]	355	0.20%
Singapore	242	0.14%
India	131	0.07%
South Africa	124	0.07%
Brazil	113	0.06%
Mexico	100	0.06%

Other Developing Countries [c]	365	0.21%
Least Developed Countries [d]	1	0.0006%
Total All Countries	**175,983**	**100.00%**

Source: USPTO Information Products Division.

[a] Australia (859), Canada (3923), Gibraltar (1), Iceland (18), Liechtenstein (19), Monaco (15), New Zealand (136), Norway (266), Switzerland (1458).

[b] Belarus (3), Bulgaria (1), Croatia (6), Cyprus (1), Czech Republic (41), Czechoslovakia (10), Estonia (4), Hungary (38), Latvia (1), Lithuania (2), Malta (2), Poland (13), Romania (4), Russian Federation (185), Slovakia (4), Slovenia (18), U.S.S.R. (1), Ukraine (17), Yugoslavia (4).

[c] Arab Emirates (2), Argentina (63), Aruba (2), Azerbaijan (1), Bahamas (14), Bahrain (1), Bermuda (2), Bolivia (2), Cayman Islands (8), Chile (16), Colombia (11), Costa Rica (8), Cuba (3), Dominica (1), Dominican Republic (5), Egypt (8), Guatemala (2), Honduras (1), Indonesia (14), Jamaica (2), Kazakhstan (4), Kenya (3), Kuwait (8), Kyrgyz Republic (1), Lebanon (4), Malaysia (47), Morocco (2), Namibia (1), Netherlands Antilles (2), Nigeria (2), Pakistan (5), Palau (1), Panama (2), Peru (3), Philippines (12), Qatar (1), Saint Kitts and Nevis (1), Saudi Arabia (19), Sri Lanka (5), Syria (4), Thailand (30), Turkey (6), Turks and Caicos (1), Uruguay (1), Uzbekistan (2), Venezuela (32).

[d] Guinea (1). However, information from the UK Patent Office suggests this is actually an administrative error and the patent application (for a seed separating device) actually originated from Papua New Guinea, a developing country. If correct, this would mean that none of the 175,983 US patents granted in 2000 originated from an LDC.

Table 2: Patent applications and grants in selected Least Developed Countries, 1998

Country	**Applications**			**Grants**		
	Residents	*Non-Residents*	*Total*	*Residents*	*Non-Residents*	*Total*
Bangladesh	32	184	216	14	126	140
Gambia*	5	60267	60272	1	17	18
Lesotho*	6	67485	67491	0	36	36
Malawi*	7	67753	67760	0	80	80
Sudan*	6	67713	67719	0	64	64
Uganda*	7	67603	67610	0	66	66
Zambia*	7	86	93	1	19	20

Source: WIPO website (note: data only available for a small minority of WIPO LDC member states, hence the small sample).

* Member of the PCT (Zambia only acceded to the PCT in 2001 and this explains the low level of applications in 1998). Although the total numbers of applications in the PCT member countries shown appear very large, only a very much smaller number of these enter into the "national phase" where action is required by national offices involving the grant of a substantive patent in the country concerned.

2.3 Capturing benefits from IPRs through holistic institutional frameworks

We have noted above the position of poor countries as essentially users of intellectual property assets and their low levels of innovation capability. With these in mind, our third point of departure is that poor countries need to have more than just the minimum institutional capacities required to provide a reasonably smooth system for administration and enforcement of IPRs. Rather they require a wider institutional framework in order to (a) regulate IPRs to ensure open, contestable markets for goods and services essential to poor people's livelihoods (through instruments such as competition policy and compulsory licensing for example); (b) support development of their national innovation capabilities through maximising access to technologies and knowledge assets protected by IPRs (through subsidised patent information services and support to upgrade technology transfer capabilities in universities for example); and (c) strengthen research

and education institutions and conduct public awareness campaigns. The evidence suggests that these imperatives are not always well reflected at present in the institutional infrastructure in developing countries[7] or, indeed, in most technical co-operation programmes.

2.4 IPRs as private rights

Our fourth point of departure is that, as articulated in the preamble to the TRIPS Agreement, "… intellectual property rights are private rights". The impact of this concept is that IPR regimes should lean heavily towards supporting the resolution of disputes arising over intellectual property assets between parties under civil law and so reduce the enforcement burden on the state to the minimum. In practical terms, this means that poor countries need an intellectual property infrastructure which has the capacity to grant IPRs with a high presumption of validity, keep accurate and readily accessible registries and records and is able to correct defects in IPR titles through administrative rather than judicial means where possible. It also highlights the need for rights holders (particularly large corporations) and their collective management organisations to play a very pro-active role in co-operating with the enforcement agencies in poor countries, who typically may already be under-resourced for carrying out their duties under other aspects of the criminal system. Equally, rights holders will need access to effective legal professional services to assist them in managing their IPRs. We discuss the institutional implications of these issues in detail in Part 3.

2.5 Compliance with international obligations

In common with other areas of public policy such as the environment or trade, the design of the national intellectual property regime is in part determined by international rules and standards to which the country has committed itself. There are international treaties - and they are constantly being added to - for almost every form of intellectual property rights such as the Paris Convention (industrial property), the Berne Convention (copyright), the Patent Cooperation Treaty (patents), the Madrid Agreement (trademarks), the Hague Agreement (industrial designs) and so on. Over time, and partially as a consequence of their colonial history, a majority of developing countries, including even the least developed, have become members of one or more of these treaties – a gradual process as the Paris and Berne Conventions originate from the end of the 19th century. Table 3 shows the membership of the 49 LDCs in some of the main international treaties on intellectual property rights.

[7] India provides an interesting example of a developing country that is seeking to develop a holistic approach to the modernization of its institutional framework. For instance, the case study we commissioned reported that, as well as investing substantial sums in modernizing the national IPR administration agencies, the Government of India has recently established five University Chairs on intellectual property in various regions of the country. And the Government has also established a National Innovation Foundation, which aims to encourage innovations to solve local problems and build a national register of innovations and outstanding traditional knowledge.

At the time of writing about 100 Developing countries and 30 LDCs are party to the WTO TRIPS Agreement[8]. The TRIPS Agreement sets minimum standards for protection of a wide range of intellectual property subjects (copyright and related rights, patents, plant varieties[9], trademarks, industrial designs, layout-designs of integrated circuits, geographical indications and trade secrets) and incorporates important provisions from the Paris and Berne Conventions[10]. In addition, and of particular importance for the design of intellectual property institutions in poor countries, the TRIPS Agreement also includes provisions covering specific standards and procedures for the administration and enforcement of intellectual property rights required in WTO member counties.

[8] Source: WTO website. Of course, more developing countries and LDCs are in the process of accession to the WTO and so will become party to the TRIPS Agreement in due course.

[9] TRIPS Article 27.3(b) requires Members to provide protection for "plant varieties" either by patents or by an effective *sui generis* system or by any combination thereof.

[10] TRIPS Sections 1 through 7 of Part II, establish minimum standards of protection for intellectual property rights. The Agreement sets out the subject matter that is protectable, including rights conferred and exceptions to those rights, as well as specific minimum provisions on duration, coverage and criteria for protection. The Agreement also addresses licensing and assignment conditions for some of these rights (eg patents and trademarks) and, in addition, addresses the control of anti-competitive practices in contractual licenses. Parts III, IV and V of the Agreement address the areas of Enforcement, Acquisition and Maintenance and Dispute Prevention and Settlement, respectively, in regard to intellectual property rights.

Table 3: The 49 LDCs and their membership of selected international IPR treaties

Country	WIPO	Regional agreements	Paris	Berne	Madrid	Hague	UPOV	PCT
WTO members (TRIPS by 1 January 2006)								
Angola	Yes	No	No	No	No	No	No	No
Bangladesh	Yes	No	Yes	Yes	No	No	No	No
Benin	Yes	OAPI	Yes	Yes	No	Yes	No	Yes
Burkina Faso	Yes	OAPI	Yes	Yes	No	No	No	Yes
Burundi	Yes	No	Yes	No	No	No	No	No
Central African Rep	Yes	OAPI	Yes	Yes	No	No	No	Yes
Chad	Yes	OAPI	Yes	Yes	No	No	No	Yes
Congo (DR)	Yes	OAPI	Yes	Yes	No	No	No	No
Djibouti	No	No	No	No	No	No	No	No
Gambia	Yes	ARIPO	Yes	Yes	No	No	No	Yes
Guinea	Yes	OAPI	Yes	Yes	No	No	No	Yes
Guinea-Bissau	Yes	OAPI	Yes	Yes	No	No	No	Yes
Haiti	Yes	No	Yes	Yes	No	No	No	No
Lesotho	Yes	ARIPO	Yes	Yes	Yes	No	No	Yes
Madagascar	Yes	No	Yes	Yes	No	No	No	Yes
Malawi	Yes	ARIPO	Yes	Yes	No	No	No	Yes
Maldives	No	No	No	No	No	No	No	No
Mali	Yes	OAPI	Yes	Yes	No	No	No	Yes
Mauritania	Yes	OAPI	Yes	Yes	No	No	No	Yes
Mozambique	Yes	ARIPO	Yes	No	Yes	No	No	Yes
Myanmar	Yes	No	No	No	No	No	No	No
Niger	Yes	OAPI	Yes	Yes	No	No	No	Yes
Rwanda	Yes	No	Yes	No	No	No	No	No
Senegal	Yes	OAPI	Yes	Yes	No	Yes	No	Yes
Sierra Leone	Yes	ARIPO	Yes	No	Yes	No	No	Yes
Solomon Islands	No	No	No	No	No	No	No	No
Tanzania	Yes	ARIPO	Yes	Yes	No	No	No	Yes
Togo	Yes	OAPI	Yes	Yes	No	No	No	Yes
Uganda	Yes	ARIPO	Yes	No	No	No	No	Yes
Zambia	Yes	ARIPO	Yes	No	Yes	No	No	Yes
Non-WTO members								
Afghanistan	No	No	No	No	No	No	No	No
Bhutan*	Yes	No	Yes	No	Yes	No	No	No
Cambodia*	Yes	No	Yes	No	No	No	No	No
Cape Verde*	Yes	No	No	Yes	No	No	No	No
Comoros	No	No	No	No	No	No	No	No
Equatorial Guinea	Yes	No	No	Yes	No	No	No	Yes
Eritrea	Yes	No	No	No	No	No	No	No
Ethiopia	Yes	No	No	No	No	No	No	No
Kiribati	No	No	No	No	No	No	No	No
Laos*	Yes	No	Yes	No	No	No	No	No
Liberia	Yes	No	Yes	Yes	Yes	No	No	Yes
Nepal*	Yes	No	Yes	No	No	No	No	No
Samoa*	Yes	No	No	No	No	No	No	No
Sao Tome & Principe	Yes	No	Yes	No	No	No	No	No
Somalia	Yes	ARIPO	No	No	No	No	No	No
Sudan*	Yes	ARIPO	Yes	Yes	Yes	No	No	Yes
Tuvalu	No	No	No	No	No	No	No	No
Vanuatu*	No	No	No	No	No	No	No	No
Yemen*	Yes	No	No	No	No	No	No	No
Total memberships (all LDCs)	**41/49 (84%)**	**22/49 (45%)**	**32/49 (65%)**	**23/49 (47%)**	**7/49 (14%)**	**2/49 (4%)**	**0/49 (0%)**	**23/49 (47%)**

Source: WTO website, WIPO website

* In process of accession to WTO.

3. Institutional challenges in developing countries

In this section, we assess available evidence regarding the current levels of institutional capacity in poor countries for addressing the challenges related to formulating policy and legislation on intellectual property; participating in international rule making organisations like WIPO and WTO; and administering and enforcing IPRs at the national level in line with international obligations. We also examine the options for streamlining IPR administration available to developing countries through regional and international co-operation systems. Whilst we examine each of these aspects in turn, two issues seem of particular importance generally so it is appropriate to highlight these at the outset.

First, developing countries typically do not have sufficient intellectual property expertise in their national academic or educational institutions and – perhaps partially as a result – have few, if any, local legal professionals specialised in intellectual property disciplines. For example, the case study we commissioned on Jamaica showed that there is not a single trained Patent Agent practising in the legal community, and professional education and training in intellectual property subjects is not available anywhere in the entire Caribbean region. Second, although the situation is improving, there still tends to be low awareness in poor countries about the intellectual property regime (its operation, costs, and benefits) amongst key stakeholder groups such as the business sector, the scientific community and public officials, and about intellectual property rights *per se* amongst the general population (eg that buying counterfeit music cassettes is illegal). Both of these issues have systemic impacts across the operation of all aspects of the national institutional infrastructure.

3.1 Policy and legislation development

Policy/law makers in most developing countries have a formidable forward agenda in the area of intellectual property reform. As the majority of developing countries, including LDCs, are either WTO members or in the process of accession to WTO, (see Table 3 above), implementation of the TRIPS Agreement will require (or has required) changes in industrial property and copyright legislation. In some areas the changes will be relatively minor (eg in copyright laws for countries who are already Berne members); in others (eg non-patent plant variety protection systems) wholesale new legislation would be required. In addition to TRIPS, those countries not already members of international treaties like Paris, Berne, Madrid, PCT, Hague, UPOV etc may choose to join and this will require further legislative change.

Beyond compliance with international obligations, almost all developing countries are facing choices about adopting other intellectual property reforms such as protection of traditional knowledge; regulation of access to national biological resources and benefits sharing as envisaged under the Convention on Biological Diversity; and legislation to modernise IPRs administration (eg a new law to create a semi-autonomous agency as a statutory body). Looking wider still, policy/law makers may also have to consider complimentary reforms to related areas of the domestic regulatory environment, such as science and technology policy and anti-trust legislation Whilst detailed examination of

these areas is really beyond the scope of this study, it is interesting to note that, according to the WTO website, at the present time only about 50 developing countries and transition economies have so far adopted specific competition laws (although in certain countries there may be some provisions dealing with IPR-related restrictive business practices within the existing intellectual property legislation).

To address these challenges effectively, developing countries require sophisticated technical and analytical capabilities; a co-ordinated approach to policymaking across government; and a process that facilitates participation by different stakeholder groups in the private sector, academia and civil society. So, to what extent to developing countries, especially the poorest have capacity within the institutional framework to meet these requirements and address the challenges of intellectual property reform?

Responsibility for intellectual property policy in most developing countries, particularly LDCs, falls to ministries with lead responsibility for international trade and/or foreign affairs. Perhaps as a result of this, such countries typically do not have specific, substantive policy documents dealing with intellectual property issues. Instead, government policy is a compound of existing legislation, membership of international treaties and statements made by government ministers and officials[11].

With regard to the development of legislation and regulations, this is generally delegated to departments or agencies responsible for IPR administration. From the evidence of the WTO TRIPS Council reviews under Article 63 of the TRIPS Agreement[12], developing country WTO members have been able to complete much of necessary legislative reforms required for implementation and have been able to do so within the transition period which expired on 1 January 2000. However, as an indicator of the institutional capacity of developing countries in this area, this is subject to three important caveats.

First, LDCs will not undergo TRIPS Article 63 reviews until some time after 1 January 2006 (the end of their transition period), so there is much less information available on their progress with intellectual property law reform. In our view, however, a much smaller number of LDCs have so far been able to complete the legislative reforms required for TRIPS implementation (our case study on Uganda, for example, showed that a TRIPS Task Force was only set up in 2000).

The second caveat is that, in the vast majority of poor countries, there is considerable dependence on technical assistance, in the form of draft laws, legal advice and expert commentary on new draft legislation, provided by bilateral donors like USAID and international organizations, principally WIPO (which has around 14 full-time professional staff working on legal assistance in its Development Cooperation division).

[11] The case study on Uganda reports that Uganda's National Science and Technology Policy (September 2001) provides for the formulation of a specific policy on intellectual property rights but that this is yet to be finalized.

[12] These documents are available from the on-line documents database facility on the WTO website in the P/C/W series.

We discuss the significance of this issue in detail in Part 4, but an extract from an internal evaluation of WIPO technical co-operation with developing countries between January 1996 and December 2000 gives an indication of the extent of this dependence:

> "In the area of legislative advice, 119 developing countries and regional organisations were assisted in the form of preparation of 214 draft laws in the field of intellectual property (20 in 1996, 53 in 1997, 42 in 1998, 61 in 1999 and 38 in 2000). WIPO also prepared draft provisions to amend and modernise existing laws and made comments and suggestions on 235 draft laws (30 in 1996, 40 in 1997, 47 in 1998, 65 in 1999 and 53 in 2000) received from 134 developing countries and secretariats of regional organisations in developing countries. Additional assistance in the form of further comments or clarifications was provided in 170 cases to some 130 countries and regional organisations." (WIPO, 2001a)

Third, whilst much new intellectual property legislation may have been introduced in developing countries since 1995, some commentators (eg Correa, 2000) have raised questions as to whether the design of these new laws is fully appropriate to the needs of developing countries and makes proper use of the flexibilities available under the TRIPS Agreement regarding, for example, compulsory licensing.

The final caveat, looking beyond compliance with the TRIPS Agreement to the wider reform agenda, is that few developing countries have so far been able to tackle the task of preparing draft legislation for regulation of access to biological resources and benefits sharing under the CBD[13], and even fewer have done so for protecting traditional knowledge (as Peru, Guatemala and Panama have for example). Of course, quite aside from institutional capacity issues, in some countries this situation may reflect a lack of political will or consensus on what policy to adopt.

Moving on, we turn to considering the capacity of developing countries for policy co-ordination across government related to intellectual property reforms. Most of the case studies we commissioned report that inter-ministerial committees have been established to improve the co-ordination of policy advice, with key participants being the ministries of industry, commerce, science, environment (biodiversity-related issues) and education or culture (for copyright and related rights). The Kenya case study cites the new Industrial Property Act 2001, with its provisions on parallel importing and compulsory licensing designed to allow import of generic anti-HIV drugs, as a good example of joined-up policymaking on intellectual property and public health. However, the St Lucia case study found no evidence of a formal inter-governmental co-ordination mechanism and it is quite conceivable that this is the case in some other smaller developing countries and LDCs[14]. Moreover, the case studies suggest that such committees have been formed only relatively recently (as a response to implementation of the TRIPS Agreement for

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[13] Whilst many countries are actively working to prepare such laws, only 13 developing countries have substantially completed legislation to date: Bolivia, Brazil, Cameroon, Columbia, Costa Rica, Ecuador, Malaysia, Mexico, Nicaragua, Peru, the Philippines, the Republic of Korea and Venezuela. *Source: personal communication from Ms Kerry ten Kate, Policy Advisor, Directorate, Royal Botanic Gardens, Kew, 5 February 2002.*

[14] We heard from one sub-Saharan African country, for example, that the Customs Authorities had not been consulted regarding enforcement provisions of the new Copyright and Neighboring Rights Act.

example) and, as the Uganda case study reports, it is not clear that these mechanisms are fully effective yet – particularly in respect of integration of intellectual property issues with other areas of economic policy. We return to the issue of inter-governmental co-ordination in the Section 3.2.

The final aspect of policy and legislation development we consider here is the extent to which poor countries currently have a participatory process for intellectual property policymaking. In theory, such a process might commence with a discussion paper on a particular intellectual property subject (eg protection of traditional knowledge) being prepared by local academics, perhaps in collaboration with international experts; this would then be circulated to interested parties and perhaps a number of public meetings or workshops would be held amongst different stakeholders. In response, the lead government department might prepare a piece of draft legislation or a policy paper, which would in turn be open to wide public consultation and review in legal journals or newspapers. Eventually the consultation would be concluded and legislation would be given to Ministers for approval and presentation to nationally elected representatives (eg the Parliament). The new legislation might then evolve further in practice through judicial interpretation.

The evidence we have reviewed, however, indicates considerable variation amongst developing countries in this respect and, suggests, moreover, that in some countries this may be one of the weakest areas of the intellectual property system. For example, at one end of the spectrum, the case study on India reports a broad-based, extensive system for public consultation (including public workshops on controversial topics such as protection of bio-diversity and traditional knowledge, and use of compulsory licensing), as well as a high level of expertise within the academic, business and legal communities. Even some civil society organizations have intellectual property policy research and advocacy programmes, such as the CUTS Centre for International Trade, Economics & Environment in Jaipur. Alternatively, to take another example that we reviewed, in one sub-Saharan African developing country new copyright and neighbouring rights legislation was reportedly passed with minimal public consultation or debate, even relative to other law reforms in the past. The exercise was largely confined to a technical drafting process, with just one article written about the new legislation by one of the two academic lawyers teaching intellectual property in the national university (after it had been enacted).

It follows from what we have said above about the typical shortage of intellectual property expertise in the academic, business and legal communities and within civil society groups in developing countries, that we judge the latter example to be more commonplace than the former, particularly in LDCs. Furthermore, and of particular significance to the work of Commission, most of the case studies do not indicate to any significant degree evidence of the existence of mechanisms to facilitate the active participation of poorest groups in policymaking for intellectual property reform.

Finally, to conclude this section, we flag the obvious, yet important, point that even when policies and laws have been formulated, they still have to be implemented. Recent

experience from developing countries that have initiated programmes to modernize intellectual property laws and the institutions that must administer these suggests that there is an undesirable discontinuity in the continuum from the development of policy and legislation to the implementation of the latter through regulations and office procedures in the relevant agencies. This is particularly evident in difficulties being experienced in some developing countries in establishing or revising institutional arrangements and operating procedures to encompass and reflect broader national intellectual property policy objectives.

3.2 Participation in international rule making and standard setting

International rule making and standard setting on a very broad range of intellectual property subjects takes place predominantly in WIPO and WTO. A large majority of developing countries are members of both organisations or in the process of accession. Looking at the 49 LDCs in particular, as shown by Table 3, 30 are members of WTO, with a further 9 in the process of accession, and 41 are members of WIPO. Five LDCs (Afghanistan, Comoros, Kiribati, Tuvalu and Vanuatu) are not currently members of either WTO or WIPO. For any country, effective participation in these organisations requires, we argue, a combination of four main elements of institutional capacity: permanent representation in Geneva; appropriately staffed expert delegations able to attend WTO/WIPO meetings; adequate technical support for policy analysis within the lead government departments; and functional mechanisms for policy co-ordination and discussion "in capital".

Effective permanent representation in Geneva is important for ensuring good information flows back to capital; participation in informal consultations (like the WTO Green Room meetings) as part of the negotiating process; alliance building with like-minded countries; eligibility for Chairmanship of WTO meetings[15]; and for better access to the invaluable services and assistance available from the WTO and WIPO Secretariats. The limitations and constraints to effective participation that derive from lack of permanent representation in Geneva have been well documented (eg Michalopoulos, 2001), and the evidence indicates that these continue to apply for a significant number of developing countries. A recent study commissioned by the Commonwealth Secretariat (Weekes et al, 2001) found that there are 36 developing countries, either WTO members or in the process of accession, who do not have any permanent representation in Geneva essentially because of financial constraints. Our own analysis, at Table 4, analyses the situation amongst the 45 LDCs who are members of either WIPO or WTO, or are in the process of WTO accession. This shows that 20 of such LDCs are currently without permanent representation in Geneva.

[15] Interestingly, the Chairman of the TRIPs Council in 2001 was the Permanent Representative of Zimbabwe.

Table 4: Permanent Representation amongst LDCs at WTO and WIPO in Geneva

Country	WTO member	WIPO member	Representation in Geneva	Representation in Europe	Representation from Capital
Angola	Yes	Yes	Yes	-	-
Bangladesh	Yes	Yes	Yes	-	-
Benin	Yes	Yes	No	Paris	-
Bhutan*	No	Yes	Yes	-	-
Burkina Faso	Yes	Yes	No	Brussels	-
Burundi	Yes	Yes	Yes	-	-
Cambodia*	No	Yes	No	-	Yes
Cape Verde*	No	Yes	Yes	-	-
Central African Rep	Yes	Yes	No	-	Yes
Chad	Yes	Yes	No	Brussels	-
Congo (DR)	Yes	Yes	Yes	-	-
Djibouti	Yes	No	Yes	Yes	-
Equatorial Guinea	No	Yes	No	Paris	-
Eritrea	No	Yes	No	-	Yes
Ethiopia	No	Yes	Yes	-	-
Gambia	Yes	Yes	No	Brussels	-
Guinea	Yes	Yes	Yes	-	-
Guinea-Bissau	Yes	Yes	No	Brussels	-
Haiti	Yes	Yes	Yes	-	-
Laos*	No	Yes	No	-	Yes
Lesotho	Yes	Yes	Yes	-	-
Liberia	No	Yes	Yes	-	-
Madagascar	Yes	Yes	Yes	-	-
Malawi	Yes	Yes	No	Bonn/Brussels	-
Maldives	Yes	No	No	-	Yes
Mali	Yes	Yes	No	Bonn/Brussels	-
Mauritania	Yes	Yes	Yes	-	-
Mozambique	Yes	Yes	Yes	-	-
Myanmar	Yes	Yes	Yes	-	-
Nepal*	No	Yes	Yes	-	-
Niger	Yes	Yes	No	-	-
Rwanda	Yes	Yes	Yes	-	-
Samoa*	No	Yes	No	-	Yes
Sao Tome & Principe*	No	Yes	No	Brussels	-
Senegal	Yes	Yes	Yes	-	-
Sierra Leone	Yes	Yes	No	-	-
Solomon Islands	Yes	No	No	Brussels	-
Somalia	No	Yes	No	-	-
Sudan*	No	Yes	Yes	-	-
Tanzania	Yes	Yes	Yes	-	-
Togo	Yes	Yes	No	Paris/Brussels	-
Uganda	Yes	Yes	Yes	-	-
Vanuatu*	No	No	No	-	Yes
Yemen*	No	Yes	Yes	-	-
Zambia	Yes	Yes	Yes	-	-

Sources: Information received from the UK Permanent Mission to the United Nations in Geneva and Weekes et al (2001).

* WTO observer status, in process of accession to WTO.

Note: Afghanistan, Comoros, Kiribati and Tuvalu are not members of either WTO or WIPO, nor in the process of accession to WTO.

A further variable in the institutional capacity equation is the variation in the size of permanent representation in Geneva amongst developing countries. Michalopoulos (2001) found the average to be 3.6 persons per Mission for WTO developing country members (compared to 6.7 persons for developed country members) but this conceals the fact that the ASEAN countries had an average size in excess of 8 staff, and the Latin American countries plus India and Egypt had an average of 5.5 staff per Mission. The average size of the small poorer country Missions can therefore be taken to be significantly below the overall developing country average of 3.6 staff and it is worth noting that Michalopoulos estimated the minimum requirement to be 4-5 staff.

We now turn to the requirement for countries to have the capacity to send appropriately staffed expert delegations to WTO/WIPO meetings on different intellectual property subjects[16]. In some developing countries, intellectual property officials may participate to a limited extent by contributing to the development of national positions on various issues and then participating as members of the national delegation to WIPO, WTO or possibly regional meetings (eg for ARIPO member countries). In other cases, even in some larger developing countries, the intellectual property institutions may lack personnel with the skills needed to effectively represent the nation's interests in international fora and so just focus almost exclusively on day-to-day operations for receiving and disposing of IPR applications and registrations. In many poor countries, an additional key constraint is the lack of financial resources for travel expenses, notwithstanding the various financial assistance schemes available from WIPO in this area[17].

The case studies we commissioned bear out this mixed picture. For example, whilst Jamaica is an active participant in international negotiations on copyright, traditional knowledge and information technology issues, during the WTO Uruguay Round negotiations that led to the TRIPS Agreement, Jamaica's delegation did not include personnel with intellectual property expertise. Moreover, whilst the Jamaican Mission in Geneva has represented the country at all WIPO Governing Bodies meetings since 1995, the case study reports that Jamaica has only been able to send representatives from capital to three such meetings due to financial constraints. In one sub-Saharan African country we reviewed, the lead WTO official from the Ministry of Industry and Commerce reported that until a Mission in Geneva was established recently, the country did not send representatives to the WTO TRIPS negotiations or TRIPS Council meetings from capital unless they were attending other events in Geneva where travel expenses

[16] For most countries, the "appropriate" level of attendance at WIPO meetings for example, would probably be different for expert groups, standing committees and diplomatic conferences.

[17] The Assemblies of the Unions established under the PCT and the Madrid Agreement, two WIPO-administered treaties, have agreed to finance the travel and subsistence expenses of one government official from each Member State to their meetings in ordinary or extraordinary session. In addition, following a decision by the Assemblies of WIPO Member States in 1999, WIPO sponsors the participation of 26 government officials from different developing countries and transition countries (five each from Africa, Asia, Latin America and the Caribbean, the Arab countries, certain countries in Asia and Europe plus one from China) in meetings of a selected number of committees (dealing with patents, trademarks, copyright and traditional knowledge). *Source: personal communication from the WIPO Secretariat on 8/02/2002.*

were included. As a result, the government was largely unaware of the content of the draft TRIPS Agreement until a national seminar organised by the WTO Secretariat in 1993.

Regarding the particular situation for LDCs, Drahos (2001) asserts that they generally have poor or no representation at all by intellectual property specialists from capital in WIPO expert meetings and at WTO TRIPS Council meetings. A further capacity constraint identified by Drahos (and confirmed by our experience) is that even when poor countries are represented by officials from capital in meetings at WIPO in particular, this is limited to personnel with a mainly technical knowledge of IPR administration as opposed to a knowledge of intellectual property as a tool of regulatory and economic policy.

Moving on, in the sections above, we have already said much of relevance concerning developing countries' institutional capacity to provide technical support for their delegations to WIPO and WTO through intellectual property policy analysis within the lead government departments, as well as analysing the evidence for existence of functional mechanisms for policy co-ordination and discussion amongst different stakeholders groups "in capital". It is not necessary to repeat that here. Instead, we present an extract from a recent publication analysing the participation in the TRIPS negotiations of the WTO Uruguay Round by India, a country that many observers might credit with having a high level of institutional capacity in this regard. The extract shows just how difficult in practice is the task of effectively co-ordinating national policymaking with international rule making, even for large countries like India with their considerable depth of intellectual property expertise:

> "The various cabinet committees that were set up within the bureaucracy and at the cabinet sub-committee level were never really ahead of the game and were of little constructive use…[D]ecisions with major domestic policy implications were thus made largely by a small group of senior officials, with only minimal political consultation, or by the delegation in Geneva." (Sen, 2001)

To summarise this section, we find that the evidence indicates a genuine duality in the capacity to participate in international rule making and standard setting effectively amongst developing countries. Some developing countries, including many of the poorest countries, are currently little more than spectators in WTO and WIPO, if they are present at all. Yet again, other developing countries, including the likes of Brazil, Egypt, India and some LDCs like Bangladesh, are reasonably competent participants at WTO and WIPO and, for various reasons, are able to exert influence on the rule making processes in these organisations. We end this section with another quote from Dr Michalopoulos which, although it pertains to the situation in WTO at the end of the 1990s, still provides a reasonable analysis of developing countries' participation across multilateral intellectual property rule making as a whole we believe:

> "[T]here are perhaps 30-35 developing countries … which by virtue of their interest in the WTO, the staffing of their Missions and the leadership of their representatives, play a very active role in the affairs of the organisation. They are the ones which provide the bulk of

the formal leadership structure of the WTO and they are the ones that are being consulted when informal consultations to develop a consensus take place." (Michalopoulos, 2001)

3.3 Administration

In this section, we analyse the institutional capacity issues for developing countries in the administration of patents, trademarks, copyright and other forms of IPRs. As we have noted earlier in this study, Part II of the TRIPS Agreement specifically sets out minimum standards for the required scope for acquisition and maintenance of different IPRs in the 144 WTO member countries[18], and Article 62 of the Agreement explicitly requires that national administrative procedures shall permit the granting or registration of the right within a reasonable period of time. This provides the general framework for the administration of IPRs in most developing countries and LDCs. Below this, however, administration of IPRs actually 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, as we describe, administration of patents, trademarks, copyright and other forms of IPRs require quite different types of institutional capacity and present quite different challenges for developing countries.

The administration of industrial property rights[19] involves receiving of applications, formal examination, granting or registration of the IPRs, publication, and processing of possible oppositions. As IPRs expire after specified periods of time, further steps are required to complete renewal procedures and documentation of the decision. Whilst all of the procedures for efficient administration of industrial property rights require properly trained staff and modern and automated information systems, by far the most challenging aspect is the substantive examination of patent applications. Some patent applications can run to thousands of pages of technical data, in a wide array of technology fields, and substantive examination involves both professional/technical competence and access to sophisticated international patent information computer databases. Such institutional capacity requirements are way beyond the reach of most IPR administration agencies in the world (though in some exceptional cases, China for example, developing countries may have world class patent examination capabilities). As we discuss in detail in Section 3.6 below, developing countries can (and often do) instead opt for a patent registration regime or to join a system of regional or international co-operation.

The level of public administration required for copyright and related rights is minimal (Sherwood, 1996). Copyright subsists when a work is created or expressed, without the need of formalities such as examination for prior art or assessment for inventive step. Some developing countries (eg India and Vietnam) have adopted voluntary copyright registration systems and a larger number of developing countries (eg India, Jamaica,

[18] As of February 2002.

[19] Industrial property rights consist of patents, trademarks, industrial designs, utility models, integrated circuits and plant varieties.

Zimbabwe, Kenya, Tanzania, Trinidad & Tobago) have created collective management societies, which represent the rights of artists, authors and performers and collect royalties from licensing copyrighted works held in their inventories[20]. In fact, the establishment of copyright collective management societies appears to be increasingly recommended as part of the intellectual property administration infrastructure for developing countries and LDCs. For example, in a recent e-book published by UNESCO, Ralph Oman, a former US Registrar of Copyrights, asserts that:

> " … [D]eveloping countries should move quickly to establish dynamic societies to promote the rights of composers and raise the copyright awareness of its citizens. It could turn out to be a sizeable revenue stream for the local economy and an important subsidiary for domestic creativity." (Oman, 2001)

Oman argues further that collecting societies in most developing countries send only a very small percentage of their royalties abroad to share with foreign collecting societies, and can offset this with the payments for performances by nationals of their country in foreign markets made by foreign societies. Regrettably for a publication available on the UNESCO website, Oman does not offer any empirical evidence to support this claim. In contrast, in a paper prepared for Commission, Alan Story cites the experience of South Africa's Dramatic, Artistic and Literary Rights Organisation (DALRO), one of few such organisations in Africa at present (Story, 2002). In 1999, DALRO distributed a total of approximately 74,000euros to national rights holders, of which approximately 20,000euros were received from foreign collecting societies; whilst over the same period it distributed approximately 137,000euros to foreign rights holders. In addition, Zimbabwe's Zimcopy and Kenya's Kopiken did not make a single financial reprographic collection during their last financial year, according to their websites.

Clearly, there are different views on the merits of establishing collective management societies in developing countries and we have not been able to review sufficient evidence in this study to form a definitive judgement. We note, however, that even if collective management societies in developing countries do make net transfers of payments to foreign rights holders from the royalties collected, there may still be arguments in favour of the establishment of such organisations (ie they may distribute some level of royalty payments to nationals and may aid the authorities in the enforcement of copyright). In any event, it would seem to be imperative that the full costs of establishment and operation of such agencies should be borne by copyright holders, the direct beneficiaries, and not become a burden on the scarce public finances available in most poor countries.

Turning back to the administration of industrial property rights, in Table 5, we analyse the volumes of applications and registrations between 1996-98 for patents, trademarks and industrial designs in 8 developing countries, in different regions of the world and at quite different levels of development. The wide variation in the numbers of applications

[20] Neither voluntary copyright registration systems nor collective management societies are required under the TRIPS Agreement, however. As well as copyright administration, such schemes may also possibly be used in countries that seek to provide for *sui generis* protection of traditional knowledge and folklore.

and grants between different countries, and between different years, is complex to explain. Firstly, the number of applications is in part determined by whether the country is a member of the applicable international co-operation treaty or a member of a regional organisation (Malawi and Sudan are members of ARIPO and Kyrgyzstan is a member of the Eurasian Patent Office). Of course, in most developing countries only a very small proportion of applications made under international co-operation treaties currently enter the “national phase” where substantive registration takes place. Other explanations for the wide variation include differences in the national intellectual property laws and regulations (more or less attractive for IPR applicants) and the intellectual property rights management strategies of multinational corporations, which often discriminate between countries in their acquisition and maintenance of IPRs for various reasons. The level of backlog in processing of IPR applications can also affect the number of grants in a particular country in a given year (the case study on India, for example, indicated the current backlog in processing trademarks to be approximately 250,000 to 270,000 applications).

Table 5: Applications & grants for selected IPRs in 8 developing countries, 1996-98

Country	1996 Applications	1996 Grants	1997 Applications	1997 Grants	1998 Applications	1998 Grants
Patents						
China*	52714	2976	61382	3494	82289	4735
Guatemala	104	8	135	15	207	17
India	8292	1020	10155	N/a	10108	1711
Jamaica	79	23	70	21	60	16
Kyrgyzstan*	20305	125	25103	133	33905	91
Malawi*	39034	117	49934	49	67760	80
Sudan*	39061	97	49920	37	67719	64
Viet Nam*	22243	61	27440	111	35748	N/a
Trademarks						
China**	150074	121475	145944	217605	153692	98961
Guatemala	8206	5490	10588	6369	9988	4806
India	N/a	4436	43302	N/a	36271	4840
Jamaica	1537	1346	1883	2195	2005	1966
Kyrgyzstan**	2803	3297	3008	2592	3112	2760
Malawi	624	316	819	422	582	320
Sudan**	1508	1508	1482	1482	1514	1514
Viet Nam**	8440	6615	7830	5174	2838	2534
Industrial designs						
China	24614	13633	30413	20160	34632	29254
Guatemala	45	6	54	3	38	8
India	2357	2004	2595	N/a	3076	N/a
Jamaica	12	10	22	20	14	9
Kyrgyzstan	7	5	17	3	13	14
Malawi	4	1	7	2	33	2
Sudan	1	1	1	1	14	N/a
Viet Nam	1646	926	1153	323	N/a	N/a

Source: WIPO website

* Member of PCT during this period. ** Member of Madrid Agreement or Protocol during this period. *** Member of Hague Agreement during this period.

Looking now at organisational and management arrangements, the evidence we reviewed reveals a number of common institutional formats in developing countries. A WIPO study in 1996 (Institute for Economic Research, 1996) surveyed 96 developing countries and found that in over two-thirds of the sample, administration of industrial property was performed by a department within a ministry of industry and trade, or a ministry of justice. In 10 countries an independent government agency was responsible for industrial property administration. Regarding administration of copyright, the WIPO study found that this was performed by a department in a ministry of education or culture in a third of the sample and by an independent copyright agency in 15 cases. Interestingly, in another third of the developing countries sampled, there was no special unit identified at all within the government with responsibility for copyright administration.

In our experience and considering the evidence from the case studies we have commissioned, the findings of the WIPO study are probably still quite representative of the situation in many poor developing countries today. That said, there has been an increase in the number of developing countries, Jamaica and Tanzania being two examples, that have recently established (or are in the process of establishing) a single, semi-autonomous intellectual property institution with responsibility for administration of both industrial property and copyright. Another notable development in the organisation of IPRs administration in developing countries is the establishment of new units for the administration of plant variety protection or plan breeders' rights. In Kenya, for example the Kenya Plant Health Inspectorate Service, established as a parastatal organisation in 1997, includes a Plant Breeders Registration unit that administers applications for plant variety protection under the relevant national legislation, collects user-fees and is the UPOV liaison office for Kenya.

There are good arguments for establishing a single, semi-autonomous intellectual property administration office, under the supervision of a suitable government ministry[21]. These include the separation of the regulatory and administrative functions; improved customer-orientation and services; creation of a more business-oriented approach to cost-recovery and expenditure control (including capital investment strategies and market-based staff remuneration); and the potential benefits from better policy co-ordination across different areas of intellectual property. The Jamaica case study shows how the national IPR administration agency's present lack of financial autonomy has contributed to its inability to recruit staff and invest in automation of essential IPR processing systems. In addition, the Tanzania case study revealed the potential pitfalls of combining IPR administration with other functions (such as companies registration and small enterprise development services) in a single executive agency, even if this sounds attractive in principle for developing countries: from the data provided by the agency, it appears that there is considerable cross-subsidization through revenues from IPR user fees to the other function areas. This has presumably contributed significantly to the lack of financial resources available for IPRs administration, as highlighted by the case study.

[21] A model organizational chart for such an agency in a low-income country is shown at Annex A of the Institutional Model prepared by Mart Leesti, available at www.iprcommission.org/meetingsSubs.asp?primary=24

Turning to human resource issues, the evidence we have reviewed indicates that the number of staff involved in IPR administration in developing countries varies enormously: from one untrained person in the Ministry of Trade and Industry in Eritrea to over 800 hundred staff across three different government agencies in India. To meet the minimum administrative standards required by the TRIPS Agreement, the number required for a skeleton office handling very low volumes of IPR applications, such as an LDC like Eritrea, would be perhaps 10-15 professionals and a similar number of administrative/support staff. This requirement could be expected to rise over time with increased volumes of IPR applications. Looking in more detail at staffing of intellectual property administration in developing countries, our case studies revealed the following data:

- In **India**, the Patent Office has a total staff of approximately 300 against an authorised complement of 530 (this includes 40 patent examiners out of an authorised total of 190 examiners). The Trade Marks Registry has a total of 259 staff against an authorised total of 282. And the Copyright Office has a total staff of 12, of which 9 are professional posts.

- In **Jamaica**, the recently established Intellectual Property Office, under the Ministry of Industry, Commerce and Technology, has a complement of 51 posts, of which only around half are currently filled.

- In **Kenya**, the Intellectual Property Institute has an establishment of 97 staff, 26 of which are professional posts and 71 are administrative.

- In **St Lucia**, the Registry of Companies and Intellectual Property, under the Attorney General's Department, has a complement of 9 posts, with one post currently vacant.

- In **Trinidad and Tobago**, the Intellectual Property Office has a complement of 23 staff at present, with 6 posts vacant. A revised organisational structure proposes increasing the staff complement to 54 posts to handle the present workload.

- In **Tanzania**, the Intellectual Property Division of the Business Registrations and Licensing Agency has 20 staff (11 professional and 9 administrative).

- In **Vietnam**, the National Office of Industrial Property has 136 staff in total (87 professionals and 49 support staff) and there are a further 22 staff in the Copyright Office.

Almost of all of the countries we reviewed reported shortages of professional staff as an important constraint in their national IPRs administration. In LDCs and smaller low-income developing countries, generally the availability of technical (scientific and engineering) and legal expertise tends to be in very short supply. Where legal expertise does exist, it is generally not well versed in matters relating to the acquisition or maintenance of IPRs. In the more advanced or larger developing countries there is

generally a greater availability of legal expertise in intellectual property, particularly in the trademark field[22]. Even in these countries, however, there is a typically a shortage of technically trained people, such as scientists and engineers, who are prepared to consider working for government intellectual property authorities, partly due to the fact that government salaries are invariably well behind those in the private sector.

As we have already indicated, automation information systems are a key requirement for efficient administration of IPRs and, therefore, the extent of such automation in developing country is one important indicator of the level of institutional capacity. It should be noted that although IPR administration does require some specialised software (and a common software package has been specifically designed for developing countries by agencies such as the EPO), there is no need for special computer hardware. For small, poor developing countries and LDCs, stand-alone personal computers, with CD-ROM and printer units, are adequate: even in a lot of larger developing countries standard local-area networks linked to a central database will be able to satisfy the needs. We also note that, recalling our analysis in Sections 3.1 and 3.2 above, availability of information technology and the Internet in developing countries enables easy access to a wealth of information on intellectual property policy subjects as well as the on-line databases and libraries of organisations like WIPO, WTO and UNCTAD[23].

The evidence we have reviewed, however, suggests wide variation in levels of automation for IPR administration amongst developing countries. While most larger, higher income developing countries such as Chile or Brazil have fully automated systems, a surprisingly high number of countries (including Uganda, Jamaica and St Lucia in our case studies) still have manual, paper-based systems for IPRs administration. It should be noted that lack of automation not only hinders efficient processing of IPR applications; it also greatly complicates collection of important statistical information (eg numbers of applications, their filing route and country of origin) as well as other financial and management information. From the evidence of our case studies, very few IPR administration agencies in developing countries currently produce and publish a substantive annual report for service-users and other interested parties in the government, business and academic communities. Similarly, there are also very few such agencies in developing countries which maintain websites. These should be core-activities, we would argue, of a modern, effective IPR administration institution.

3.4 Enforcement and regulation of IPRs

IPRs are valuable only if they are well enforced, which implies that the legal system is integrally related to the intellectual property system. This inter-dependence is an

[22] In some exceptional cases, such as India for example, there are numerous firms with agents and attorneys well qualified and experienced in acquisition and litigation of all available forms of IPRs (in India and also abroad).

[23] According to WIPO (2001b), 154 intellectual property offices around the world currently lack Internet connectivity.

excellent illustration of the requirement for a holistic approach to the development of the institutional framework in developing countries, as we argued in Section 2.3 above. To underline the importance of enforcement-related institutional capabilities, Sherwood (1997), in a rating system of intellectual property regimes and their attractiveness to investors in 18 developing countries, assigns 25 points out of a possible 100 (the largest single points category) to factors such as judicial independence, prompt availability of injunctions, competence of judges in intellectual property subjects, length of delays experienced in legal proceedings and the capacity of police and customs agencies to act in IPR cases. Examination of the institutional capacities of developing countries for enforcement of IPRs is thus clearly a key issue to cover in this study.

In terms of the scale of the enforcement problem, industry associations like the Business Software Alliance and the International Chamber of Commerce (ICC) often report very high levels of IPRs infringement in developing countries. For example, the ICC cites Thailand as the biggest source of pirated compact discs in Asia, capable of producing up to 60 million such products per year[24]. From the case studies we commissioned, however, we were unable to find clear evidence of the extent of IPR infringement in the countries concerned, as reliable official statistics were often unavailable. However, it does seem clear that the extent of the IPRs infringement problem in most poor countries is greatest in the areas of copyright (counterfeiting of products such as computer software and music cassettes which are easy to copy) and trademark infringements.

One of the most distinctive features of the TRIPS Agreement is that in Articles 41 through 61 it sets out detailed minimum requirements for enforcement of IPRs. For the WTO member countries, this provides the basic framework of measures designed to assure that legal remedies are available in all countries to enforce and defend intellectual property rights. For many developing countries, however, particularly the poorest, compliance with these provisions of the TRIPS Agreement presents considerable institutional challenges for policing and judicial systems, civil and criminal procedures and the customs authorities (regarding border enforcement measures). In many of the poorest countries, judicial systems currently do not function well for any area of the law, much less for intellectual property. Moreover, for an effective enforcement system to operate, close co-operation is required between the enforcement agencies and those institutions dealing with IPRs administration[25]. This underlines the importance of the institutional weaknesses in poor countries discussed in Section 3.3 above.

We now turn to examining the evidence available regarding the institutional capacity of developing countries for enforcing IPRs. The World Bank, for example, argues that, in general terms, effective enforcement of IPRs tends to rise with income levels, so institutional weaknesses in this area are likely to be greatest in the poorest countries

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[24]Source: ICC website.

[25] For example, effective enforcement is facilitated by administration systems that grant IPRs with a high presumption of validity; keep accurate and readily accessible registries and records; and are able to correct defects in IPR titles through administrative rather than judicial means wherever possible.

(World Bank, 2002). The evidence from the case studies we commissioned tends to support this position. For example, in Tanzania and Uganda there appeared to be very little evidence at all of cases involving IPR infringement proceeding through the judicial system[26]. In contrast, in Kenya the customs authorities have reportedly made 50 seizures of counterfeit goods, whilst 20 IPR-related criminal cases and 1 civil case have been brought before the courts, with a further 29 cases pending[27]. In Vietnam, between 1989-1996, 25 IPR infringement cases were settled by the Civil Court in Ho Chi Minh City (less than 0.1% of the overall number of cases in that court). The case study on India reported that anti-piracy activities have been undertaken throughout the country and a number of State governments have set up intellectual property protection units in their police departments. Similarly, Malaysia has established a special copyright enforcement unit within the Ministry of Domestic Trade and Consumer Affairs, employing a total of 450 officers around the country (UNCTAD, 1996).

Some developing countries, such as Thailand and Panama, have gone further and established specialised courts to hear IPR-related cases as a means of improving their national enforcement capacities. As specialised courts tend to concentrate knowledge among a few judges and so upgrade the quality of decision-making, this indicates a fairly high level of institutional capacity, at least within the judicial system, in these countries. Note, however, that such a measure is explicitly not formally required by the TRIPS Agreement[28]. Therefore, a more attractive approach for other developing countries is probably to establish (or strengthen) a commercial court, as Jamaica did in 2001, which may hear IPR-related cases *inter alia* and so provide improved access to justice for the business sector as a whole. Of course, in the poorest countries, even this option may not be feasible due to financial constraints. In any event, in most developing countries, a considerable programme of training for judges in intellectual property subjects will be required.

So far, our discussion of IPRs enforcement in developing countries has focused exclusively on the role and capacity of state institutions. As we noted in Section 2.4 above, however, the "private" nature of intellectual property rights suggests the importance of resolution of disputes between parties either out of court or under civil law. Indeed, as state enforcement of IPRs is a resource-intensive activity, there is a strong case for poor countries to adopt IPR legislation that emphasizes enforcement through a civil rather than a criminal justice system, thereby reducing the enforcement burden on

[26] The authors of the Uganda case study argue that this is attributable to the fact that the national legislation does not currently provide for prosecution of IPR infringements under the criminal system.

[27] The authors of the Kenya case study note, however, that due to the state of existing legislation most seizures of counterfeit goods are conducted due to failure of the importers to pay customs duties rather than for IPR infringement per se.

[28]Article 41, paragraph 5 of the TRIPS Agreement states that: "It is understood that this Part does not create any obligation to put in place a judicial system for the enforcement of intellectual property rights distinct from that for the enforcement of the law in general, nor does it affect the capacity of Members to enforce their law in general. Nothing in this Part creates any obligation with respect to the distribution of resources as between enforcement of intellectual property rights and the enforcement of the law in general."

the government (of course, in the case of wilful piracy and counterfeiting on a large scale, the state enforcement agencies would still be required to intervene). That said, we note that developing countries may come under pressure from industry groups like the International Federation of the Phonographic Industry, who advocate enforcement regimes based on state initiative for the prosecution of infringements (Institute for Economic Research, 1996).

In fact, in many developing countries, particularly Asian countries like Vietnam, the use of out of court settlement of IPR disagreements has a long tradition and may be the preferred route (this of course is difficult to measure in national infringement and enforcement statistics). And, to the extent that they exist in developing countries (see Section 3.3 above), collective management organisations may play an important role in enforcement of IPRs, particularly in relation to copyright infringements, and so add to the capacity of the relevant national institutions. However, as we have noted earlier, the lack of suitably qualified local legal professionals in many developing countries acts as an important constraint on the ability of rights holders to bring cases of IPR infringement through the civil courts and even to obtain remedies through the administrative system.

Moving on, we conclude this section by looking at the institutional issues for developing countries in the regulation of intellectual property rights, particularly in relation to matters of special public interest (as with compulsory licensing of pharmaceutical product IPRs for example) or in relation to preventing and controlling anti-competitive practice by IPR holders (such as abuse of monopoly power or restrictive contractual licensing). The theoretical arguments for developing countries to establish such regulatory systems and instruments in respect of intellectual property rights has already been well documented (eg UNCTAD, 1996 and Correa, 1999) and we do not repeat them here. Seen from the institutional perspective, however, this area is likely to present a significant challenge for policymakers, administrators and enforcement agencies in developing countries:

> "Thus at the domestic level, the interface of antitrust law and IPRs has become a highly elaborate and specific area of competition law. It requires mastery of both general antitrust theory, such as the concepts of restriction, relevant market and market power, and intellectual property law. This complexity by itself and continuing divergence of views as to the relationship of intellectual property and competition explain why this area of the law has developed differently in various countries and why its application and enforcement pose so many problems." (UNCTAD, 1996)

The evidence we have reviewed confirms the magnitude of this challenge for the poorest countries, but also indicates that larger, more advanced developing nations are strengthening their institutional capacities in this area (eg India is introducing a Competition Bill which proposes a new Competition Commission to replace the old Monopolies and Restrictive Practices Commission). First, as we noted in Section 3.1 above, at the present time only about 50 developing countries and transition economies have so far adopted specific competition laws (although in certain countries there may be some provisions dealing with IPR-related restrictive business practices within the existing intellectual property legislation). More developing countries, including LDCs

like Uganda, are, however, now developing such legislation. Second, a related point is that it by no means follows from the existence of competition legislation in a developing country that there are necessarily competent institutions able to tackle intellectual property-related issues effectively. The case study on Jamaica, for example, revealed that Jamaica's Fair Trading Commission sees it role, as prescribed in national legislation, as minimal in relation to IPRs (indeed IPR concerns were not primary for any of the 1,200 plus investigations it carried out between 1999 and 2001). Similarly, none of the case studies we commissioned revealed evidence of cases brought through the courts under competition legislation concerning intellectual property.

Finally, regarding the regulation of intellectual property rights in cases of special public interest we note that the Article 31 of the TRIPS Agreement sets out rules for the use of compulsory licensing which WTO member countries must therefore observe. In practice, the skills and judgements required in administration of compulsory licenses, such as deciding questions of "reasonable commercial terms" and "reasonable time period" are quite sophisticated. In our experience, these are likely to go beyond the existing institutional capacity of the relevant institutions in many developing countries, particularly the poorest. In fact, none of the case studies we commissioned reported that compulsory licenses had ever been used in the countries concerned (although it could be argued that simply the threat of such licenses might have proved sufficient or that the authorities were unwilling to utilise this instrument).

To summarise, in our assessment of the institutional capacity of developing countries in the area of regulation of intellectual property rights, either in terms of special public interests or the prevention and control of anti-competitive practices, we concur with the conclusion of Correa (1999):

> "[I]n most developing countries mechanisms aiming at controlling restrictive business practices or the misuse of intellectual property rights are weak or non existent. Similarly, developing countries are generally unprepared or unable to neutralize the impact that price increases resulting from the establishment or reinforcement of intellectual property rights may have on access to protected products, particularly by the low income population."

3.5 Costs and revenues

In this section, we consider the financial aspects of establishing and operating a modern, reasonably efficient intellectual property infrastructure in developing countries, capable of meeting the performance requirements implied in the TRIPS Agreement. We start by describing the typical costs that may be incurred in the exercise of policy/law making, administration and enforcement of IPRs and then analyse the evidence available as to actual levels of expenditure incurred in different developing countries. We then move on to looking at systems for cost-recovery and review the experience of different developing countries in terms of fee-rate policies and revenue generation. In addition, in Section 3.6 below, we discuss the principal options for achieving cost reductions in IPR administration through regional or international co-operation, and analyse some key financial issues for the two regional organisations in Africa, OAPI and ARIPO.

The establishment and operation of the intellectual property infrastructure in developing countries involves a range of both one-time and recurrent costs. One-time costs could include acquisition of office premises; automation (hardware and software) and office equipment; consultancy services (for policy research, drafting new legislation, design of automation strategies, management re-organisation etc); and training of staff in the relevant agencies dealing with policy/law making, administration and enforcement. Recurrent costs could include staff salaries and benefits; charges for utilities; information technology equipment maintenance; communications services (including development of an annual report and website); travel expenses for participation in meetings of the international and regional organisations; and annual contributions to WIPO and regional organisations. Some of these costs, both capital and recurrent, may be incurred only by the IPR administration agency, whilst others – or some portion of them – may also be incurred by enforcement agencies (police, judiciary, customs). A good example would be the costs of running dedicated anti-counterfeiting police units (eg Malaysia) or specialised IPR courts (eg Thailand).

It is very difficult to draw general conclusions about the scale of these costs in developing countries, primarily because of (i) the different volumes of IPR applications required to be handled (as shown in Table 5 above); (ii) the variances in local labour and accommodation costs; and (iii) the policy choices which different developing countries make in designing their intellectual property infrastructure. For example, costs will be far higher in developing countries that operate a national IPR administration agency performing substantive patent examination compared to those countries using a registration system. Likewise, some developing countries choose to incur substantial costs by developing patent information systems for use by local companies and universities; conducting public education campaigns; establishing voluntary copyright registration schemes; and strengthening their permanent representation in Geneva to cover the intellectual property dossiers in WIPO, WTO and UNCTAD. There are very good reasons for supporting such activities in developing countries, as we argue in Section 2.3 above, but they are not of course required under the TRIPS Agreement.

We now turn to examining the available empirical evidence on expenditures incurred by developing countries. UNCTAD (1996) reported some estimates of the institutional costs of compliance with the TRIPS Agreement in developing countries. In Chile, additional fixed costs to upgrade the intellectual property infrastructure were estimated at US$718,000, with annual recurrent costs increasing to US$837,000. In Egypt, the fixed costs were estimated at US$800,000 with additional annual training costs of around US$1 million. Bangladesh anticipates one-time costs of only US$250,000 (drafting legislation) and US$1.1 million in annual costs for judicial work, equipment and enforcement costs, exclusive of training. In 2001, the World Bank estimated that a comprehensive upgrade of the IPR regime in poor countries, including training, could require capital expenditure of US$1.5 to 2 million, although evidence from a 1999 survey of relevant World Bank projects suggested that these costs could be far higher. A recent report on modernizing Jamaica's intellectual property system estimated initial automation costs of around US$300,000 alone (Lehman, 2000a).

The case studies we commissioned report considerable variation in expenditures in IPR administration amongst developing countries, although these results should be interpreted with caution, as there was considerable difficulty in obtaining comprehensive financial management data in most countries and none of the case studies yielded data about expenditures on IPR enforcement. Table 6 shows total recurrent expenditure of industrial property administration agencies in India, Jamaica, Kenya and Vietnam for the 1999/2000 financial year. The case studies also revealed a strong trend in terms of increasing expenditures on IPR administration over time. For example, in Kenya total expenditure by the Kenya Industrial Property Institute (KIPI) is projected to more than double from US$418,592 in FY1999/2000 to US$1,165,858 in FY2001/2002, reflecting substantially increased costs for salaries (as KIPI becomes a parastatal), staff training, accommodation, communications and contributions to WIPO and ARIPO. Because of different accounting practices, some of these expenditures may of course be on one-time costs, whilst at the same time, some capital investments may not appear in the budgets for the IPR administration agencies (India, for example, has committed around US$19million to modernise its Patent Office over a five year period).

Table 6: Expenditure on IPR administration in selected developing countries, 1999/2000

Country	Expenditure in FY 1999/2000
India [a]	US$ 1,697,400
Jamaica	US$ 283,752
Kenya [b]	US$ 418,592
Vietnam	US$ 493,333

Source: Commission case studies

[a] Combined total for expenditure by patent and trademark administration agencies.
[b] Approved budget estimate figure.
[c] Expenditure for National Office of Industrial Property only.

Moving on, we now turn to look at cost-recovery and revenue issues. In most developing countries, IPR administration agencies charge various fees for services related to processing applications, examination and granting, publication and subsequent annual renewals of each of the different form of IPRs. In some larger developing countries, such fee revenues are significant and far exceed the operating expenditures of national IPR administration agencies: in Chile, for example, fee revenues from industrial property rights administration amounted to $6 million in 1995, compared to recurrent expenditure of $1 million in the same period (UNCTAD, 1996). As we indicated in Section 3.3 above, the IPR administration agencies in most developing countries are still organised as departments within a government ministry and do not have financial autonomy, so these revenues are usually deposited directly into the government's consolidated fund.

To give some order of magnitude of the levels of revenues from IPR service fees in different developing countries, in Table 7 we show the data from the case studies on India, Jamaica, Kenya, Tanzania and Trinidad and Tobago for the 1999/2000 financial year (the data were unavailable for Vietnam, Uganda and St Lucia). More generally, the case studies indicate modest, though increasing, revenues streams as a result of lower volumes of IPR applications. In most developing countries we have reviewed in this

study, particularly the poorer countries, fees for trademark administration are typically the largest single source of revenue as granting of patents and other IPRs is much lower by comparison (as indicated in Table 5 above).

Table 7: Revenues from IPR administration in selected developing countries, 1999/2000

Country	Revenue in FY 1999/2000
India [a]	US$ 2,495,000
Jamaica	US$ 161,693
Kenya [b]	US$ 628,205
Tanzania	US$ 214,274
Trinidad & Tobago	US$ 229,559

Source: Commission case studies

[a] Combined total for expenditure by patent and trademark administration agencies.
[b] Approved budget estimate figure.

With these findings in mind, and given what we have said in Sections 2.1 to 2.5 above, the key issue for the poorer developing countries is thus: to what extent they are able to recover from rights holders the full range of costs associated with a modern intellectual property infrastructure? As the World Bank has pointed out, it seems hardly desirable that developing countries should have to take resources from over-stretched health and education budgets to subsidise the administration of IPRs, where the overwhelming majority of rights owners will be from industrialised countries.

> "Given other pressing needs in education, health and policy reform it is questionable whether the least-developed countries would be willing to absorb these costs, or indeed whether they would achieve much social payoff from investing in them. Moreover, note that poor countries are extremely scarce in trained administrators and judges, suggesting that one of the largest costs would be to divert scarce professional and technical resources out of potentially more productive activities. Indeed, in many poor countries, devoting more resources to the protection of tangible property rights, such as land, could benefit poor people more directly than the protection of intellectual property." (World Bank, 2002)

Yet, as our case study on Jamaica shows, for example, this is a risk in some poorer countries, particularly over the short to medium term, and perhaps longer in some LDCs like Eritrea, for example, which, because of their economic circumstances, may only process very low volumes of IPRs for some time to come.

Part of the answer here obviously lies in rationalising expenditure on IPR administration through automation and regional or international co-operation. We discuss this in detail in Section 3.6 below. Over time, in some countries such an approach may also help to generate higher volumes of IPR applications and grants for which fees can be charged. A second part of the answer is clearly the provision of technical and financial assistance from donors, which we discuss in Part 4. But such assistance is not a panacea for developing countries: it can never be guaranteed; resources are limited and other priorities may be more pressing; and it is mainly available only for one-time investment costs, rather than financing a recurring deficit in operating budgets.

The remaining option open to developing countries is of course to stage their capital investment programmes (to the extent possible) and ensure that IPR service fees are set at a level where the full range of financial costs incurred in the intellectual property system are recovered. This points to the need for rigorous financial management and accounting systems in IPR administration agencies and for fees to be reviewed on a regular basis. The evidence we reviewed suggests that these conditions are not being met in some developing countries: for example, the case study on Uganda reports that patent fees for were last revised in 1993. As high fees may discourage some types of applicants from obtaining IPRs, a number of developed and developing countries have chosen to adopt tiered-system of charges, where reduced fees could be charged to, for example, non-profit organisations, individuals and small commercial organisations, such as those where the number of employees or level of turnover falls below specified thresholds. This seems a very sensible cost-recovery policy for poor countries to adopt, as it should provide a means of developing the national intellectual property infrastructure and delivering improved services for users, without placing additional burdens on the public finances.

3.6 Regional and international co-operation

Given the exponential growth in both the volume and complexity of industrial property rights applications worldwide, regional and/or international co-operation in IPR administration, even for developed countries, is now essential to ensure high validity of rights, reduce costs and increase efficiency in national IPR administration. For patents in particular, most countries rely to a greater or lesser extent on the work of the EPO and the patent offices of the United States and Japan, who together probably undertake the substantive examination for around 95% of all applications worldwide (the EPO has over 5000 professional patent examiners specialising in different fields of technologies). Of course, that is not to say these offices don't make mistakes in the granting of patents and in defining the scope of the claims awarded[29]; but they have significantly higher levels of resources for patent administration than other national offices around the world

It is therefore vitally important that developing countries, particularly the poorest, design their national IPR regimes and institutions so as to take full advantage of the regional and international co-operation systems available, particularly with respect to determining that patent and trademark applications meet established standards and criteria for protection[30]. In practice, there are a number of different alternatives for regional and international co-operation that are on offer and are being used by developing countries.

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[29] As US Supreme Court Judge Robert Jackson said in 1953: "The only valid patent is one that hasn't been through this court yet."

[30] Limited duplication of certain effort, such as searching patent literature may be desirable and necessary in order to ensure that the searching and technical skills are available and up to date within the nation. This may be important in facilitating access by nationals (eg researchers, industry, academics, etc) to both national and international patent databases.

The first option is membership of the PCT and Madrid systems. Under the PCT system, technical search and examination are performed by a small number of designated international search and examination authorities (the EPO and the national patent offices of the United States, Japan, Australia, Austria, Spain, Sweden, Republic of Korea, China and the Russian Federation). Membership of the PCT system thus not only allows national patent offices to minimize search, examination and publication tasks; it also allows domestic companies and inventors to obtain high-quality, international patent protection in all PCT members at relatively low cost because residents of developing countries get a 75% reduction in all PCT fees. At the time of writing, 115 countries were members of the PCT: the majority from developing countries, including 23 of the 49 LDCs[31]. Membership of the Madrid system produces similar advantages in trademark administration. At the time of writing, membership of the Madrid system (70 countries) is considerably lower than that of the PCT and currently includes only 7 LDCs[32].

The second option is to delegate or contract-out some tasks of IPR administration (essentially patent administration) to another national or international patent office. For example, the EPO offers an extension system for patents for a number of smaller countries in Eastern Europe. The EPO offers a similar validation system for patents to developing countries, although currently no country is utilising this mechanism. Under the EPO's validation system, patent applicants would be able to designate the developing countries that opt to join as well as the EPO member countries. The initial fee for this additional designation would be retained by the EPO for its expenses, but subsequent annual renewal fees (over up to 20 years) would be transmitted to the developing country concerned. Developing countries would also be able to impose conditions on the granting of rights under the validation system, in line with their own national legislation (eg they could exclude patents for pharmaceuticals). As well as these formalised co-operation systems, developing countries are also able to seek assistance from WIPO's Patent Information Services (WPIS) for search and examination of individual patent applications[33].

The third option is membership of a regional industrial property system, where these exist[34]. There are currently four such regional industrial property organisations in the

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[31] Source: WIPO website.

[32] Source: WIPO website.

[33] Extract from the WIPO website: "WPIS provides a conduit for channeling search requests from a wide range of users in developing countries to the Industrial Property Offices of those countries who have agreed to assist in providing these searches. The searches are free to those requesting them. For some search requests, eg those from ARIPO, examination is also carried out. Since the start of the program in 1975, until the end of July 2001, almost 15,000 search requests have been processed free of charge from over 90 developing countries and 14 intergovernmental organizations and countries in transition. In the year 2000 1,315 search requests were received from 39 developing countries. These reports also covered special requests for novelty search and substantive examination as to the patentability of patent applications in developing countries as well as special requests for search and examination of patent applications submitted by ARIPO. In the early 1990s, the majority of requests came from users in the Asia and Pacific region; more recently users from Latin American countries are more active."

[34] The information in this section is based on the submission from Dr Konstaninos Karachalios of the European Patent Office available at www.iprcommission.org/meetingsSubs.asp?primary=24

developing world. In Eastern Europe and Central Asia, the Eurasian Patent Office has 9 member states, including low-income countries like the Kyrgyz Republic, Tajikistan, Azerbaijan and Armenia. In the Arab region, the Gulf Co-operation Council Patent Office (GCCPO) includes 6 member countries (but not Yemen, the only LDC in the region). Within the African region, there are two regional industrial property organisations: OAPI and ARIPO which have 16 and 15 member states respectively (we discuss OAPI and ARIPO in more detail below). In addition, the six countries of the Andean Pact have developed common intellectual property legislation (though this is still administered individually by national governments) and there are ongoing efforts to deepen regional co-operation in the Caribbean (regional collective management of copyright) and in South-East Asia (a common filing system for trademarks).

Essentially, therefore, there are currently no regional industrial property administration organisations in Latin America, the Caribbean, Pacific, South Asia, or South East Asia. Indeed, as shown by Table 1, a majority of the LDCs (27 of 49) are currently not members of regional intellectual property organisations, although 12 of these are within the African region and so could potentially join OAPI or ARIPO, and Yemen could potentially join the GCCPO. At the same time, as the figure suggests, ARIPO and OAPI both play a significant role in the intellectual property administration of a large number of the poorest countries in the world. Both organisations also provide activities related to training, harmonisation and patent information dissemination.

Looking at OAPI and ARIPO in more detail, there are some importance differences that should be noted. OAPI is a regional industrial property system of mainly French-speaking countries that issues patent rights on behalf of, and in the name of, all of its member states (there is no system of country designations). OAPI member countries do not have national industrial property administration systems and their industrial property law is the OAPI system. OAPI is essentially a registering office for IPRs, with around 76 staff (25 of whom are professionals). ARIPO is a regional industrial property system of mainly English-speaking countries allowing the filing of one application for trademarks, patents or designs with effect in all designated Member States. ARIPO member states, however, still have their own national industrial property legislation and administration systems and membership of the protocols covering the different IPRs is optional (eg only 5 countries are currently members of the Banjul protocol on trademarks). ARIPO has just 26 staff (8 of whom are professionals), but has a small examination capacity with 3-4 highly professional examiners.

Largely as a result of these differences, OAPI handles more IPR applications than ARIPO (especially trademarks) because there is no national filing route for its member states. Consequently, OAPI is able to return a portion of revenues to its members (7.5% of its total revenues of 3.8 million euros in 1999), whilst ARIPO is still partly dependent on financial contributions from member states. Both ARIPO and OAPI, however, continue to be long-term recipients of substantial technical assistance from donor agencies, including WIPO, EPO and France's INPI, and each organisation has been able to undertake significant investment and training programmes in recent years. For

example, OAPI received technical assistance to a total value of 830,000euros in 1999 alone.

To conclude, given the institutional challenges and constraints facing many poor countries that we describe in Sections 3.1 to 3.5 above, the advantages of regional and international co-operation are apparent. At the same time, it also clear that the role of regional organisations is principally in the area of IPRs administration and this still leaves the requirement for national institutions to perform the important functions related to policy making, participation in international rule-making and enforcement of IPRs. Regional organisations, therefore, may complement, rather than wholly replace, an effective national intellectual property infrastructure. Moreover, at the present time, regional organisations do not exist in large areas of the developing world.

4. Technical co-operation programmes 1996-2001

In this section we examine the available evidence regarding the provision of intellectual property-related technical assistance to developing countries over the last 5 years in terms of the major donors and types of activities; the scale and coverage of technical assistance; and the effectiveness and impact of technical co-operation programmes in terms of the sustainable modernisation of the intellectual property infrastructure in developing countries. As we noted in Part 1, however, an important constraint in such an exercise is the lack of evaluation literature and meaningful information on key aspects of technical co-operation programmes (such as financial information) in the public domain.

Two general points regarding intellectual-property related technical co-operation with developing countries are of special significance and should be noted from the outset. First, under Article 67 of the TRIPS Agreement, developed country WTO Members are formally obligated to provide technical and financial assistance to developing countries and LDCs to facilitate the implementation of the TRIPS Agreement. Second, given what we have said in Section 2.2 above about the very low levels of IPR creation in poor countries, technical assistance related to strengthening intellectual property protection is unusual in that a significant share of the resultant direct benefits can be expected to go to foreign IPR holders – who are mainly from the developed countries. Of course, as we noted in Section 2.1, even the poorest countries may obtain some indirect benefits from modernising the intellectual property regime (eg through increased FDI flows and technology transfer), but these are less certain and likely to depend on a range of other factors.

This second point has considerable significance, we argue, for the financing of such technical assistance programmes in very poor countries, especially LDCs. In these countries, given their very low levels of human and economic development, priority is rightly being given to increasing ODA expenditures on basic health and education services for the poorest in order to meet the International Development Target of halving world poverty by 2015. Therefore, it is appropriate that the financing required for technical assistance aimed at modernising the national intellectual property infrastructure in these countries should normally be raised from IPR holders in the form of service user

fees. In fact, organisations like WIPO, EPO and the patent offices of some developed countries already adopt this approach to a large extent (eg WIPO's total projected income of 530 million Swiss francs includes fee revenues of over 455 million Swiss francs). Additional financing for assistance to LDCs, as we recommend below, could be relatively easily and equitably generated in this way: indeed, if PCT fees alone had remained at the level of the 1996-1997 biennium – rather than being substantially reduced – projected PCT fee income for the 2002-2003 biennium would have been 279 million Swiss francs higher (WIPO, 2001b).

Major donors and types of activities

As the annual submissions to the WTO TRIPS Council since 1995 reveal, most developed countries can be said to be providers of intellectual-property related technical assistance to developing countries (eg the European Union and its member states, the United States, Japan, Australia, Canada, New Zealand, Norway, and Switzerland). Developed countries provide technical and financial assistance to developing countries either bilaterally (sometimes through the national development co-operation agencies but mainly by national intellectual property offices) or multilaterally (through their contributions to the United Nations agencies and other international organisations, including the European Commission in the case of the 15 member states of the European Union). This makes it fairly complex to measure or quantify the scale of commitments by any individual developed country over a given period of time.

The principal international organisations involved in the provision of intellectual property-related technical assistance to developing countries are WIPO, EPO, the World Bank, UNDP and UNCTAD[35]. WIPO has around 60 full-time professional staff working in its Development Cooperation division (including the WIPO Worldwide Academy), whilst the EPO has about 40 staff in its Directorate for International Technical Co-operation. This makes them the most significant donor organisations in terms of human resources deployed in management of intellectual property-related technical co-operation activities. UNDP and the World Bank, in contrast, have devoted mainly financial resources, either directly to developing countries or via contributions to WIPO trust funds. UNCTAD advises some developing countries in accession to WTO on implementation of the TRIPS Agreement and undertakes research on intellectual property and development issues[36].

A number of other smaller organisations are also active in undertaking research and providing technical assistance to developing countries in the area of intellectual property.

[35] Under the WTO-WIPO co-operation agreement, much of the WTO's role in the explanation of the TRIPS Agreement etc is delegated to WIPO. The WTO Secretariat, of course, continues to provide invaluable advice to WTO Member States and observers on various matters.

[36] UNCTAD, in collaboration with the International Centre for Trade and Sustainable Development, is also currently implementing a project to provide developing countries with policy guidance on implementation of the TRIPS Agreement and on the upcoming reviews of the TRIPS Agreement. The project is financed by the UK Department for International Development.

For example, the South Centre in Geneva and the International Development Research Centre (IDRC) in Canada both have active policy research programmes. Also in Geneva, the Agency for International Trade Information & Co-operation (AITIC) provides information and support services for developing country WTO member states and observers (including those without permanent representation in Geneva), whilst the recently formed Advisory Centre on WTO Law (a new international organisation with financing from a number of countries) provides legal advisory services for developing countries in WTO matters generally (including the TRIPS Agreement) and in WTO dispute settlement in particular. In the area of collective copyright management, Kopinor, the Norwegian Reproduction Rights Organisation, provides assistance to collection societies in Africa with funding from the Norwegian government.

The types of technical assistance that have been provided by donor organisations fall into the following broad categories: (a) general and specialised training; (b) legal advice and assistance with preparing draft laws; (c) support for modernising IPR administration offices (including automation) and collective management systems; (d) access to patent information services (including search and examination); (e) exchange of information among lawmakers and judges; and (f) promoting local innovation and creativity (Lehman, 2000b). Training and human resource development, such as that provided through the WIPO Worldwide Academy for example, has been a major focus. More recently, assistance for automation of IPR administration in developing countries and regional intellectual property organisations has also become significant, including the WIPO Net programme[37] at an estimated cost of over 97 million Swiss francs between 2000 and 2005 (WIPO, 2001b). As most of the implementing agencies of intellectual property-related technical assistance (ie WIPO, EPO and developed country patent offices) do not have agencies in the field, short-term advisory missions and consultants are normally deployed in developing countries to plan, deliver and monitor programme activities.

Interestingly, in the countries that have received World Bank-funded assistance in this area (eg Brazil, Indonesia, Mexico), upgrading of the national intellectual property systems has sometimes been approached as one component of much broader programmes of policy reform and capacity building aimed at stimulating R&D spending and improving industrial productivity and competitiveness. Unfortunately, only a small number of such programmes have been undertaken and detailed evaluations do not appear to be available. Potentially, however, we see such programmes as providing a model approach for better integrating intellectual property reforms and related-capacity building within the broader national development plans and assistance strategies of poor countries.

Scale and coverage of technical assistance programmes

[37] WIPO Net will provide on-line services such as secure electronic mail, secure exchange of intellectual property data, hosting of national IPR agency websites, and Internet connectivity to 154 intellectual property offices around the world.

As we have noted above, providing an accurate picture of expenditures on technical assistance programmes across the developing world since 1995 has not been possible given the data we have been able to obtain. That said, it is possible to give some indication, in broad terms, of the scale and coverage of such programmes undertaken by some of the principal international organisations in recent years.

Beginning with WIPO, from the information in WIPO's bi-annual budget documents and our communications with the WIPO Secretariat, we estimate that between 1996-2001, WIPO's budgeted expenditure on development co-operation was 174 million Swiss francs (45 million in 1996-1997, 58 million in 1998-1999 and 71million in 2000-2001)[38]. However, it is not clear from these budget documents whether these figures indicate only WIPO's regular budget expenditure, or also include contributions to trust funds. For the 2002-2003 biennium, however, WIPO's expenditure on development co-operation is clearly budgeted at approximately 100 million Swiss francs, with around 20% of this in trust fund contributions from bilateral and multilateral donor agencies (Japan alone will contribute about 5 million Swiss francs)[39]. Note that a significant proportion of these expenditures (around 40% for 2002-2003) are staff-related expenses rather than programme costs, though of course WIPO staff are directly engaged in delivering and managing some technical co-operation activities. These budget figures for development co-operation do not include expenditure on WIPO Net, however.

Analysing the geographical distribution of these expenditures amongst developing countries is not possible with the data WIPO provides publicly. However, in broad terms, we note that WIPO's trust fund resources (usually country or region specific) are currently mainly concentrated on Latin America and Asia-Pacific regions. Moreover, we also note that, in the 2000-2001 biennium, WIPO's development co-operation budget allocation for Africa (the region with the largest number of LDCs) was around 7 million Swiss francs. At the country level, in the same period budget allocations for national programmes with African nations would typically have been in the range of 80-120,000 Swiss francs over 2 years.

A further useful indication of the scale and coverage of technical assistance to developing countries is provided by the information we obtained from the EPO regarding its own activities and those that are implemented by the EPO but financed by European Commission. For the period 1990 to 2005, the European Commission has committed over 30 million euros in programmes being implemented by the EPO across the developing world. About 4.5 million euros of this was for programmes in China alone and a further 9.5 million euros was allocated to countries in Eastern European. In addition, from its

[38] These figures represent the revised budget amounts taken from the WIPO documents for the following biennium and cover the following programmes only: Co-operation with Developing Countries; Co-operation with Certain Countries in Europe/Asia; and WIPO Worldwide Academy.

[39] Interestingly, Brazil is planning to contribute around US10 million over the next five years to a WIPO trust fund to finance the modernisation of its national intellectual property infrastructure.

own resources, EPO committed almost 19 million euros between 1996 and 2001, excluding the cost of EPO staff other than travel expenses.

Finally, financial data for the intellectual-property related components of three World Bank-funded programmes undertaken in the 1990s is provided in the Bank's submission to the TRIPS Council in 1999. In Brazil, US$4 million was earmarked for intellectual property-related capacity building programmes from a World Bank loan of US$160 million for the ministry of science and technology programme. In Indonesia, the cost of the IPR component of the Infrastructure Development Project was US$14.7 million. Finally, in Mexico, the World Bank provided US$32.1 million for a programme to improve IPR administration, automation and enforcement.

Effectiveness and impact

Given the lack of evaluation literature, it is beyond the scope of this study to comment authoritatively on the impact and effectiveness of technical co-operation programmes undertaken by the various donor organisations in specific countries or regions. It is important for ensuring effectiveness and value for money, however, that donors undertake such evaluation exercises – individually and collectively – as a routine activity within the programme management cycle. We therefore salute the initiative of WIPO in recently establishing an Office of Internal Oversight, which has undertaken some small pilot evaluations exercises of technical co-operation activities, and encourage the organisation to devote sufficient resources for the unit to be able to fulfil its mission effectively. Notwithstanding the above, based on our experience and the evidence we have been able to review for this study, there are a number of broad remarks that can be made.

On the one hand, it is clear that there have been some considerable achievements in the last 5-10 years in terms of modernising the intellectual property infrastructure and developing the associated human resources in the developing world. Large numbers of people, from a variety of professional backgrounds, have received general and specialised training in intellectual property subjects. Equally, many developing countries have over-hauled their intellectual property legislation and have taken advantage of international co-operation mechanisms like the PCT and Madrid systems to make important efficiency gains and provide improved service levels. Thanks to these achievements, and to increasing automation of IPR administration, developing countries are now processing effectively more applications for all forms of industrial property rights. Perhaps the regions where there has been the biggest impact are Latin America and Eastern Europe, but there has also been significant development of institutional capacities in other developing countries like China, Morocco, Vietnam, Trinidad, and India, as well as in the regional intellectual property organisations. At the same time, many low-income countries, and particularly LDCs, still face considerable challenges in developing their intellectual property infrastructure and there are important issues for the financing, design and delivery of technical co-operation to these countries that need be addressed.

First, more finance for the necessary institutional reforms and capacity building in poor countries, to be raised primarily from IPR holders, needs to be brought on stream as many of these countries struggle to implement the TRIPS Agreement over the next few years. This will take time to come into effect, and some LDCs may well need the extended transitions period available to them under Article 66.1 of the TRIPS Agreement in order to implement their intellectual property system modernisation programmes in a financially sustainable manner (this should also apply to LDCs acceding to the WTO, like Vanuatu for example). As the World Bank recently said:

> "While some assistance is on offer now, it is insufficient for the major job of reforming IPRs administration. The current approach, whereby grants are made to such organisations such as WIPO and UNCTAD for undertaking specific projects, is inadequate given various bureaucratic constraints." (World Bank, 2002)

Second, design and delivery of intellectual property-related technical assistance to developing countries can also be improved. At times, technical assistance activities have not been well co-ordinated by the multiple donors involved (our Vietnam case study, for example, showed that 8 different donor agencies had provided assistance in the country between 1996 and 2001), or by the countries that are receiving such assistance, resulting in duplication of efforts or, at worst, conflicting advice. More positively, there is much *ad hoc* co-operation between donors and some good instances of more formalised collaboration (eg the WIPO-WTO co-operation agreement). Donors should build on these successes. A key step towards improving donor co-ordination and delivering comprehensive assistance programmes, integrated within the national development strategies, is to incorporate intellectual-property related technical co-operation fully under the Integrated Framework for Trade-Related Technical Assistance for LDCs.

Third, in some of the consultations we undertook and the literature we reviewed, there were concerns expressed regarding the role of donors in providing advice and technical assistance to developing countries for reform of intellectual property legislation. In the words of Peter Drahos (2001):

> "The provision of draft laws and legal advice to developing countries carries with it a burden of moral responsibility. LDCs in particular do not have local experts to evaluate the suitability of model international laws to local economic, social and cultural conditions. LDCs often lack drafting expertise and are reliant upon outside legal drafters, who may be brought in from those western legal systems to which the LDC has historical links as consultants or on contract basis for a set period. The problem is especially acute in the case of intellectual property since there are very few people who possess both the specialised technical skills of legislative drafting, as well as expertise in intellectual property law."

Even if these concerns are not justified, and we have not been able to review sufficient evidence to make a definitive judgement, they demonstrate the potential sensitivity of this area of domestic regulatory policymaking in developing countries. As poor countries will continue to depend on technical assistance in this area for some time to come, particularly as they proceed with implementation of the TRIPS Agreement, donors need to develop mechanisms and strategies to respond positively to these concerns. In this regard, valuable lessons can be drawn from the recent OECD-DAC Guidelines for

Strengthening Trade Capacity for Development, which dealt with some similar issues regarding provision of trade-policy related technical assistance by donors to developing countries.

Finally, in order to address these new challenges, donors and developing countries need to find new ways of working together better. In particular, better use should be made of the existing institutional mechanisms, at the national, regional and international levels, for understanding the intellectual-property related capacity building needs of poor countries, for sharing information on technical assistance projects, and for undertaking collaborative sector-level reviews as a part of a continuous elaboration of best practice.

5. Recommendations

To address the issues and problems we have identified in the earlier sections of this paper we propose the following recommendations:

a. Developing countries should establish a single institution responsible for IPR administration, either as semi-autonomous agency or government department operating on a trading account basis, under the supervision of a suitable government ministry. As well as IPR administration, the institution should be responsible for providing policy and legal advice to the government on all matters relating to intellectual property (in conjunction with other concerned ministries and agencies); liaison with the enforcement agencies and competition regulators (including providing training and advice as required); expert representation in international organisations and rule-making; and co-ordination of public awareness and consultation programmes regarding intellectual property subjects.

b. Developing countries should ensure that their intellectual property legislation and procedures emphasize, to the maximum possible extent, enforcement of IPRs through administrative action and through the civil rather than criminal justice system. To address the enforcement of copyright infringement in particular in low-income countries, responsibility should lie with rights holder organisations to increase their co-operation with the enforcement agencies and to agree with national governments appropriate cost-recovery mechanisms for any large-scale anti-counterfeiting operations and public awareness campaigns undertaken by government agencies.

c. Developing countries should aim to recover the full costs of upgrading and maintaining all aspects of the national intellectual property infrastructure through national IPR registration and administration charges. A tired-system of fees should be employed and fee levels regularly reviewed. IPR administration agencies should generally only offset one-time and recurrent expenditures with revenues from such charges, but a fixed percentage of revenue income should be returned to the government's consolidated fund each year as a contribution towards IPR enforcement costs.

d. Developing countries should seek to exploit the maximum possible benefits in terms of cost reduction and administrative efficiency from existing regional and international co-operation mechanisms (such as the PCT and the Madrid system). LDCs and small developing countries in particular should adopt a patent registration regime and should make use of the verification systems offered by the international search and examination authorities such as the EPO and others. Countries within the African region, particularly the LDCs, should give serious consideration to becoming full member states of ARIPO or OAPI.

e. Like-minded countries and donors should also re-double their efforts to support high-level dialogue on new regional and international co-operation initiatives in IPR administration, training and IPR statistical data collection involving developing countries. Donors should stand ready to provide substantial technical and financial assistance to support such initiatives, particularly over the short term as cost-recovery mechanisms are developed, not least because they offer excellent opportunities for scale economies in the delivery of region-based technical assistance, training and IPR statistical data collection.

f. Developing countries should encourage policy research and analysis on intellectual property subjects in the national interest (eg protection of plant varieties; traditional knowledge and folklore; technology transfer etc) within academic organizations, policy think-thank institutes and other stakeholder organizations in civil society that can contribute to the intellectual property policy and legislative development processes. To support these efforts and channel technical and financial assistance, a Preparatory Group of donors and developing countries should be formed to examine the feasibility of establishing a Foundation for Intellectual Property and Development Research, either as a new entity or under an existing non-governmental organisation, based in Geneva. The UK Government should initiate discussion with like-minded countries and donor organisations such as WIPO and the World Bank on the formation of the Preparatory Group and should provide funding for the completion of a feasibility study and other preparatory work.

g. Delivery of technical and financial assistance to IPR administration institutions in low-income countries should be through multi-year, broad-based programmes. They should cover support for one-time expenditure such as premises, automation, equipment, communications, staff training, consultancy support, international travel, public awareness raising programmes, patent information systems, website development (linked to WIPONET), policy research and legislation development. Financial sustainability of such institutions should be a key objective from the outset. Where a recurrent budget deficit is projected before sufficient revenues from cost-recovery come on stream, non-staff recurrent cost support should be provided for an agreed period under enhanced monitoring arrangements.

h. In order to meet the special needs of LDCs in developing the modern intellectual property regime and wider institutional infrastructure they require, WIPO, EPO and developed countries should plan to commit US$100 million in technical and financial

assistance specifically to LDCs over the next 5 years, raised though income from IPR service user-fees. To facilitate better integration with national development plans and donor assistance strategies, the planning, delivery and management of this assistance should be fully incorporated within the Integrated Framework for Trade-Related Technical Assistance to LDCs.

i. To take forward recommendation (h) above, the UK Government should quickly move to propose that WIPO and EPO be formally invited to join as donor agencies of the Integrated Framework alongside the World Bank, UNDP, UNCTAD, WTO, and ITC. Developed countries should also review their participation as donor agencies in the Integrated Framework, with a view to increasing the contribution of their national IPR offices. Both EPO and WIPO (and ideally developed country national IPR offices also) should then each make an initial contribution of US$1.5 million to the Integrated Framework Trust Fund as soon as possible to enable consideration of intellectual property-related capacity building needs within those pilot country diagnostic studies that have already been prepared and for the next wave of pilot country diagnostic studies to be undertaken.

j. To streamline donor co-ordination, UNDP, the World Bank and UNCTAD should co-operate with EPO, WIPO and developed country agencies in implementation of intellectual-property related programmes under the Integrated Framework. To facilitate effective management between the agencies and national governments on the ground in LDCs, a portion of the WIPO and EPO contributions to the Integrated Framework Trust Fund should be used to fund the provision of up to 6 Field Managers, to based in selected UNDP or World Bank missions in Africa (4), Asia (1) and the Pacific (1).

k. WIPO should make funds available to cover the travel, accommodation and subsistence expenses of two representatives from all LDC Member States or Observers of WIPO or WTO to participate in all WTO TRIPS Council meetings and in those meetings at WIPO which such countries are eligible to attend. In addition, along with other donors, WIPO should make a commitment to contribute through technical support and financial aid to initiatives being planned or undertaken by other international organisations for developing countries without permanent representation in Geneva (eg AITEC). To complement these initiatives, the UK Government, through the Department for International Development (DFID), should expand its current support to UNCTAD's TRIPS-related capacity building project to include provision for a full-time post of Intellectual Property Adviser to developing countries' delegations in Geneva (the funding should also cover associated resources along the lines of DFID's support for the UNCATD GATS Adviser post).

l. To improve monitoring of technical co-operation provided to developing countries under Article 67 of the TRIPS Agreement, all developed countries and the relevant international organisations should include summary financial information and evaluation results in their annual submissions to the WTO TRIPS council. Based on

this data, the WTO Secretariat should prepare and update a summary matrix showing technical co-operation activity for all developing countries and LDCs.

m. WIPO should strengthen the present systems for monitoring and evaluation of its development co-operation programmes. A rolling programme of external impact-evaluations should be undertaken and published, commencing with a review of WIPO training activities including the WIPO Worldwide Academy. At the same time, the structure and organization of WIPO's Permanent Committee on Development Co-operation should be examined, with a view to enabling it to provide more effective strategic oversight of development cooperation. As initial tasks for a re-organised Committee, Working Groups under its auspices should be established to steer the evaluation programme and to develop detailed due-diligence and procedural guidelines for the Secretariat in the provision of assistance to developing countries for reform of domestic intellectual property legislation.

n. With a view to encouraging best-practice and better co-ordination amongst donors, a work programme on Guidelines for Modernising Intellectual Property Systems for Development should be established under the auspices of the OECD Development Assistance Committee, commencing 2003. The work programme would be undertaken by the OECD Secretariat in conjunction with a Steering Group of experts from donors and developing countries and should be based on a series of case studies on different developing countries/regions. The output of the work programme would be a set of detailed DAC guidelines for improving the delivery of intellectual property-related technical co-operation but the process in itself would also be useful in improving dialogue and information sharing. The UK and other countries should contribute funding for this initiative and should offer to send suitable representatives to the Steering Group.

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