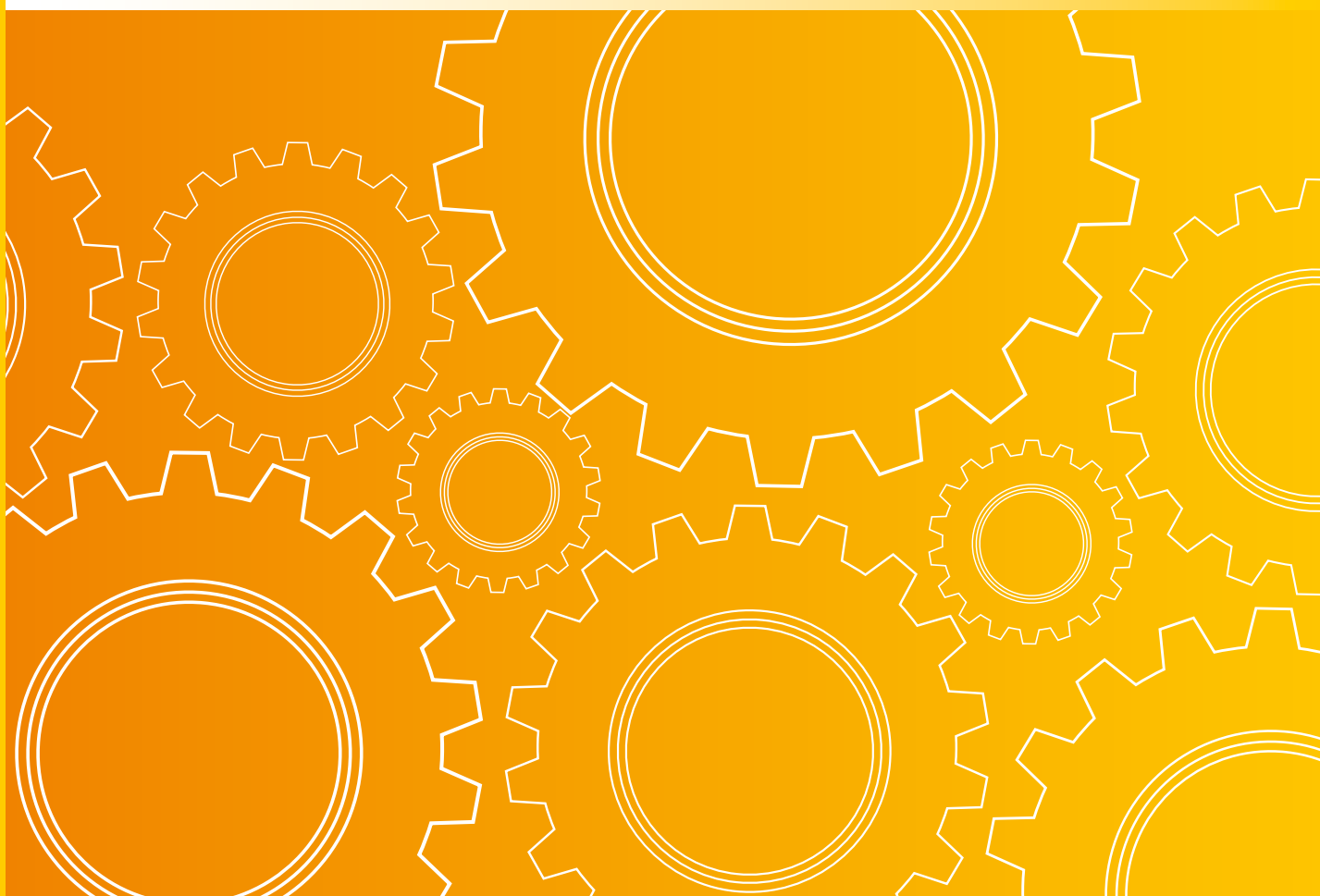


Methodology for the Development of National Intellectual Property Strategies

Toolkit

Tool3: Benchmarking
Indicators



2014

Methodology for the Development of National Intellectual Property Strategies

Tool 3: Benchmarking Indicators

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LIST OF ABBREVIATIONS

APSA	Asia and Pacific Seed Association
ARIPO	African Regional Intellectual Property Organization
ASEAN	Association of Southeast Asian Nations
ASTA	American Seed Trade Association
BASCAP	Business Action to Stop Counterfeiting and Piracy
BST	Baseline Survey Tool
CAD	Computer-Aided Design
CBD	Convention on Biological Diversity
CEIPI	Center for International Industrial Property Studies
CGIAR	Consultative Group on International Agricultural Research
CIPTC	China Intellectual Property Training Center
CMO	Collective Management Organization
CSIR	Council for Scientific and Industrial Research
DANIDA	Danish International Development Agency
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
HSP	Hsinchu Science Park
ICT	Information and Communication Technology
IGC	Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore
IP	intellectual Property
IPE	Investment Pensions Europe
IPIC	Intellectual Property Institute of Canada
IPO	Intellectual Property Office
IPOS	Intellectual Property Office of Singapore
IPR(s)	intellectual property right (rights)
ISF	International Seed Federation
ISP	Internet service provider
ISTA	International Seed Testing Association
ITU	International Telecommunication Union
JAMPRO	Jamaica Promotions Corporation
JIPO	Jamaica Intellectual Property Office
JPO	Japan Patent Office
KECOBO	Kenya Copyright Board
KEPHIS	Kenya Plant Health Inspectorate Service
KIPI	Kenya Industrial Property Institute

KIPO	Korean Industrial Property Office
KRA	Kenya Revenue Authority
LDCs	Least Developed Countries
MDGs	Millennium Development Goals (of the United Nations)
MIP	Masters Degree in Intellectual Property
MIT	Massachusetts Institute of Technology
NCIPIT	National Center for Industrial Property Information and Training
NGOs	Non-Governmental Organizations
NOTAP	National Office for Technology Acquisition and Promotion
PBRs	Plant Breeders' Rights
PIDC	Patent Information and Documentation Centre
PIOJ	Planning Institute of Jamaica
PIS	Patent Information System
PMAN	Performing Musicians Association of Nigeria
PVR	Plant Variety Rights
R&D	Research and Development
RTO	Research and Technology Organization
SME	Small and Medium-Sized Enterprise
STATIN	Statistical Institute of Jamaica
STEM	Society of Technology Management
STI	Science Technology and Innovation
SUNY	State University of New York
TK	Traditional Knowledge
TOP	Temporary Entrepreneurial Positions
TRIPS	Trade-Related Aspects of Intellectual Property Rights
TSMC	Taiwan Semiconductor Manufacturing Company
TTO	Technology Transfer Office
UK	United Kingdom
UMC	United Microelectronics Corporation
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNISA	University of South Africa
UPOV	Union for the Protection of New Varieties of Plants
USA	United States of America
USPTO	United States Patents and Trademarks Office
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

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CHAPTER 1

INTRODUCTION

1.1. Introduction

The first step in the process of developing a national intellectual property (IP) strategy involves carrying out a baseline survey to ascertain the current status of the IP system, in order to identify areas where the IP system is strong and performing well, and also identify areas where the IP system is weak and needs to be strengthened or reinforced. To assist the baseline survey implementation process, WIPO has developed a baseline survey questionnaire. The questionnaire is designed to address the following seven cluster categories:

1. Administration and management of IP.
2. Generation of IP by universities, research organizations, businesses, industries, SMEs and individuals.
3. Commercialization of IP and technology transfer by universities, research organizations, businesses, industries, SMEs and individuals.
4. Copyright and copyright industries.
5. Plant variety rights and seed industries.
6. Enforcement of IP rights.
7. IP and public policy.

Each cluster section in the baseline survey tool (BST) contains indicators, as well as questions which are designed to assist the process of reviewing the indicators. The BST is aimed at those directly involved in the operation and use of the national IP system – those who can provide vital information in relation to IP laws, administration, enforcement, relationships with other policies and national objectives, and the creation and/or utilization of IP. Respondents may include government officials who deal with the enactment of IP laws or with the processing of applications for IP rights, IP dispute lawyers, enforcement officials, business support organizations, inventors working in the public sector or the private sector, or business people who use IP in some way. Respondents may also include professionals working in the private sector or in government, and organizations which are involved in the development of innovative business and commerce.

1.2. Purpose of this publication

This publication is designed to support the BST. It provides clarifications and explanations on the indicators used in the

BST – indicators which are important to take into consideration during the baseline survey and strategy formulation process. Specifically, the publication explains the importance of each indicator and, where possible, presents examples from other countries for illustrative purposes. Clarifications, explanations and discussions on benchmarking indicators are provided in order to assist the national team in their understanding of the options available when setting objectives; such clarifications and explanations are also provided in order to create greater understanding of certain factors and issues which the team will need to consider when making specific decisions on targets.

1.3. How to use this publication

This publication is not a textbook on IP or IP strategy development. Neither is it a reference book containing statistics and examples of best practices. Examples from various countries are provided mainly for illustrative or explanatory purposes, and are not necessarily examples of best practice. This publication is therefore designed for use by the national team, as a tool to:

1. Explain terminologies and concepts that may not be familiar to all members of the national team.
2. Inform the team on what developments are taking place elsewhere.
3. Be used as a guide when making decisions on benchmarking.
4. Be used as a guide when making decisions on objectives and activities.
5. Be used as a guide or source of information when conducting a baseline survey.
6. Be used as a source of information during national consultations, and
7. Help in briefing decision-makers on the importance of IP.

1.4. Scope of this publication

This publication is divided into seven chapters. With the exception of the introduction in Chapter One, each of the remaining six chapters deals with a specific cluster, listing the indicators involved and providing explanations for each of the indicators.

CHAPTER 2

ADMINISTRATION AND MANAGEMENT OF INTELLECTUAL PROPERTY

2.1. Legal status of a national IP office

The national IP office carries out the administration and management of intellectual property rights (IPRs) in that country. It has both the physical and legal infrastructure and the human resources required to administer and manage IP-related issues.

Based on the experiences of most developed countries and least developed countries, the following are some of the challenges that frequently face IP offices:

- a. **Autonomy** – Many IP offices which are departments within government ministries are striving to gain autonomy in order to enhance their performance and visibility.
- b. **Regional presence** – Most IP offices are located in capital cities, and have little presence outside the capital. This means that people who are located in the regions, and who are seeking IP services, must travel from the regions to the capital in order to secure such services. This drawback affects both the quality and the efficiency of service delivery.
- c. **Backlog of IP applications** – Whereas most countries have made significant progress in the area of automation and modernization of IP registration processes, some countries still have manual IP registration processes; this leads to long processing times and backlogs.
- d. **Weak outreach programs** – Very few countries have put in place effective outreach programs to educate the public on the importance of IP.
- e. **Focus on protection** – In the past, most offices have focused on the protection of IPRs, and have paid little attention to the economic utilization of IP assets.
- f. **Inadequate human resources** – national IP offices which function as divisions within government departments consistently cite human resources as an area that poses a major challenge. In addition to offering IP-related services, national IP offices provide other legal services in the government departments with which they are associated. From time to time, staff members with good IP experience may be transferred to another division within a government department – a division which deals in matters unrelated to IP services.
- g. **Combining protection with enforcement** – In certain cases, IP offices also undertake the enforcement of IPRs. Due to limited human resources, the provision of this service is inadequate.
- h. **Lack of capacity to carry out substantive examination** Most national IP offices lack the technical skills required to carry out substantive examination of patent applications and therefore they are overly reliant on other regional IP offices to provide this service; as a consequence, the time required to grant/reject patent applications increases.

In order to strengthen the administration and management of IP, the following 13 indicators are considered important, and are discussed in this chapter:

1. Legal status of the national IP office.
2. Autonomy of the national IP office.
3. Key functions of the national IP office.
4. Staffing of the national IP office and human resources development plan.
5. Formal and substantive examination.
6. Automation and modernization of the national IP office.
7. IP applications and grants.
8. National laws on IP.
9. IP tribunal.
10. Compliance with Trade-Related Aspects of Intellectual Property Rights (TRIPS).
11. Use of flexibilities in TRIPS (compulsory licensing and parallel importation).
12. Compliance with international agreements, treaties and protocols.
13. IP registration professionals (attorneys and agents).

2.2. Roles, functions and structure of a national IP office

2.2.1. Legal status

There are many different types of IP offices. Some are divisions within a government department; some are departments within a government ministry, while others are either semi-autonomous or fully autonomous organizations. In most cases, the IP offices' operating structures are defined in the laws on which the establishment of such offices was originally based. (See Box 1 and Box 2 for examples).

Box 1 – Kenya Industrial Property Institute¹

Kenya Industrial Property Institute (KIPI) is a Government parastatal under the Ministry of Trade and Industry. The Institute was established on May 2, 2002 after the Industrial Property Act came into force in 2001. Prior to this, the Institute operated as the Kenya Industrial Property Office (KIPO), which was established in February 1990 after the enactment of the Industrial Property Act, CAP 509 of the Laws of Kenya. The Institute operates under the supervision of a board of directors. The board has the mandate to monitor the performance of the Institute as prescribed by the Industrial Property Act 2001. The Institute is headed by a managing director who is responsible for the day-to-day management of the affairs of the organization.

2.2.2. Autonomy

The degree of autonomy that is exerted by the national IP office is demonstrated by the extent of the value that the country places on the promotion of IP. Autonomy is determined by factors such as the fact that the national IP office:

- a. Has a board of directors, which is in charge of policy and overall governance (performance, staffing, financial and legal issues);
- b. The office can charge for services and retain the income generated;
- c. The office can recruit, train and retain staff according to its requirements;
- d. Can sue or be sued; and
- e. Can enter into partnership with other organizations.

Box 2 – The intellectual Property Office of Singapore²

In April 2001, the Intellectual Property Office of Singapore (IPOS) was constituted as a self-funding statutory board operating under the aegis of the Ministry of Law. IPOS is the lead government agency advising on and administering IP laws; it also promotes IP awareness, and provides the infrastructure to facilitate the development of IP in Singapore. With IP fast becoming a critical resource in today's economy, IPOS is committed to maintaining a robust and pro-business IP regime for the protection and commercial exploitation of IP.

2.2.3. Scope of the national IP office

The following are three possible arrangements which a country may adopt in terms of the management and administration of various IP rights:

- a. An IP office that administers either industrial property rights or copyright and related rights;
- b. An IP office that deals with both industrial property and copyright and related rights;
- c. An IP office that deals with all three main IP rights – industrial property, copyright and related rights, and plant breeders' rights.

2.2.4. Expanded role of national IP offices

Box 3 – Functions of a modern IP office

- a. **IP registration and protection;**
- b. **IP outreach services;**
- c. **Promotion of innovation;**
- d. **Promotion of IP utilization;**
- e. **Ensuring compliance with international treaties and agreements;**
- f. **Supporting enforcement activities.**

Traditionally, national IP office functions have focused on IP protection and the granting of IP rights. Today, however, many IP offices are re-examining their role, and are expanding the scope of their operations. Some experts argue that a modern national IP office should be the focal point for the administration and management of all IP issues in that country, as Box 3 and Figure 2.1 illustrate.

1 Official website - <http://www.kipi.go.ke/index.php/about>

2 Annual Report 2010-2011
http://www1.ipos.gov.sg/apps/IPOS_2010_2011_AR/index.html

Role of a modern IP office (IPO)

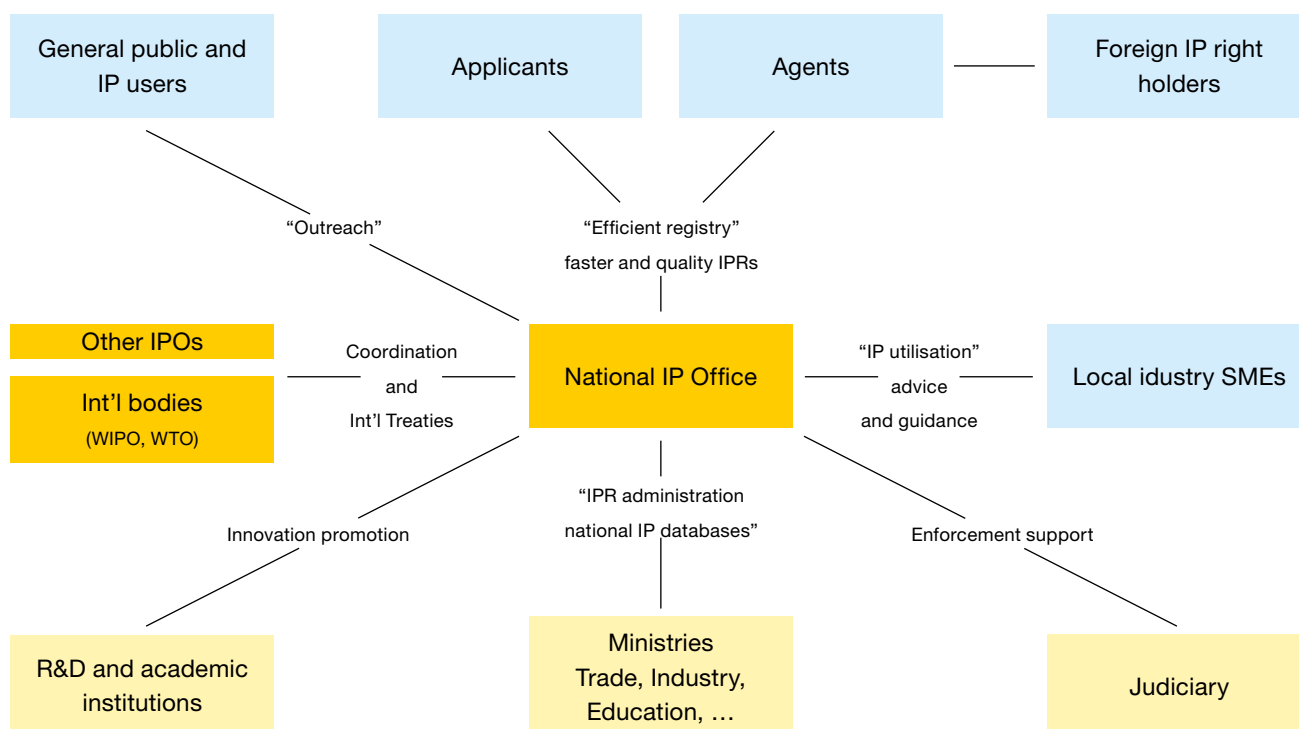


Figure 2.1: Possible functions of a modern IP office

2.2.5. Example – Korean Intellectual Property Office (KIPO)

The Korean Intellectual Property Office (KIPO)³ is responsible for the administration of patents, utility models, industrial designs, and trademarks:

- a. **Protection** The examination and registration of IPRs (for patents, utility models, trademarks, and industrial designs);
- b. **IP tribunal** Conducting hearings on IP disputes;
- c. **IP information** The management and dissemination of information on IPRs;
- d. **IP awareness** The promotion of/creation of public awareness of invention activities;
- e. **International obligations** The promotion of international cooperation on IPRs; and
- f. **Training** The training of experts on IPRs.

In order to enable it to deliver these services, KIPO operates several other bureaus, including the Intellectual Property Tribunal and the International Intellectual Property Institute.

2.2.6. Formal and substantive examination

Some IP offices undertake formal examination only, and they outsource substantive examination to other offices, including regional IP offices. For example, IP offices in most English-speaking African countries undertake formal and substantive examination of trademark applications, but only a few of these offices undertake substantive examination of patent applications, due to staffing constraints and the small number of patent applications received. Instead, they outsource these services to the African Regional Intellectual Property Organization (ARIPO).

Accordingly, as the number of applications grows, a country may consider introducing its own substantive examination procedures.

³ Official website of KIPO
<http://www.kipo.go.kr/kpo/user.tdf?a=user.eng.main.BoardApp>

2.3. Automation and modernization of a national IP office

2.3.1. Introduction

Box 4 – Shortcomings of manual processing of IP registrations

- a. **Inefficient, slow and time-consuming;**
- b. **Tedious and cumbersome;**
- c. **Missing or lost files;**
- d. **Paperwork and waste of paper;**
- e. **Mistakes and inaccurate recording of information;**
- f. **Weak data management and analysis.**

As referred to earlier in this document, one of the major problems in most national IP offices is the low level of efficiency experienced in the processing of ip applications, which, in turn, is a direct consequence of manual operations and procedures. Most IP offices started out with (or still retain) manual systems, which have several shortcomings (see box 4). These shortcomings result in long processing times and backlogs. Most national ip audits contain records of major complaints from customers about the slow processing of IP applications, backlogs and bureaucracy. National IP offices which have automated their IP processes and procedures have reported tremendous improvements in service delivery and income; consequently, national IP offices which have not implemented such systems may wish to make this one of their national ip strategy priorities.

2.3.2. WIPO Program For Providing IP Automation Assistance

To address the problems highlighted in section 2.3.1., many IP offices in developing countries have made the automation of their business processes a top priority, and many of these offices turn to WIPO for assistance in this regard⁴. In 2001, WIPO launched a program aimed at providing automation assistance to enhance the efficiency of IP registration activities through the simplification and automation of business processes. The program supports small

to medium-sized IP institutions (offices) in over 130 developing countries. Automation assistance to these institutions covers areas including advice and guidance; needs assessment; infrastructure upgrading; customized automation solutions for training; knowledge transfer and technical support. WIPO's automation assistance strategy takes into account the wide disparity between the number of offices seeking support and the available resources, the nature and volume of work in individual IP offices; national IP laws; national IP office rules and work procedures; the level of technology available in a given country; the existing level of automation in a given IP office, and its capacity to deploy and maintain an automated system in a sustainable manner. Among the countries that have benefitted from the WIPO automation program in Africa are Botswana, Kenya and Sierra Leone.

The WIPO automation program focuses on leveraging knowledge, expertise and best practices in WIPO and in other IP offices internationally. The training of national IP office staff during and after project implementation provides the capacity-building and knowledge transfer necessary to ensure the sustainability and ownership of automation systems by the national IP offices. The strategic approach also includes a post-implementation evaluation to measure the impact of automation on the IP office. The lessons learned are used to refine subsequent assistance activities.

The program covers all aspects of automation assistance for the different types of offices dealing with trademarks, patents and industrial designs, in addition to the collective management of copyright and related rights. Assistance is provided in response to a request by the national IP office. Typically, it covers the pre-deployment, deployment and post-deployment stages of the automation project. (See Box 5 for update on the impact of the program, and see Box 6 and Box 7 for individual country examples.)

Box 5 – Update on the impact of the WIPO automation program

Since the WIPO automation program was established, approximately 350 assistance activities have been provided to 75 developing countries. This has included providing inputs at seven regional and expert workshops. By 2010, 50 IP institutions had been automated using WIPO-standard automation solutions⁵. These systems have made a significant positive impact on the daily work and efficiency of these institutions, as evidenced by some of the post-deployment evaluation indicators.

⁴ http://www.wipo.int/ip-development/en/automation/ip_institutions.html
⁵ http://www.wipo.int/about-wipo/en/dgo/pdf/dg_report_a49.pdf

⁶ Ben Sihanya, *Business modernization of IP institutions in Kenya and Africa: use of information technology in IP management*. Available at http://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ipa_ge_08/wipo_ipa_ge_08_theme07_3.pdf

Box 6 – IP automation at the Kenya Industrial Property Institute⁶

Automation of the registration process in the Kenya Industrial Property Office has led to:

- a. Simplification of IP administrative and business procedures;
- b. Faster processing of applications;
- c. Improved accuracy of data;
- d. Faster and more reliable examinations and searches;
- e. Increased number of files examined;
- f. Reductions in backlogs, due to faster processing of work;
- g. Speedy and timely generation of receipts, notifications, and certificates;
- h. Faster, cheaper and simplified generation and publication of the official gazette notices and journals;
- i. Improved and secure communication with internal users, such as communication between examiners; and,
- j. Timely dissemination of IP information to the relevant stakeholders.

Box 7 – IP automation in India⁷

Establishment of electronic procedures from filing to grant has led to:

- 26,000 publication backlogs cleared
- Automatic publication of searchable journals introduced, resulting in easy access to patent data;
- Automatic publication of grant on issue of letter of patent;
- Application status made available online.

In addition, the following successes were achieved:

- Filing of applications for patents increased from 4,800 (1999-2000) to 39,400 (2010-2011);
- Filing of applications for trademarks increased from 40,000 (1999-2000) to 179,000 (2010-2011);
- Average time for examination decreased as follows: patents from four to five years (previously) compared with two to three months (afterwards); trademarks from two to three years (previously) compared with three to six months (afterwards);
- Filing of applications and the publication of journals for application changed from manual filing to e-filing and e-publication, respectively.

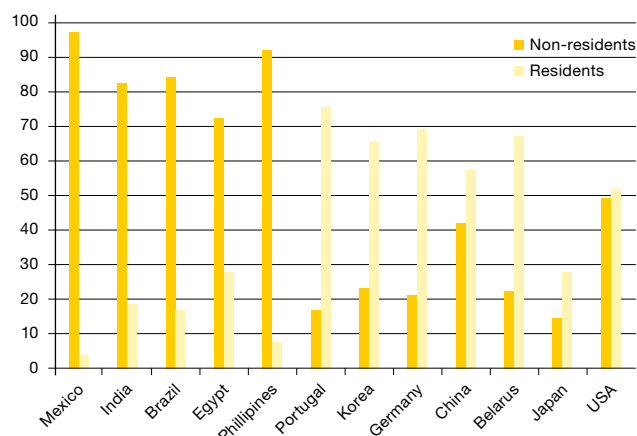


Figure 2.2: Patent applications from residents and non-residents (%)

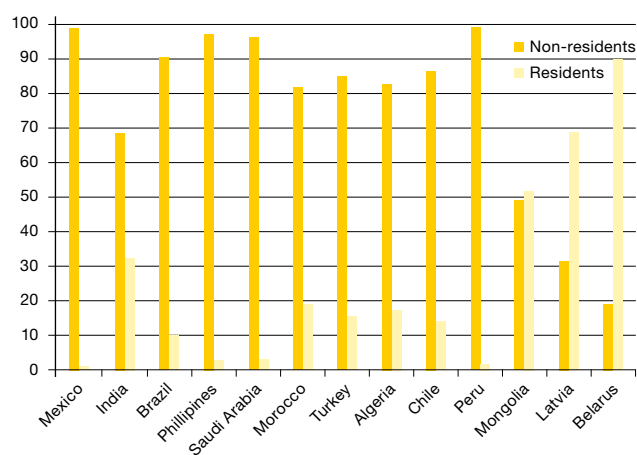


Figure 2.3: Patent grants to residents and non-residents (%)

2.4. Number of IP applications and grants (%)

It is important to consider the following three indicators:

1. In most developing countries, both the number of IP applications and the number of IP rights granted is extremely low compared with the situation that applies in developed countries.
2. Of the applications received and IP rights granted in developing countries, the number of applications from locally-based individuals/companies is lower than the rate of applications from foreign-based individuals/companies (see figures 2.2 and 2.3).
3. The success rate of applications from locally-based individuals/companies, (defined as the ratio of IP grants to the number of IP applications in a given period), is very low compared with those from foreign applicants. This is mainly due to the low quality of IP drafting.

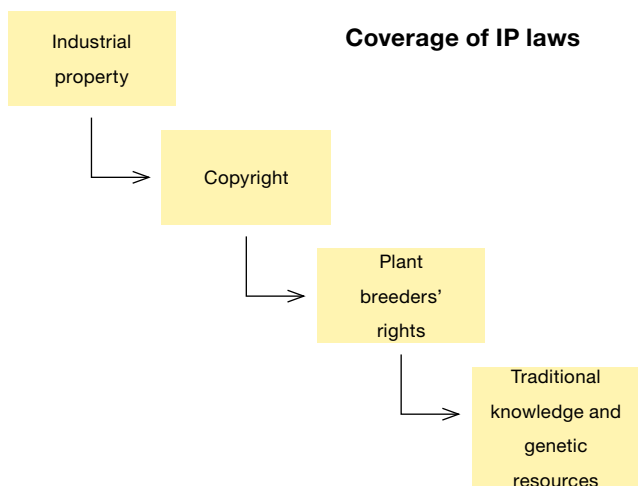
⁷ Dhurane WM, "National IP Strategy, India" in WIPO Regional Symposium on National IP Strategies, November 9-10, Beijing China 2011

2.5. National IP laws

2.5.1. Scope of IP laws

This indicator measures the extent to which IP laws are developed in a country. It measures the presence or absence of laws covering the following IP rights:

Patents



A patent is an exclusive right granted for an invention⁸. The term “invention” refers to a product or a process that provides a new way of doing something, or offers a new technical solution to a problem. A patent provides the owner of the patent with protection for the invention. The protection is granted for a limited period, generally 20 years. Patent protection means that the invention cannot be commercially made, used, distributed or sold without the patent owner’s consent. These patent rights are usually enforced in a court. A court has the authority to stop patent infringement. A patent owner has the right to decide who may or may not use the patented invention for the period in which the invention is protected. The patent owner may give permission to, or license, other parties to use the invention on mutually agreed terms. The owner may also sell the right to the invention to someone, who will then become the new owner of the patent.

Patents provide incentives to individuals by offering them recognition for their creativity, and material reward for their marketable inventions. These incentives encourage innovation, which in turn ensures that the quality of human life is

continuously enhanced. In return for patent protection, all patent owners are obliged to publicly disclose information on their invention, so as to enrich the total body of technical knowledge in the world. Such an ever-increasing body of public knowledge promotes further creativity and innovation in others. In this way, patents provide not only protection for the owner but valuable information and inspiration for future generations of researchers and inventors.

Utility model

The utility model (also known as petty patents or utility innovation) is an idea that does not meet all the requirements of patentability but has an industrial use (KIPO, 1998). The inclusion of utility models in the IP system in some developing countries has the primary objective of encouraging rapidly evolving indigenous innovativeness, particularly in small and medium-sized enterprises, and also in the informal sector. A list of some of the countries that have laws on utility models is set out in Box 8.

Box 8 – Countries/Territories with laws on utility models

Some of the countries/territories that have laws on utility models include Argentina ; Armenia ; Australia ; Austria ; Belarus ; Belgium ; Belize ; Chile ; China ; Colombia ; Denmark ; Ecuador ; El Salvador ; Estonia ; Finland ; Germany ; Greece ; Honduras ; Italy ; Japan ; Kazakhstan ; Kenya ; Republic of Korea ; Kyrgyzstan ; Macao ; Malaysia ; Mexico ; Philippines ; Russian Federation ; Spain ; Taiwan ; Thailand ; Trinidad and Tobago ; Turkey ; Uganda ; Ukraine ; Uruguay ; Uzbekistan ; Venezuela (Bolivarian Republic of) ; Viet Nam.

Industrial design

Industrial design is the ornamental or aesthetic aspect of an article⁹. Design may consist of three-dimensional features, such as the shape or surface of the article, or of two-dimensional features, such as patterns, lines or color. Industrial designs are applied to a wide variety of products of industry and handicraft. Such products may include technical and medical instruments, watches, jewelry, luxury items, housewares, electrical appliances, vehicles, architectural

⁸ *What is a patent?* World Intellectual Property Organization, Geneva, Switzerland. <http://www.wipo.int/ebookshop>

⁹ *What is industrial design?* World Intellectual Property Organization, Geneva, Switzerland. <http://www.wipo.int/ebookshop>

structures, textile designs and leisure goods. In order to be protected under most national laws, an industrial design must have aesthetic appeal. This means that an industrial design is primarily of an aesthetic nature; it does not protect any technical features of the article to which it is applied. Industrial design is what makes an article attractive and appealing, thereby adding to the commercial value of a product and improving its marketability. When an industrial design is protected, the owner is assured of an exclusive right against unauthorized copying or imitation of the design by third parties. This helps to ensure a fair return on investment. An effective system of protection also benefits consumers and the public by promoting fair competition and honest trade practices; encouraging creativity, and promoting more aesthetically attractive products.

Trademarks

A trademark is a distinctive sign that identifies certain goods or services as those produced or provided by a specific person or enterprise¹⁰. The system helps consumers identify and purchase a product or service because the nature and quality of that product or service (as indicated by its unique trademark) meets consumers' requirements. A trademark provides protection to the owner of the mark by ensuring the exclusive right to use it to identify goods or services, or to authorize another person/entity to use it in return for payment. The period of protection varies, but a trademark can be renewed indefinitely beyond the time limit, on payment of additional fees. Trademark protection is enforced by the courts, which, in most jurisdictions, have the authority to block trademark infringement. In a wider sense, trademarks promote initiative and enterprise worldwide by rewarding the owners of trademarks with recognition and financial profit. Trademark protection also hinders the efforts of unfair competitors, such as counterfeiters, from using similar distinctive signs to market inferior or different products or services. The system enables people with skill and enterprise to produce and market goods and services in the fairest possible conditions, thereby facilitating international trade.

Some countries provide for registration of collective marks and certification marks. Collective marks usually belong to a group or association of enterprises; the use of such marks is reserved for the members of the group or association. Collective marks therefore distinguish the goods or services of members of associations from goods or services belonging to others. Certification marks, on the other hand, indicate that the goods or services featuring such marks meet a specified standard.

Copyright and related rights

Copyright is a legal term describing rights given to creators for their literary and artistic works¹¹.

See section 5.2 for more details.

Trade secrets

Trade secrets comprise confidential data, information or compilations used in research, business, commerce or industry. Universities and research and development (R&D) institutions, government agencies, business entities and individuals may own and use trade secrets (Cornish, 1995). The information may include confidential scientific and technical data, as well as business, commercial or financial information not publicly known. A trade secret has commercial value since it confers companies with competitive advantage. Trade secrets can also be in the form of know-how. A familiar example of a trade secret is the formula for Coca-Cola; if the formula had been patented, it would no longer be a secret, since patent law requires public disclosure of the invention. Anyone who independently and legitimately discovers the secret of the Coca-Cola formula could use that discovery, and the Coca-Cola company would have no legal means to prevent them from doing so.

Plant varieties

Plant varieties are protected by giving the breeders limited monopoly rights over the varieties they have created by way of a registration system for plant varieties.

See section 6.2 for more details.

2.5.2. Current scope of legislation governing IP rights

This indicator measures whether or not the existing national IP laws comply with the minimum requirements of TRIPS. This is currently a problem in some developing countries, including least developed countries (LDCs) which have not revised their IP laws in order to comply with TRIPS. Benchmarking considers the extent to which these commitments have not been realized.

¹⁰ *What is a trademark?* World Intellectual Property Organization, Geneva, Switzerland. <http://www.wipo.int/ebookshop>

¹¹ *What is a copyright?* World Intellectual Property Organization, Geneva, Switzerland. <http://www.wipo.int/ebookshop>

2.6. International treaties, protocols and conventions

There are a number of international treaties which may impact on a country's IP system. Most of these treaties are administered by WIPO. The decision to accede to a treaty must be made in the best interests of a country; therefore a process of national consultation is required.

Some countries now include accession to specific treaties, conventions or agreements in their national IP strategies. Accession to these treaties is a direct measurement of an IP system's level of development and capacity to conform to international standards. Accession to treaties and conventions administered by WIPO is effected by the deposit of an instrument of accession with the Director General of WIPO. Conventions and treaties enter into force in a given country three months after that country's accession has been notified by the Director General of WIPO to the governments of all Member States.

Key issues to consider if a country intends to become a party to international protocols and agreements include the following:

- Whether or not the relevant or specific international agreement on IP interferes unduly with the flourishing of national legal cultures and stake holders' interests;
- The link between international agreements on IP and potential benefits to the country that is considering being party to it (e.g., trade); and
- The extent to which international IP treaties and conventions provide incentives for innovation and appropriate protection of brand identification.

2.7. Unfair competition and antitrust laws

All countries that have established market economy systems have devised some type of safeguard against unfair business practices. All Paris Convention Member States must provide, at least on the basis of existing general legislation, effective safeguards against all acts contrary to honest trade practices; these are acts which are likely to cause confusion, or mislead the public, or acts which discredit a competitor. Unfair competition and antitrust laws are designed to ensure that competition is carried out in an honest manner. Antitrust laws are aimed at ensuring that a country benefits from the protection of IPRs by providing a balance between the rights of the creators and the benefits to the country.

2.8. Policies and regulations to enhance the use of flexibilities in TRIPS

There are four important TRIPS flexibilities¹², namely:

- i. **Compulsory licenses:** These are mechanisms used by public authorities to authorize the use of a protected IP right. (Compulsory licenses are provided for most IP rights other than trademarks by the government or third parties without the consent of the IP right holder.) The IP right holders should receive adequate compensation, usually in the form of a royalty. As clarified in the Doha Declaration on the use of patented inventions, the grounds on which compulsory licenses may be granted are clearly provided for in the TRIPS Agreement; therefore, WTO Members are free to avail of this flexibility. Practice shows that licenses may be issued on various grounds of general public interest, such as public health, and are a common feature of patent law in both developed and developing countries.
- ii. **Parallel imports:** Companies often charge lower prices for a medicine in one country than in another, taking into account a range of market factors. This means that a country with limited resources can sometimes afford to buy more of a patented medicine by purchasing it abroad at a lower price and importing it than would be the case if they bought it on the domestic market at a higher price. Many countries' patent laws determine that once a patent owner sells their goods in any country, they have no right to control the resale of these goods (so called "regime of international exhaustion"). In legal terms, the patent owner has "exhausted" their property rights in the product that has been sold – they maintain the exclusive right to manufacture the product, but they can not use their IPRs to prevent resale of any units they sell. Therefore, an intermediary could buy a patented medicine in one country at the lower price set by the company and then resell the medicine in another country at a higher price, but nevertheless undercut what the manufacturer is charging for its patented medicine in that country. This is called "parallel importing".
- iii. **Bolar provision/regular exception:** This permits the use of a patented invention without authorization from the patent owner, in order to obtain marketing approval for a generic product before the legal term of protection of the patent expires. This allows a generic product to enter the market more quickly after patent expiry, which in turn facilitates access

to cheaper medicines.

iv. **Exemptions for least developed countries (LDCs):**

In November 2005, the WTO TRIPS Council extended the transition period for LDCs from mandatory compliance with the TRIPS Agreement (other than the provisions providing for non-discriminatory treatment) until July 2013. With specific reference to pharmaceutical products, Paragraph 7 of the Doha Declaration as implemented by a TRIPS Council Decision of June 2002 exempts LDCs from having to grant patents, and also exempts them from providing for the protection of undisclosed information until January 1, 2016. These transition periods are subject to further extension, on request, as provided for by Article 66.1 of the TRIPS Agreement.

Some countries do not have national policies and regulations that would enable them to use the legal options and flexibilities available in TRIPS. A brief review on compliance with TRIPS for some countries is provided in Box 9:

Box 9: Information relating to review of compliance with TRIPS

1. **Transition periods – Cambodia appears to be the only LDC that has incorporated the 2016 extension into its patent law, in order to take advantage of the flexibility provided by TRIPS.**
2. **Compulsory licensing – Most countries have some form of compulsory licensing in their patent laws. In recent years, post-Doha, a number of compulsory licensing cases have been granted on grounds of promoting public health and providing access to medicines. Zimbabwe was the first country to invoke this provision in 2002, in order to procure anti-retroviral medicines. Zambia and Mozambique followed suit in 2004.**
3. **Public, non-commercial use of patents – The US system under section 28 USC 1498 is a good example of how government may use patents, or authorize a third party to use patents, for virtually any public use. Under this statute, the government does not have to seek a license, or negotiate for the use of a patent or copyright. The patent holder is entitled to compensation, but may not resort to injunctive relief to prevent usage of the patent/copyright by the government. The government may only be held liable by the patent owner for payment of the ‘reasonable and entire’ compensation for its non-authorized use of the patent. The UK also applies a similar approach under the ‘Crown use’ provision.**

2.9. IP tribunals

IP tribunals are established under special laws made by parliament to deal with disputes that arise in the course of the regulation and administration of specific IP law matters¹³. For example, Kenya has six main specialized IP tribunals, including the following:

- i. The managing director of the Kenya Industrial Property Institute deals with a wide range of disputes, including opposition proceedings relating to the registration of industrial designs, utility models and technovations. This is provided for in the Industrial Property Act 2001.
- ii. The Industrial Property Tribunal was established under Section 113 (1) of the Industrial Property Act, 2001. (See Box 11 for details). The Registrar of Trademarks mainly deals with disputes involving trademarks, geographical indications, certification marks, collective marks and licenses for trademarks.
- iii. The Seeds and Plant Tribunal established under Section 28 of the Seed and Plant Varieties Act, deals with disputes involving Plant Breeders’ Rights.
- iv. The copyright’s Competent Authority (Tribunal) deals with disputes involving copyright and collective management organizations or societies. This is established by the Copyright Act 2001.

Box 10: The Kenya Industrial Property Tribunal¹⁴

The Kenya Industrial Property Tribunal deals with a wide range of disputes involving patents, industrial designs, utility models and technovations. The Tribunal plays a crucial and complementary role in the promotion of inventive and innovative activities by ensuring the protection and enforcement of IPRs. Its mandate is to hear and determine disputes relating to patents, industrial designs, utility models and technovations. The Tribunal holds its session in an open courtroom; parties are represented by lawyers with extensive experience in IPR-related matters and, in addition, the Tribunal furnishes the reasons for its decisions; the reasons are published, and litigants are allowed access to these materials. The Tribunal’s decisions are binding on the parties involved; however, they may subsequently be appealed to a superior court. The Tribunal also has enforcement powers. It serves as the principal vehicle for furthering the protection of IP as envisaged by the Constitution and the

¹² http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2049_PolicyBrief_TRIPS_en.pdf

statute establishing it. Finally, it has power under S.118 of the Industrial Property Act 2001 to make or give directions on important matters of law.

The Arbitration Board and Magistrates Court has a role to play with regard to technovations.

The Copyright Tribunal of Australia, which was established under the Copyright Act 1968, has certain powers with regard to royalties and licensing. It is an independent body administered by the Federal Court of Australia. The Tribunal consists of a president, a number of deputy presidents and other members, as appointed by the Governor-General. The president must be a judge of the Federal Court of Australia. Other members must have knowledge of, or experience in, one of the areas of expertise set out in section 140(2) of the Copyright Act, including law, industry, public administration and economics.

The Tribunal deals mainly with issues related to statutory and voluntary licenses. The statutory licenses permit reproduction of certain copyright materials by educational institutions, or institutions assisting persons with certain disabilities. Voluntary licenses are the result of negotiation between a copyright owner or its representative, i.e., a collecting society, and the licensee. Many of the Act's provisions which are relevant to voluntary licenses depend on the notion of a "license scheme". Most license schemes are administered by collecting societies. Licenses granted under license schemes are often referred to as "blanket licenses". They cover all works in the particular collecting society's repertoire. Sections 154 to 156 contain provisions for reference to the Tribunal by a licensor (as well as by would-be licensees and organizations representing them) of existing and proposed license schemes. The Tribunal has jurisdiction to confirm or vary a license scheme or proposed license scheme. It may also substitute a new scheme for the one referred to it. Section 157 provides for various kinds of applications to the Tribunal by licensors (as well as by would-be licensees and organizations representing them) where there has been a failure to agree on the grant of a license. Application may be made in relation to cases which a license scheme applies, as well as to cases to which a license scheme does not apply, by persons who require a license or by organizations representing them. The Tribunal is given power to make orders as to the charges and conditions that the Tribunal considers applicable under a license scheme, or, depending on the circumstances in which the application is made, charges and conditions that the Tribunal considers "reasonable in the circumstances"

in relation to the granting of a particular license.

2.10. Human resources for IP offices

A key challenge for most national IP offices in developing countries is the inadequate availability of suitably qualified experts. As awareness of IP grows, and as the need for IP services expands, so also will the requirement to expand the range of services offered by national IP offices. Additional qualified staff will be required. Moreover, the successful implementation of any national IP strategy will necessitate having the requisite human resources available. As a result, strategies to build and retain the requisite human resources must be part and parcel of any national IP strategy. This is discussed in detail in Chapter 3.

2.11. IP registration professions (IP attorneys and agents)

Many countries are now taking steps to streamline the operations of IP attorneys and agents through registration, and/or accreditation. These countries are also encouraging the formation of associations for IP professional to provide self-regulatory mechanisms. In some countries, the national IP office maintains a register of qualified IP attorneys and agents (e.g., see Box 11 which contains a brief description of the Intellectual Property Institute of Canada).

Box 11 : Intellectual Property Institute of Canada¹⁵

The Intellectual Property Institute of Canada (IPIC) is a national association comprising over 1,800 members in Canada and abroad. IPIC is the only professional association in Canada to which almost all patent agents, trademark agents and lawyers specializing in IP belong.

¹³ <http://www.kenyalaw.org/klr/index.php?id=978>

¹⁴ http://www.industrialization.go.ke/index.php?option=com_content&view=article&id=148&Itemid=157

¹⁵ <http://www.ipic.ca/english/general/>

CHAPTER 3

GENERATION OF IP BY UNIVERSITIES, RESEARCH ORGANIZATIONS, BUSINESS, INDUSTRY, SMEs AND INDIVIDUALS

3.1. Introduction

Promoting the generation of IP assets by universities, research organizations, business, industry, SMEs and individual inventors is important for the development of national IP strategies. Most developing countries and LDCs, when endeavoring to develop national IP strategies, have had to address some of the following challenges:

- a. Low level of IP awareness and inadequate outreach programs;
- b. Lack of institutional IP policies in universities and research organizations;
- c. Inadequate support for SMEs to innovate and invent;
- d. Low level of funding of R&D in universities and research organizations by government, thus limiting the capacity of these institutions to invent and innovate;
- e. Lack of science, technology and innovation (STI) policies;
- f. Weak national innovation system;
- g. Weak innovation and patenting culture in industries and businesses;
- h. Limited usage of patent information for innovation and invention activities;
- i. Inadequate IP training and education.

This chapter focuses on indicators that can support a country to promote innovativeness and inventiveness. These indicators are:

1. IP awareness and outreach programs.
2. Institutional IP policies.
3. Support for SMEs to commercialize their innovations.
4. Funding of R&D.
5. Science, technology and innovation (STI) policy.
6. National innovation system.
7. Promoting innovation and patenting in industry.
8. Technology and IP information services.
9. IP training and education.

3.2. IP awareness

3.2.1. Introduction

Recent studies have shown that levels of IP awareness in most developing countries are low or very low. In 2004-2006, several IP audits were sponsored by WIPO in selected African countries, and preliminary findings were presented in March 2006 at a regional seminar held in Nairobi organized by WIPO and the Government of Kenya. A total of 12 countries presented the findings of IP audits carried out in these countries, and in all cases, low IP awareness was identified as a strategic issue that needed to be addressed in the national IP strategies which were being planned for each of these countries. Similarly, a study carried out by WIPO in ASEAN countries established that these countries recognized public awareness of IP as essential for IP asset management. Most of the survey respondents acknowledged that while the situation was improving, public awareness of IP remained either low or very low.

In some countries, the low level of IP awareness has an impact on the number of IP applications. Whereas rea-

sonable quantities of innovative and inventive activities are taking place in universities and research organizations, these activities are not translating into IP applications and protections. The same holds true for SMEs involved in a significant amount of creative and innovative activities that could result in the development of IP i.e., in areas such as patents, industrial designs or utility models. Whereas large companies appreciate the power of trademarks and branding for the marketing of goods and services, many SMEs do not; the main reason for this is the low level of IP awareness among universities, research organizations and SMEs. The situation described above explains why most national IP strategies consider IP awareness as one of the key strategic issues that needs to be addressed in order to promote the generation, protection and commercial utilization of IP.

3.2.2. Strategies for enhancing IP awareness – example from the Republic of Korea

Box 12: Four strategies for enhancing IP awareness used in the Republic of Korea¹⁶

1. **Cultivating creative young inventors.**
2. **IPR acquisition campaign for SMEs.**
3. **Strengthening support for women's invention activities.**
4. **Promoting IP awareness in universities and research organizations.**

In 2003, the Korean Industrial Property Institute (KIPO) published a report entitled Korea's Invention Promotion Activities. KIPO identified the four strategies necessary (see Box 12) for the promotion of IP generation. These strategies, and the related projects, are briefly discussed below:

a. Cultivating creative young inventors

As part of this strategy, the following three projects were implemented:

- i. **Promoting invention clubs:** Invention clubs were established in selected schools across the country to provide students and the public with opportunities to turn their ideas into inventions. The clubs were supported with full-time IP teachers and were also provided with a variety of tools, equipment and workshops to support

the inventive activities of the members. KIPO planned to have at least one club in each of the 180 regional education areas by end 2006.

- ii. **Promoting invention classes:** Dating as far back as the 1980s, KIPO recommended that elementary, middle and high schools, (10,500 in total) would introduce invention classes in the form of special activities ranging from performing practical skills for making inventions and creations to visiting various locations where inventions are made. KIPO provided various supports, including the training of the invention teachers and the provision of teaching and study materials. By end 2002, some 6,945 schools were running invention classes.
- iii. **Annual students' invention exhibition:** KIPO also introduced several events aimed at promoting invention activities by students. Of particular interest was the annual students' invention exhibition. Inventions created by students from elementary schools, middle schools, high schools and universities were exhibited, irrespective of whether or not they had been patented. Prizes were awarded to individuals and groups. Prizewinning inventions went on display to the general public in a major local exhibition. Middle school prize winners were entitled to be admitted to a third-level college without having to sit an entrance examination.

- b. **IPR acquisition campaign for SMEs IPR seminars and IPR courses for SMEs:** Since 1999, KIPO has been conducting an IPR acquisition campaign for SMEs. The campaign encourages SMEs to invent new technologies and to use them as core business assets. The campaign includes IPR seminars and IPR courses for SMEs. The campaigns target SMEs, CEOs and employees who are responsible for technology development and IPRs.
- c. **Strengthening support for activities by women inventors Promoting activities by women inventors:** Of the 287,104 patent applications received in 2002 by KIPO, only 4 percent were for inventions created by women. Having recognized the need to improve this situation, KIPO formulated comprehensive programs to promote invention activities among women. The measures implemented included raising public awareness and interest in invention activities by women, organizing symposia on outstanding women inventors, and promoting the establishment and development of the Korean Women Inventors Association.

¹⁶ Korea's invention promotion activities – published by the Korean Intellectual Property Office, 2003. Available at www.kipo.go.kr/upload/en/download/KoreaInventionPromotionActivities.pdf

- d. Promoting IP awareness in universities and research organizations In line with this strategy, the following three projects were implemented:
- i. **IPR training for professors:** KIPO initiated a program titled IPR training for technology and engineering departments which encourages professors of technology and engineering departments to undertake basic IPR awareness training. On completion of their training, the professors promote IPR interests in the departments where they are working.
 - ii. **Cooperation agreements with universities and research institutes:** KIPO also focused attention on promoting inventiveness in universities and research organizations. In a move designed to increase the interest of universities and research organizations in IPRs and IPR applications, KIPO established a system of cooperation whereby it signs cooperation agreements on IPR administration with universities. Under these agreements, the parties agree to undertake specific activities to promote IPR awareness and increase the number of IPR applications.
 - iii. **Promotion of inventions by employees:** The promotion of inventions by employees is another key KIPO strategy. Statistics show that about 80 percent of all inventions in the Republic of Korea are by employees, and less than 20 percent of inventions are by individual inventors (non-employees). This finding prompted KIPO to propose incentive and reward policies aimed at encouraging inventions by employees. KIPO also organizes national employee invention competitions, with the winner receiving a Presidential award.

3.3. IP policy for universities and research organizations

3.3.1. Introduction

IP policy is an important tool for promoting the generation, protection and commercialization of IP in universities and research organizations. IP policy provides a mechanism, structure and framework that can be used to promote the generation, protection and commercialization of IP in a research and technology organization (RTO). It addresses key issues, including ownership of IPRs and benefit sharing; strategies for the commercialization and management of privately sponsored research; collaborative research; conflict of interest – as well as a range of other issues. The existence of IP policies in universities and research orga-

nizations is therefore a strong indicator of the commitment of a government to promoting the generation, protection and commercial exploitation of IPRs.

Today, most countries recognize the need for such policies, which have long since been best practice in the USA, Australia, and most European countries. Countries that have recently embraced IP policies include China, Japan, Kenya, Malaysia, Nigeria, the Philippines and South Africa.

3.3.2. Guidelines for developing an institutional IP policy

In 2001, due to the growing importance of IP institutional policies, WIPO published a booklet entitled Guidelines for developing IP Policies in African Universities and Research Organizations. While the publication title suggests that the guidelines are aimed at African institutions, the content is general and, as a result, the guidelines have since been used in several developing countries, and have been translated into French and Spanish. Recently, a second edition was compiled and is currently awaiting publication. Entitled Choices in Developing IP Policies in Universities and Research Organizations, it addresses ten issues which senior managers of universities and research organizations may wish to consider when developing institutional IP policies.

Today, having IP policies in place for institutions is considered best practice in the management of IP assets in universities and research organizations. As a result, most countries now incorporate the promotion and development of IP policies into their national IP strategy or into their science, technology and innovation policies.

3.3.3. Best practices in the development of IP policies

Today, many universities and research organizations have IP policies in place. Internet searches for the phrase “IP policies for universities and research institutions” highlight numerous institutional IP policies which can be consulted as a reference. Based on the experience of the authors of this report, the following best practices may be useful for teams who are involved in developing a national IP strategy. These are presented in Boxes 13, 14, 15, 16 and 17.

Box 13: Key issues to consider when developing an institutional IP policy

1. **Ownership of IP rights from publicly funded research projects.**
2. **Ownership of IP rights from privately funded research projects.**
3. **Management of IP in collaborative research projects.**
4. **Commercialization of IP.**
5. **Benefit sharing.**
6. **Research procedures.**
7. **Disclosure of IP.**
8. **Filing and protection of IP.**
9. **Conflict of interest.**
10. **Infrastructure for IP management.**

Box 14: Key stakeholders involved in the process of the generation, protection and commercialization of IP rights

1. **Inventors and co-researchers.**
2. **Institutions.**
3. **Students.**
4. **Visiting research fellows.**
5. **Inventors' department or group.**
6. **Collaborators.**
7. **Sponsors.**
8. **Technology transfer office.**
9. **Government.**
10. **Public.**

Box 15: Importance of national policies in the formulation of institutional IP policies

In some countries, national IP laws, policies and guidelines contain provisions for institutional IP policies; furthermore, they address some of the issues that need to be considered in an IP policy, thereby providing some degree of uniformity. For example, the 1980 Kenyan Science and Technology Act addressed the issue of ownership of IP and benefit sharing. Today, most countries are adopting the USA's Bayh Dole Act (1982) which provides for research organizations to own IP rights from publicly funded research; this Act also provides for matching rights for the government to exploit the research results through other means in cases where research organizations are unable to do so in the stipulated time period.

3.3.4. Key decisions to be made by the national IP strategy

Whereas most of the issues listed in 3.4.2 are operational, and are handled at institutional level, at national level the IP strategy should address the following questions:

1. Whether or not the promotion of the development of institutional IP policies should be a target in the national IP strategy.
2. If so, whether or not it should be provided for in national IP laws, or in related policies such as science, technology and innovation policy, national research policies or in national laws related to the establishment of universities and research institutions.
3. Whether model institutional IP policies should be prepared at national level for adaptation by individual universities and research organizations.
4. The role of national IP offices in supporting the development of institutional IP policies.
5. Financial support from the government to universities and research organizations for the development of IP policies.
6. Whether technical assistance would be required by your country from IP-related organizations such as WIPO.
7. Whether WIPO guidelines for developing institutional IP policies should be used for benchmarking.

Box 16: Models to support universities and research institutions in developing IP policies

Some countries have prepared model IP policies which universities and research organizations may adapt, depending on their mission, research culture and agenda. For example, the Nigerian Office for Technology Appropriation (NOTAP) has prepared a model IP policy, which it has made available to universities and research institutions in Nigeria. This has resulted in speeding up the process of developing IP.

Box 17: Other issues for consideration during the development of institutional IP policies

Stakeholders' involvement in developing an IP policy: Whereas the process of developing an IP policy may be expedited by following a model IP policy or by implementing WIPO guidelines, an effective IP policy is one that is owned by the key stakeholders in an institution. This requires that the key stakeholders must be adequately involved in the process. Consensus must be built on almost all the key issues.

IP awareness: In order for the stakeholders to participate meaningfully in the process, they must have reasonable awareness of IP and IP-related issues. The development of an IP policy must therefore be preceded by the execution of an intensive IP awareness campaign within the institution.

Committed management: The process of developing an IP policy cannot succeed without the total commitment of the most senior members of the institutions involved.

Drafting team and team leader: The drafting team should consist of a small number of people representing the key faculties or schools within the institution. The team should be supported by a legal officer and, where possible, by officer(s) from the national IP office. The leader of the drafting team should be one of the senior researchers, someone who has good knowledge of IP and is well respected by colleagues. The process can be slow and frustrating and therefore the leader should be highly motivated and capable of motivating other to forge ahead and complete a draft policy document.

Approval by key organs of the institution: The draft should be approved by the various organs of the institution, and in accordance with the institution's procedures for approving policies. For example, in the case of Moi University, Kenya, the draft IP policy was discussed and approved (having incorporated suggestions and recommendations at every level), by the Deans Committee, the University Senate and, finally, the University Council.

Launching the IP policy: The IP policy should be launched formally. The launch signifies to the institution's staff that the development of the IP policy has been completed, and that implementation is about to begin. The policy should clarify which office is responsible for the implementation of the policy. For the external stakeholders, the launch communicates that the university now has an instrument to enhance its collaboration with them

3.4. Support for SMEs

Most developing countries place great emphasis on the importance of SMEs, which are seen as the engines of economic growth and industrialization. SMEs have particular IP requirements if they are to grow their companies and become more competitive. National IP offices are therefore being encouraged to devise programs and services aimed at SMEs and designed to enhance the generation, protection and commercial utilization of IP assets.

3.4.1. Benchmarking of IP services for SMEs – Japan Patent Office

The Japan Patent Office (JPO) provides comprehensive support to SMEs, using various measures which sustain Japan's industrial base and act as a driving force in regional economies. These measures are briefly described below¹⁷:

- 1) Human resources development and consultation on industrial property rights
 - a. The JPO holds briefing meetings on IPRs for those seeking an introduction to the subject of IPRs and also for those who have recently been transferred to the IP division of the company that is employing them. In addition, the JPO holds seminars on the strategic acquisition of IPRs. As well as meeting regional needs, the seminars show individuals, including corporate managers and those responsible for R&D, how to exploit such rights.
 - b. The JPO provides individual consultation services by experts on specific matters related to industrial property rights nationwide.
 - c. Dedicated patent office staff members working in the regional bureaus of economy, trade, and industry provide regular consultation services in relation to the filing of applications.

2) Exploitation of IP information

In order to support stimulation of local industries through the use of patent information, the National Center for Industrial Property Information and Training (NCIPIT) dispatches patent information advisors who are experts in exploiting patent information to various locations. The Center also provides consultation services and workshops for SMEs free of charge.

¹⁷ <http://www.jpo.go.jp/index.htm>

3) Examination requests for IP applications

- a. In order to support proper assessment of whether an examination should/should not be requested, private sector organizations that are providing patent search services are commissioned by the JPO to carry out prior art searches free of charge for patent applications made by SMEs and individuals.
- b. For companies or individuals who do not have the requisite financial resources, the JPO grants an examination request fee exemption, or a 50 percent reduction in examination request fees, provided these companies/individuals comply with certain requirements. In addition, the JPO grants a 50 percent reduction in examination request fees for SMEs which are exclusively involved in R&D activity.

4) Support for examinations and appeals/trials of IP applications

- a. In cases where a patent applicant is an SME or an individual, or where the applicant is already using the invention, examinations or appeal/trial examinations are conducted more quickly than would be the case in regular applications. The examination or appeal/trial examination is conducted more quickly if the applicant submits an "explanation of circumstances concerning accelerated examination (accelerated trial/appeal examination)".
- b. The JPO supports faster acquisition of rights by offering opportunities for applicants or their agents – and also offering opportunities for the examiners or appeal examiners – to meet in person and to deepen their understanding of the applications and the technologies/designs. In addition to the interview examinations and interview appeal/trial examinations conducted at the JPO, the JPO examiners/appeal examiners visit various locations nationwide in order to conduct circuit examinations, regional interviews, appeal/trial examinations and circuit appeals/trials. The JPO also conducts video interview examinations, using videoconferencing systems installed at the patent offices in the various regional bureaus of economy, trade and industry.

5) Support for registration of IP rights

The JPO grants an exemption from annual patent fees (from the first year to the third year, or a grace period of three years) to individuals or companies that do not have the requisite financial resources; this exemption is granted on condition that the individuals/companies comply with certain requirements. In addition, the JPO grants a 50 percent reduction in annual patent fees (from the first year to the third year) to SMEs that are engaged in R&D activities

6) Support for exploitation of industrial property rights

In a move aimed at identifying licensable patents owned by universities, public research institutions, and companies – and also aimed at understanding the technological needs of SMEs and start-up companies, and then meeting those needs – the NCIPIT, at the request of prefectural governments and technology transfer offices (TTOs), dispatches patent licensing advisors – experts who have a wealth of knowledge and experience in the areas of IPRs and technology transfers. Patent licensing advisors have contributed to successful patent licensing for SMEs and start-up companies in a number of instances.

7) Comprehensive support for SMEs by IPR specialists

The JPO also introduced IPR specialists to provide comprehensive expert support for SMEs. These specialists create awareness about the IP system and the support measures available for local companies and SMEs; they provide consultancy services for SMEs and they also engage in awareness-raising activities and human resources development activities related to IP which are specifically aimed at local companies and SMEs.

3.5. Innovation system

The role of the government is to ensure that the basic elements are in place to support an innovative economy. These elements include: skilled individuals; research; the economic and regulatory framework, and fiscal policies. Such elements promote innovation, and reward successful innovators. In addition, the government can increase the likelihood of innovation success by nurturing local clusters of excellence and by serving as a leading user of innovative technologies and solutions. An innovation system links the research organizations in a country with the government and the private sector, thus enhancing the generation, protection and commercial exploitation of IPRs.

The following points are worth noting:

- a. In order to establish an innovation system, a country must develop a policy or law establishing that system; it must also explain the operation, funding, management and administration of the system to stakeholders, and then ensure that the system is implemented.
- b. The national innovation system approach stresses that the flow of technology and information between people, enterprises and institutions is key to the innovative process.
- c. Innovation and technology development are the result of a complex set of relationships between the main players in the system (enterprises, universities and research institutes and government)
- d. For policymakers, an understanding of the national innovation system can help to identify leverage points for enhancing innovative performance and overall competitiveness. It can assist in pinpointing mismatches within the system, both among institutions and in relation to government policies.
- e. Policies which seek to improve networking among the various players and institutions operating within the system – policies which are aimed at enhancing the innovative capacity of firms, particularly their ability to identify and absorb technologies – are the most valuable in this context¹⁸.

Key elements of an innovation system include:

- i. **Establishment, support and promotion of entrepreneurial companies and innovative workplaces:** Competing on innovation and knowledge is critical for companies' successful business performance; it is also critical for the sustainable

prosperity of countries. In order to be successful, countries must create opportunities and improve the environment in a way that helps business enterprises to innovate. Such moves would also aim to strengthen innovation at the point where business enterprises and work-places engage with their markets and customers.

- ii. **Identification, training and capacity development of the talent pool/human capital:** High-quality human capital is critical for fostering innovation. Equipping people with the skills to deliver innovation is essential, not only for the generation and application of new knowledge, but also in order to use and adapt knowledge that has been produced elsewhere. Building high-quality human capital requires the allocation of the requisite resources at all levels of education – from early childhood education and schooling through vocational education and training and higher education, and into the workplace.
- iii. **Information flows, market design and freedom to innovate:** Governments can improve information flows and support innovation and economic efficiency by encouraging disclosure of innovation and protection; they can also ensure that the information and other “content” funded by government is freely available to users – and thus maximize the use of such information and the value that others can add to it.
- iv. **Research capability and platforms:** The ability to generate sustainable productivity increases requires that a country carry out nationally important research; it must also successfully adopt and adapt 98 percent of the innovative ideas created elsewhere in the world. Public funding for research in universities and government research agencies urgently needs to be restored. The cost of funding research carried out by universities needs to be fully underwritten; in addition, increased levels of funding need to be provided to universities and government research institutes. A strong and sustainable public research sector requires universities to be providers of research, not investors in research. Currently, in most countries, research activity in universities is not fully funded; typically, it is subsidized from other university revenue streams.

18 *National Innovation System*, OECD - <http://www.oecd.org/dataoecd/35/56/2101733.pdf>

3.6. Science, technology and innovation (STI) policy

The 21st century may be best characterized as a knowledge and information era in which access to creative knowledge and information constitutes competitiveness. Innovation may be defined as discovering new ways of creating value; innovation is the process through which new economic and social benefits are extracted from knowledge. Through innovation, knowledge is applied to the development of new products and services, or to new ways of designing or marketing an existing product or service.

Box 18: Some of the countries that have recently developed a national science, technology and innovation policy

Peru (2011), Russian Federation (2011), Mexico (2009), Republic of Korea (2009), Hungary (2008), China (2008), Norway (2008), Chile (2007), South Africa (2007), New Zealand (2007), Luxembourg (2007) and Switzerland (2006).

The term “innovation” refers to both the creative process of applying knowledge, and the outcome of that process. Innovation can be promoted systematically across the economy as part of a deliberate strategy to improve growth in national productivity. The conscious promotion of innovation has become an important focus of economic and social policy. Innovation does not happen merely by chance, rather as a response to economic incentives – incentives that can be significantly affected by government policy. Governments can be at their most effective if they promote innovation, as opposed to trying to create innovation directly themselves. In short, effective economic, fiscal and management policies will result in delivering innovation as a by-product. A science, technology and innovation policy would address these issues. The key objective of an STI policy is to establish an institutional framework as well as organizational, human and financial structures which are capable of leading the development of science, technology and innovation. Box 18 lists some of the countries that have recently developed STI policies

3.7. Funding of R&D by government

Currently, most developing countries spend less than 0.5 percent of GDP on R&D; this is despite the fact that the number of IPRs generated depends on the number of R&D activities, which in turn depends on the level of funding available. Consequently, R&D funding by the government, as a percentage of a country’s GDP, is an indicator of the capacity of that country to generate IPRs. In order to promote patenting, some IP strategies or science, technology and innovation strategies include funding of R&D by the government in these strategies. R&D drives innovation, and innovation drives long-term economic growth, creating jobs and improving living standards in the process. University-based research is of particular importance to innovation; this is because the early-stage research that is typically carried out in universities serves to expand the knowledge pool from which the private sector draws ideas and innovation (see Table 1 for examples).

	<i>Country/Territory</i>	R&D billion USD	R&D %	Year	SN	Country	R&D USD	R&D %	Year
1	<i>USA</i>	403.7	2.7	2011	23	Poland	6.4	0.4	2011
2	<i>China</i>	153.7	1.4	2011	24	Mexico	6.3	3.1	2011
3	<i>Japan</i>	144.1	3.3	2011	25	Singapore	6.3	2.4	2011
4	<i>Germany</i>	69.5	2.3	2011	26	Islamic Republic of Iran	6.2	0.7	2010
5	<i>Republic of Korea</i>	44.8	3.0	2011	27	Denmark	5.1	2.4	2011
6	<i>France</i>	42.2	1.9	2011	28	Norway	4.2	1.6	2011
7	<i>UK</i>	38.4	1.7	2011	29	Czech Republic	3.8	1.4	2011
8	<i>India</i>	36.1	0.9	2011	30	South Africa	3.7	0.7	2011
9	<i>Canada</i>	24.3	1.8	2011	31	Portugal	2.8	1.2	2011
10	<i>Russian Federation</i>	23.1	1.0	2011	32	Ukraine	2.75	0.85	2007
11	<i>Brazil</i>	19.4	0.9	2011	33	Pakistan	2.73	0,67	2007
12	<i>Italy</i>	9.0	1.1	2011	34	Argentina	2.7	0.4	2011
13	<i>Taiwan</i>	19.0	2.3	2011	35	Ireland	2.6	1.4	2011
14	<i>Spain</i>	17.2	1.3	2011	36	Malaysia	2.6	0.63	2010
15	<i>Australia</i>	15.9	1.7	2011	37	Greece	1.7	0.6	2011
16	<i>Sweden</i>	11.9	3.3	2011	38	Hungary	1.7	0.9	2011
17	<i>Netherlands</i>	10.8	1.6	2011	39	Thailand	1.46	0.25	2010
18	<i>Israel</i>	9.4	4.2	2011	40	New Zealand	1.4	1.2	2011
19	<i>Austria</i>	8.3	2.5	2011	41	Romania	1.3	0.5	2011
20	<i>Switzerland</i>	7.5	2.3	2011	42	Chile	1.22	0.53	2011
21	<i>Belgium</i>	6.9	1.7	2011	43	Belarus	1.02	0.96	2007
22	<i>Turkey</i>	6.9	0.7	2011	44	Egypt	0.91	0.23	2007

Table 1: Funding of R&D in selected countries¹⁹

Funding provided by business for university-based research creates important links between commerce and academia, orienting research toward topics and ideas which are more likely to create new businesses, products and jobs. This is why at least nine countries have established collaborative research tax credit incentive schemes that provide a more generous credit for business R&D funded at universities. Hungary, Spain, the Netherlands, Canada, Japan and Belgium have all established some version of a collaborative R&D tax credit scheme. Box 18 lists some key performance indicators for government funding of R&D.

Box 19: Key result indicators for government funding of R&D

- **Invention disclosures;**
- **Patent applications;**
- **Inventions patented / protected;**
- **New / active licenses and options;**
- **Income / revenue from commercialization;**
- **Spin-off companies and start-ups created.**

¹⁹ http://en.wikipedia.org/wiki/List_of_countries_by_research_and_development_spendingcember

3.8. IP Information services

Patent documentation is a powerful tool that can be used to support both R&D activity and product development by industry, including SMEs. The establishment of IP information service centers would be an important strategic initiative for developing countries and least developed countries.

3.8.1. Importance of IP information for R&D

IP information can be used in R&D to:

- a. Source technological information for research;
- b. Provide a solution to technical problems;
- c. Identify alternative technologies;
- d. Identify the patentability potential of R&D products at earlier stages of development;
- e. Avoid the risk of R&D duplications;
- f. Monitor trends in R&D activities;
- g. Monitor the success of funded R&D;
- h. Reverse engineer.

These are described briefly in the table below:

		Potential of the patent document
1	Source of technological information for research	<ol style="list-style-type: none"> i. A total of about 70 million patents have been filed. ii. The majority are first and only publications. iii. Patent document discloses the invention and how it can be implemented. iv. Provide the most current information on the invention
2	Provide a solution to technical problems	A search in the patent literature can potentially identify solutions to technical problems.
3	Identify alternative technologies	The patent document can be used to identify alternative technologies, and thus resolve technical problems.
4	Identify the patentability potential of R&D products at an earlier stage in the development process	The patent document can be used to determine whether the development is likely to be novel (for patenting) and/or, when commercialized, whether it is likely to infringe an existing patent (in cases involving reverse engineering).
5	Avoid the risk of R&D duplications	Carrying out searches for IP information is important for establishing the state of the art in cases where new research is being initiated. The process of carrying out searches may also result in identifying R&D projects that could be funded for innovation development.
6	Monitor trends in R&D	Patent information can be used to monitor technological trends and competitors' R&D activities, in addition to providing early warning of future trends in technological fields.
7	Monitor the success of funded R&D	The number of patent applications or patent grants is a performance indicator of the success of a particular research project.

3.8.2. Meeting the technical, legal and business needs of SMEs through patent information:

Meeting the technical, legal and business needs of SMEs through patent information (see boxes 20, 21 and 22):

Box 20: Technical needs of SMEs

Information on:

- **New technology;**
- **New products;**
- **New processes;**
- **New raw materials;**
- **Alternative technology, product, process or raw materials.**

Box 21: Business needs of SMEs

Information on:

- **Market;**
- **Competitors in this market;**
- **What the competitors are currently doing;**
- **What the competitors are planning to do in the future.**

Box 22: Legal requirements of SMEs

- **Most SMEs require technology which they are willing to pay for either by way of license or purchase; however they may not know where/how to access the technology.**
- **SMEs may not be aware of the legal provisions that allow them to use other people's technology without paying for it.**
- **Some SMEs spend time trying to develop a product that already exists and is protected (duplication).**

The needs of SMEs can be addressed by a properly functioning patent system – one which has the following characteristics: reward and publishing; territorial; time and disclosure.

- a. **Reward and publication characteristics of a patent system:** A patent system encourages innovation and economic growth by protecting creativity against publication/making known technical information related to a new invention, and also by rewarding investment made in developing a new invention.

- b. **Territorial characteristics of a patent system:**

A patent is granted on a territorial basis.

- Patent owner determines the markets (countries) where the patent should be protected;
- The designated countries are indicated in the patent document;
- This means that if a country is not designated, the company/individual can exploit the patent without paying for it.

- c. **Time characteristics of a patent system:**

A patent is granted for a given period.

- Maximum protection period is 20 years, subject to paying maintenance fees;
- On the expiration of the protection period, the patent can be used free of charge;
- This information is contained in the patent document;
- Therefore, before SMEs get involved in licensing, they should check the patent document to ascertain when the patent is due to expire.

- d. **Disclosure characteristics of a patent system**

- Patents must disclose the characteristics of an invention in a manner that is sufficiently clear and complete, i.e., in such a way that it can be implemented or worked out by a person having ordinary skill in the art;
- Patent information is disclosed globally through publication on the Internet and other communications channels and media outlets;
- Anyone, anywhere in the world can learn from this information.

3.8.3. Examples from selected countries on the use of IP information

Many countries have collected, stored and categorized patent information in patent databases which are searchable, are updated regularly, and are available to view on the Internet. Anyone with an Internet connection can access this patent information. Among the countries maintaining online databases that are accessible to the public are Australia, Brazil, Canada, France, Germany, Hungary, Japan, New Zealand, Poland, Republic of Korea, Romania, the Russian Federation, Singapore, Spain, Thailand, the UK, and the USA. Collective and regional databases are also a rich source of online information; this includes regional databases that are published on the Internet by WIPO and a number patent offices.

- a. **China:** Chinese patent documents are published in print and on CD-ROM. Almost 50 million patent documents and more than 20 CD-ROM titles, covering 18 countries, are stored in the Chinese patent office.²⁰
- b. **USA:** The United States Patents and Trademarks Office (USPTO) website allows free searches for US-granted patents. It contains complete text and drawings for patents granted in the US since 1976. Similarly, US patent applications may also be searched in cases where the patent applicant has given permission to allow this. Comprehensive online help is available for searching and viewing this site.²¹
- c. **Singapore:** The Intellectual Property Office of Singapore (IPOS) provides several basic tools to help interested users search for existing patents and published patent applications, among other items. The search tools provide a one-stop solution, and are designed to facilitate online patent-related searches in Singapore.
- d. **India:** In India, the Ministry of Commerce and Industry's Department of Industrial Policy and Promotion established the Patent Information System (PIS) in 1980 with the following objectives:
- To obtain and maintain a comprehensive collection of patent specification and patent-related literature on a worldwide basis, in order to meet the technological information needs of various users;
 - To disseminate technological information contained in patents or patent-related literature through publication services, search services and a patent copy supply service;
 - The use of patent information is very common in the pharmaceutical industry, a sector where India has achieved a remarkable success. Once the patent on a drug expires, it can be manufactured as a "generic". Currently, Indian companies enjoy a significant share of the generics market. In addition, India is a significant player in the bulk drugs industry, something which Indian companies use as leverage in order to become important players in the formulations market²².
- e. **Australia:** Australia developed an advocacy program to help Australian traders protect their IP in Japan. The program material included a series of fact sheets and website content dedicated to providing tailored information on trade issues (WIPO, 2008b)²³.
- f. **Japan:** The JPO's information dissemination policy, which is operated under the aegis of Paperless Projects, publishes patent documents on CD-ROM. The CD-ROMs are made available to the public in the JPO's libraries; they are also sold to industrial organizations and to database organizations.²⁴
- g. **Nigeria:** The National Office for Technology Acquisition and Promotion (NOTAP) is responsible for the acquisition, promotion and development of technology in Nigeria. In 1998, NOTAP was given an additional mandate to commercialize locally developed R&D findings, inventions and innovations from research institutes, universities, polytechnics, private laboratories and workshops. Initiatives taken by NOTAP to help SMEs make effective use of IP included the establishment of the Patent Information and Documentation Centre (PIDC), with the assistance of WIPO. The services provided by PIDC to SMEs include the commercialization of R&D results and inventions; technology advisory services; a national awareness-building program on IPR and technology information in patent documents; sensitization of entrepreneurs about the usefulness of patent information. The PIDC operates a computerized databank which provides access to patent information available globally. It also provides access to technological information in patent documents.
- Between 2000 and 2010, approximately 376 registered users benefitted from the services provided by the center. Twenty of these users have already established SMEs. NOTAP has also become one of the main users of the PIDC. Patent information is used for the provision of information about existing and prospective industrial property rights in Nigeria; the identification of alternative technology sources; the upgrading of SME products and processes through the use of new technology. NOTAP has further assisted R&D institutions and industry by providing linkages between them, preparing project profiles based on locally developed technologies, and promoting the commercialization of indigenous technologies. NOTAP has published a number of technical books – a move that is in line with its strategy of assisting in the dissemination of scientific and technological information to companies and individuals in Nigeria

20 American Chemical Society, 1997. Chinese Patent Information: Significant Resources, Department of Library and Information Science, Peking University, Beijing China

21 *Patents*, Curtin University Library, Curtin University of Technology, 2009.

3.9. Promotion of IP training, education and research

3.9.1. Objectives of promoting IP education, training and research

The promotion of IP education, training and research is a major objective which most developing countries aim to achieve as part of delivering their national IP strategy. IP education, training and research are key to the delivery of the type of IP awareness creation and capacity building programs that any developing country would wish to implement. The aim of focusing on IP education and training are twofold, namely, to produce the required IP professional service providers and to instill basic knowledge of IP in potential generators and users of IP.

Formulating programs for promoting IP training, education and research is important in order to:

a) Produce the required IP professional service providers, as identified in the baseline survey and included in the national IP strategy as targets. These cover five areas, which are set out in the table below:

b) In order to promote innovation and creativity, potential IP generators and users must have a broad knowledge of various IP-related issues, including legal issues. Such potential IP generators/users include young people; women inventors and creators, as well as women entrepreneurs; university law students, as well as university students of science, technology and business; small and medium-sized enterprises, including the informal sector; lecturers and researchers in universities and research organizations.

	Elements of the IP system	IP professionals required
1.	Support the generation of IP	Technology transfer managers
2.	Support the protection of IP	IP attorneys, IP drafters and IP examiners
3.	Support the commercialization of IP	IP valuation, IP auditing, IP licensing, IP marketing and negotiations
4.	Support the enforcement of IP	IP enforcement officers; judges, lawyers, police and custom officials
5.	Support the teaching of IP in universities, colleges and schools	IP lecturers and teachers

22 Kumar Abhay. "India in pharmaceutical industry." http://www.legalserviceindia.com/articles/Patents_Regime.htm

23 Annual Technical Report 2008 on Patent Information Activities. Submitted by Australia (SCIT/ATR/PI/2008/AU). WIPO, Geneva. Available at http://www.wipo.int/cgi-ipoa/atr_public/atr_details_query.pl?country_id=AU

24 Ono Shinjiro, "Experience of the Japanese patent office in producing patent information on CD-ROM and its dissemination policy", *World Patent Information*, Vol 18, Issue 2, June 1996, Tokyo Japan http://www.sciencedirect.com/science?_ob=ArticleURL

3.9.2. Key issues for consideration when developing a strategy for IP training, education and research

A program for promoting IP training, education and research should consider the following five issues – products, curriculum, IP faculty, teaching materials and teaching methods

a) The products

This refers to the range of IP professionals required in order to implement the national IP strategy and develop the IP system. The requirements are established through the baseline survey; the actual number of professionals required is stipulated in the strategic plan.

b) Selecting an IP curriculum

A wide range of students may, potentially, benefit from IP training and education. These include students of business, law, fine arts, engineering, technology, science, and journalism. Currently, in most universities in developing countries, the following three scenarios are the most common. First, almost all business programs include some overview of the basics of IP. Second, basic law degree programs offer IP courses that provide students with a general understanding of the philosophy and application of IP law. Third, specialized postgraduate (LL.M) programs typically provide a more comprehensive, specialized knowledge of the theory and practice of IP law.

Specialized IP programs deal with three aspects of IP practice:

- The nature and extent of rights that are available to protect IP;
- The process of obtaining and registering IP rights;
- The process of protecting and enforcing IP rights, once acquired.

Education programs in business focus on the first aspect, in order to enable students to gain an understanding of the ways in which the protection of IP can enhance economic competitiveness. Ideally, undergraduate law degree programs should cover all three areas listed above, so as to improve opportunities for students who intend to become IP practitioners. Students who enter postgraduate specialized programs in IP, e.g., LL.M, will, typically, be IP practitioners who are interested in deepening their understanding of the legal foundations of IP law, and wish to increase their skills in the acquisition and enforcement of IP rights.

c) IP faculty

The ideal situation is one where a faculty has full-time IP lecturers and teachers. In a developing country this poses a major challenge – one which can only be overcome in the medium and long term through established postgraduate

programs in IP. In the short term, the use of practicing IP professionals (IP attorneys, IP examiners and technology transfer managers) as part-time lecturers may be an option.

d) Teaching materials and teaching methods

The ideal situation is to develop teaching materials that feature local case studies and examples from neighboring countries, thus taking into account local culture, development aspirations and economic development. The available teaching materials may be adapted and modified. Using existing materials that have been developed and published by various IP agencies may also be helpful.

3.9.3. Strategies for implementing IP training, education and research in a developing country

Given the fact that in most developing countries the teaching of IP is almost non-existent, and also given the fact that university faculty resources to teach IP are at best limited, a country may wish to consider adopting a phased implementation strategy, such as that described below. This may be determined by the current level of IP training and education in such country.

Phase One (short term)

- Provide short courses and seminars in collaboration with WIPO;
- Send staff abroad for specialized IP training, which would be funded by government scholarships, by WIPO, or by development agencies;
- Review and strengthen existing undergraduate IP education programs (e.g., existing IP undergraduate programs in law, business or engineering);
- Review and strengthen existing postgraduate IP education programs (e.g. LL.M, postgraduate diplomas).

Phase Two (medium term)

- Introduce new IP programs, where such programs do not exist
 - Introduce IP programs in undergraduate law schools;
 - Introduce IP programs in undergraduate programs in other schools;
 - Introduce postgraduate degree IP programs (LL.M, MIP) in at least one university in the country;
 - Introduce postgraduate diploma IP programs in at least one university in the country.

Phase Three (long term)

- Introduce IP programs in teacher training colleges;
- Introduce IP programs in technical colleges;
- Introduce IP programs in schools;
- Introduce IP programs in academies and research institutes;

3.9.4. Institutions for benchmarking IP education, training and research

The following training and research institutes are briefly discussed:

a. USA and Canada

In the USA, one of the very first centers devoted exclusively to research in IP was associated with the George Washington University Law School. This center, originally known as the Patent, Trademark and Copyright Foundation, subsequently became part of the Franklin Pierce Law Center, where it has flourished as a result of support received from the legal profession and industry.

While the USA also has a number of other IP centers, these are not exclusively devoted to research. Examples of such centers include the Center for Intellectual Property Law at the John Marshall Law School in Chicago, Illinois, which combines law school and postgraduate teaching of IP with research and dissemination of IP information.

The Canadian Intellectual Property Institute, which was established in Hull, Canada, is very closely linked with the Canadian Government authorities responsible for IP matters.

Europe

In Belgium, a Center for Intellectual Property Rights was established at the Catholic University of Louvain. Sweden has the Center for Intellectual Property and Media Law, located at the Stockholm School of Economics. The United Kingdom has the Queen Mary Intellectual Property Research Institute located in the School of Law, Queen Mary and Westfield College at the University of London. France has the Center for International Industrial Property Studies (CEIPI) in Strasbourg, where WIPO in cooperation with CEIPI each year conducts a training course on IP for officials from developing countries. Also in France is the Institut de Recherche en Propriété Industrielle Henri-Desbois (IRPI), located in Paris; the Centre Universitaire d'Enseignement et de Recherche en Matière de Propriété Industrielle (CU-ERPI), located in Grenoble, and the Centre Paul Roubier, located in Lyon.

Asia

In the Asia and Pacific Region, the China Intellectual Property Training Center (CIPTC), established in 1998, was sponsored by the State Intellectual Property Office of the People's Republic of China; a number of other IP centers were also established in Beijing, Shanghai and other cities in China. The Institute of Intellectual Property Development (IIPD) was established in India in January 1997 to carry out research, and provide training on IPRs.

The Singapore Intellectual Property Academy was launched in September 2002. As the focal point for education and research in IP in Singapore, the academy provides introductory and further training in areas ranging from basic legal understanding of IP to negotiation skills, branding know-how, business strategy and valuation of intangible assets.

In the Republic of Korea, the International Intellectual Property Training Institute (IIPTI) was established in Daeduk in 1991.

The Intellectual Property Training Center was established in Malaysia in 1998.

Both the Japan Institute of Invention and Innovation (JIII) and the Asia and Pacific Industrial Property Centre (APIC) are located in Tokyo, Japan.

Africa

In Africa, in 2008, WIPO and the African Regional Intellectual Property Organization (ARIPO) introduced a Masters in Intellectual Property program at the Africa University, Zimbabwe. The University of South Africa (UNISA) also offers distance learning programs in IP.

CHAPTER 4

COMMERCIALIZATION OF IP AND TECHNOLOGY TRANSFER BY UNIVERSITIES, RESEARCH ORGANIZATIONS, BUSINESS, INDUSTRY, SMEs AND INDIVIDUALS

4.1. Introduction

Commercialization and technology transfer is another important pillar of an effective IP system. Whereas in the past the focus of IP administration was on protection, today increased emphasis is being placed on the economic utilization of IP assets. This is why most national IP strategies consider commercialization and technology transfer as key to the promotion of IP. A number of these strategies have identified the following challenges:

- a. The level of commercialization is minimal.
- b. Most developing countries and LDCs are dependent on imported technologies, and do not have in place technology transfer policies that would facilitate the development of their technological capabilities over time. Such countries remain dependent on imported technologies for a long time.
- c. Most universities do not have the requisite commercialization support structures to promote the commercialization of IP rights e.g., commercialization support structures such as technology transfer offices, university companies, technology incubators, prototype development facilities, or science and industrial parks.
- d. Most financial institutions do not accept IP as collateral for accessing investment finances.
- e. The practice of providing a recognized system for the valuation of IP, which is important for the commercialization of IP assets, is still not commonplace. As such, the use of IP in financial reporting, mergers and joint ventures, and in the privatization of public companies, remains negligible.

- f. Access to finance through monetization or securitization is not yet commonplace.
- g. The use of IP technologies in the public domain is minimal; some companies seek the licensing of technologies which they could otherwise obtain free of charge.
- h. There are insufficient numbers of IP commercialization professionals available to carry out IP valuations as well as provide licensing, and negotiations and technology management.

The above-mentioned issues would need to be considered during the formulation of a national IP strategy.

This chapter describes the indicators that are important for the promotion of technology transfer and the commercialization of IP assets. As follows:

1. TTOs.
2. Valuation of IP assets.
3. Financing of the commercialization of IP assets:
 - a. Collateral;
 - b. Business plans;
 - c. Financial reporting;
 - d. Privatization;
 - e. Monetization or securitization;
 - f. Venture capital;
 - g. Joint venture or merger;
 - h. Government financial institutions.
4. Licensing of IP assets.
5. Business (technology) incubation.
6. Product and prototype development facility.
7. Science and technology parks.
8. Technology transfer policy.
9. IP commercialization professionals (to carry out valuations, auditing and licensing; technology managers).

4.2. Technology transfer offices

4.2.1. Introduction

The TTO is part of the support infrastructure for the management of IP assets in a university or research organization. It is therefore critical not only for the generation of IP rights but also for the protection and commercialization of IP assets. TTOs originated in the USA and, today, most countries embrace the concept of promoting TTOs in their public universities and research organizations. TTOs take various forms. While most countries have TTOs, some countries have technology licensing offices and others have companies which are 100 percent owned by universities or research organizations.

4.2.2. Functions of TTOs

A TTO located at a research organization in a developing country may have many and varied functions, depending on the mission of the institutions, and also depending on the key objectives for which the TTO was established. From an IP management point of view, a TTO should have the following functions:

1. Promotion of IP awareness among the institution's staff members.
2. Management of IP disclosure.
3. Filing for IP protection.
4. Commercialization
 - a. Marketing, negotiation and licensing
 - b. Creation of start-ups and spin-offs
5. Maintenance of IP assets.
6. Enforcement of IPRs.
7. Management of revenue sharing.
8. Management of conflict of interest and commitments.

Where financial sustainability is a key objective, some TTOs may be involved in the following areas (in addition to those listed above):

1. Management of consultancy services offered by the institutions.
2. Marketing of short courses and related capacity building programs offered by the institutions.
3. Management of contract research and related projects.
4. Marketing other capacities of the institutions, such as laboratory services.
5. Any other income-generating activities identified by the institutions.

Box 23: Statistics on TTOs – USA²⁵

During fiscal year 2008, 595 companies were created on foot of research carried out in US universities, according to the AUTM U.S. Licensing Activity Survey: FY2008, released by the Association of University Technology Managers, Deerfield, Illinois. Almost three-fourths (72 percent) of these companies confirmed their primary place of business as being within the university's home state – further evidence that university TTOs also contribute to local economic development. In addition, the survey findings indicated that 648 new commercial products were introduced, and 5,039 licenses and options were executed during 2008. All told, 3,381 start-up companies which were based on US university IP were operating at the end of 2008, according to the survey findings. The US university TTOs responsible for starting 10 or more companies in 2008 included Boston University/ Boston Medical Center, California Institute of Technology, Carnegie Mellon, Columbia University, Harvard University, Johns Hopkins University, Massachusetts Institute of Technology (MIT), Purdue University, State University of New York (SUNY), University of Alabama in Huntsville, University of California system, University of Colorado, University of Florida, University of Illinois, University of Michigan, University of Texas at Austin, and University of Utah.

Licensing to small companies was the dominant licensing transaction for US TTOs; it represented 48.2 percent of licensing activity during 2008. Licensing to start-ups and large companies represented 15.8 percent and 35.1 percent of transactions, respectively. Total license income for survey respondents was USD 3.4 billion, up 26 percent from USD 2.7 billion in 2007.

²⁵ <http://www.technologytransfertactics.com/content/2010/02/24/autm-licensing-surveys-reveal-steady-growth-in-us-canadian-commercialization/>

4.2.3. Benchmarking models for organizing and financing TTOs

Terry Young (2004) has described the various models of TTOs in selected countries worldwide. These models are discussed briefly below in order to provide more information on establishing and operating a TTO or its equivalent.

	Model	Brief details
1.	<i>The Australian model</i>	In Australia, public research organizations are responsible for financing the operations of their TTOs. Australia has two models, namely <i>internal TTO</i> and <i>external company</i> . In the company model, the corporation generates cash flow through a variety of related business activities such as consultancy, conference management and professional development. The revenues generated from these activities enable the company to support the university's technology transfer functions. In most cases, the universities provide seed money to set up the company. In the case of an internal TTO, the university funds it directly – in the same way that it would fund a university department. The amount provided depends on the importance the university attaches to the technology transfer process, coupled with the ability of the TTO to demonstrate the benefits it brings to the university.
2.	<i>The Indian model</i>	Legislation for organizing and financing TTOs does not exist in India. However, most technical universities and research institutions in India have established institutions whose role is to interface with industry. Such institutions carry out many of the technology transfer activities typically assigned to TTOs in other countries. The State, or central government, provides seed funding, but for a limited time only, as these technology transfer units are expected eventually to become financially self-sustaining, and even to become profit centers. In 2005, an umbrella organization, the Society of Technology Management (STEM), was established as India's professional technology transfer association.
3.	<i>The Japanese model</i>	In 1998, the Japanese Government enacted legislation to create government-approved university TTOs. The government would provide two-thirds of the operating costs, up to the equivalent of USD 300,000 per year for five years; the university or research organization would provide the other one-third. At the end of a five-year period the TTOs were expected to be self-sustaining financially. However, the government later realized that it would not be possible to meet this expectation, and therefore extended its subsidy – sufficient to cover a portion of the cost of TTO operations. Later, a number of TTOs realized that the funding from the government was not sufficient to support their operations; they created for-profit companies, which facilitated the creation of spin-out companies. Faculty members were asked to invest in these companies, which in turn served to commercialize university R&D. In 2004, 92 percent of Japan's national universities, 60 percent of its national research organizations and 43 percent of its private universities had established an office whose function is to cooperate with industry.
4.	<i>The Chinese Model</i>	Today, most public research organizations in China have TTOs. They were originally supported by the government, but as China moved to become a market economy, the TTOs changed and, currently, they operate as associated private companies. These companies are today very active in business-like activities, such as setting up business incubators; assisting SMEs with the preparation of business plans; helping to develop spin-out companies with university-based venture capital. In many cases, TTOs negotiate for significant equity shares, or they may wholly own spin-out companies.

5.	<i>The South African model</i>	In South Africa, TTOs play a crucial role in IP management, although they are still a relatively new phenomenon in South Africa's universities and research organizations. Currently, South Africa has six universities and research councils operating well-established technology transfer activities.
6.	<i>The Kenyan model</i>	Out of the eight public universities in Kenya, three operate companies, while two of Kenya's six research organizations have TTOs. All five institutions have IP policies.
7.	<i>The UK model</i>	Since the publication of the Competitiveness White Paper: UK 1998, many policy initiatives and government funding streams were established to stimulate university-industry cooperation. This cooperation significantly changed the way universities in the UK organize their technology transfer activities. Several prominent universities created separate companies to commercialize IP, particularly those considered to have high potential to become spin-out companies.
8.	<i>The Netherlands model</i>	The concept of university-based companies is also popular with universities in the Netherlands. Amsterdam University and the University of Maastricht are examples of universities that own companies which were specifically established to carry out technology transfer.

4.2.4. Best practice in establishing a TTO

If a country chooses to promote the establishment of TTOs as one of its objectives, then it may need to consider the following issues: the mission and funding of the TTOs, indicators for benchmarking TTOs, as well as a consortium model for TTOs (see Box 23 and Box 24).

Box 24: Mission and funding of TTOs³

Why establish a TTO? Is it to generate income for the institution, or is it to promote the mandate of the institution i.e., the dissemination of knowledge?

1. As a country, the main reason for establishing a TTO should be to improve the dissemination of the knowledge generated in universities and research organizations, in order to grow the economy and create both jobs and new enterprises.

2. TTOs are incapable of being financially sustaining in the short term. Experience has shown that it requires a period of eight to ten years before a TTO can generate sufficient income to sustain its operating costs, and provide a dividend. As a result, financial support by government and relevant institutions is required in the interim.

Box 25: Indicators for benchmarking TTOs

- **The number of IP disclosures;**
- **The number of IP applications;**
- **The number of grants;**
- **The number of licensing contracts;**
- **The licensing revenue;**
- **The number of start-up companies;**
- **The number of joint ventures.**

A TTO must be economically viable in terms of outputs and impacts on the country. Benchmarking indicators have been developed in order to evaluate the performance of TTOs (see Box 24). To normalize these indicators, the numbers are expressed as a function of the research budget. The benchmarking data can be used to understand the implications of promoting technology transfer and the likely outcomes of a technology transfer initiative. For example, a developed country's invention disclosure rate of 40 to 50 per USD 100 million of research expenditure may serve as a deterrent for establishing TTOs in a developing country which has a meager research budget. Similarly, if the income for an institution after eight to ten years is likely to be a modest 1 to 2 percent of the annual research expenditure, then that also would serve to discourage developing countries with meager research budgets. Senior university management team members must understand these data in order to avoid unrealistic expectations and remain committed to financially supporting TTOs for a long period of time.

Consortium model for developing countries

In order to improve the financial viability of TTOs, developing countries may opt to establish TTOs to serve several universities or research organizations in a given region. Information on the logistics of how this can be implemented may be obtained from various sources, including in the publication titled *Establishing and operating technology transfer offices in IP management in health and agriculture innovation – a handbook of best practice* published by MIHR (Centre for the management of intellectual property in health research and development, UK).

4.3. Valuation of IP assets

IP valuation means including an assessment of the economic value of different types of IP in the valuation of an existing company or new enterprise. IP valuation is important for financing the commercialization of IP assets. In devising IP strategies, countries must decide whether to train professionals who are equipped with the requisite knowledge and experience to handle the valuation of IP assets. The reasons why valuation of IP assets is becoming very important are set out in Box 25:

Box 26: Why IP valuation is important³¹

1. Using IP assets as collateral;
2. Corporate valuation – role of IP;
3. Corporate mergers and acquisitions;
4. Privatization of public entity;
5. Fundraising through monetization and securitization;
6. Initial public offering;
7. Financial reporting;
8. Licensing an IP asset.

4.4. Financing commercialization of IP assets

4.4.1. Using IP as collateral

Most financial institutions do not accept IP assets as collateral; neither are IP assets considered by banks during the evaluation of inventors' and enterprises' business plans. Consequently, inventors seeking financial support for the commercialization of their inventions must look for other forms of collateral in order to secure business credit from financial institutions. Programs that succeed in making financial institutions partner with government in supporting inventors would be desirable (see Box 26).

Box 27: Using IP as collateral²⁶

IP can be used as collateral for bank loans. Companies can use their IP assets as loan collateral, provided they are able to prove that the liquidity, value, durability and marketability of those assets. In order to use IP as collateral, it is therefore important to obtain an objective valuation of the identified IP asset; in addition, the acceptance of IP assets as collateral must be supported by relevant national laws.

In 2005, the Development Bank of Japan implemented a loan system which allows the use of patents and patent applications, as well as copyrights of computer programs and contents, as collateral. Since then, the Bank has granted more than 250 loans to new enterprises, with the Bank assessing the present value of the cash flows to be generated by IP. In Europe, very few banks have used IP to develop SME loan portfolios; exceptions include the Landesbank Rheinland-Pfalz which has used technical documentation related to research projects as additional collateral for the financing of medium-sized companies' development projects.

Currently, only a few banks seem to be providing this service; this is because many banks have difficulty estimating the market value of intangible assets, and they often take the value of the entire business as collateral. Such collateral may range from furniture to software to IP. When considering whether they will provide financing, banks typically do their own research to confirm that the IP has been secured correctly. IP is therefore often seen as an unreliable form of collateral. Commercial banks do not have the necessary competencies to value technology, and they are generally oriented towards funding projects with a lower risk profile.

²⁶ "Exploiting the value of IP assets: instruments and areas of actions for SMEs." Available at http://ec.europa.eu/enterprise/newsroom/cf/_getdocument.cfm?doc_id=1166

4.4.2. Corporate mergers and acquisitions

The securing of a valuation of IP assets helps a management team to get a better indication of the overall value of a company; conversely, the lack of a valuation of intangible assets results in differences between companies' book values and their market values. For example, a review of the 350 largest British companies with a combined total market capitalization of USD 2,167 billion revealed that, of this value, total balance sheet assets amounted to only USD 603 billion and intangible assets a mere USD 38.9 billion (Peckam, 2004). This left an unexplained gap between market capitalization and the balance sheet of about USD 1,500 billion, or 72 percent of the total market value. The difference is attributed to intangible assets.

Box 28: Philips – Leading the world in IP²⁷

Founded in 1891, Royal Philips Electronics in the Netherlands operates in more than 60 countries, where it has 128,000 employees involved in business sectors ranging from electrical appliances, semiconductors and lighting to medical equipment and personal health care. Philips entered the Chinese market as early as 1920, and set up its first joint venture in 1985. Today, it boasts 23 joint ventures or exclusively-funded companies in China, where it has 15,000 employees. Philips' accumulated investment in China totals more than USD 4 billion.

According to Mr. Ruud J Peters, CEO of Philips Intellectual Property & Standards, the company owns more than 60,000 registered patents, including 16,300 patents obtained in China. In addition to inventions, Philips owns 29,000 trademarks, 43,000 design patents, and 2,000 domain names. Philips uses IP in many different but effective ways. These include the exclusive use of patents, exclusive licenses, sole or non-exclusive licenses, cross-licenses, patent pool licenses, technology licenses; the sale and purchase of IP, using IP as assets in a company merger and acquisition; setting up joint ventures; spinning off selected divisions or creating new ones; establishing and maintaining standards.

By considering the value of IP assets during merger and acquisition transactions, the proportion of the net worth of a business that is attributable to goodwill is reduced. It is of critical importance that both the buyers and the vendors understand and evaluate the real worth of their IP assets if they are to negotiate an appropriate sale price. It is also important to recognise the value of intangibles on the balance sheet, as these intangibles may prove to be valuable financial assets with which a company could successfully defend a hostile takeover bid (see Box 27 for example).

4.4.3. Privatization of public entity

The issue of privatization (simply defined as the transfer of assets from the state sector to the private sector) was recently identified as having a significant influence on IP policy and strategy formulation. WIPO's study on privatization²⁸, which was carried out by an advisory panel, readily identified the question of the valuation of IP assets as a key area with clear relevance in relation to decisions on whether or not to privatize. In addition, the study highlighted many examples where IP assets had possibly been undervalued or not valued at all. The panel noted that existing international accounting standards and valuation methodologies might be inadequate in terms of providing a sound foundation for valuing intangible assets, including IP assets. The panel noted that between 50 percent and 80 percent of the value created by a firm originates from intellectual capital, rather than from traditional physical assets. This points to a shift in economic valuation – from physical capital to intangible and intellectual capital.

4.4.4. Fundraising – monetization of IP assets

IP-rich companies should be aware of alternative ways to raise capital other than the traditional loan route, or equity financing. The monetization of an owner's IP assets through a revenue or royalty acquisition transaction is one such strategy. In this type of scenario, the IP holder sells to an investor (for a cash price that is deemed reasonable by both parties) a royalty or revenue stream which the IP holder currently owns, and which is derived from or is based on IP royalty/revenue streams. The royalty or revenue acquisition stream could, for example, be a royalty to be received by the IP holder from the licensing of its patents or other IP, or it could be a revenue stream based on sales of products covered by the IP holder's IP. In this way, the owner of the IP asset wins liquidity on its IP royalty stream, and the investor wins by purchasing the revenue stream at a discounted price. Furthermore, the IP holder generally retains the ownership of the underlying IP asset and the right to exploit such assets in any field of use not included as part of the revenue acquisition transaction.

27 "Philips Leading the world in intellectual property" - <http://www.chinaipmagazine.com/en/journal-show.asp?id=452>

28 Kamil Idris, *Intellectual Property, a Power Tool for economic growth*, 2001

29 Lindsey Moore, "Monetize intellectual property assets with securitization finance", in *Functional Ingredients*, October 2008. Available at <http://newhope360.com/supply-news-amp-analysis/monetize-intellectual-property-assets-securitization-finance>

Box 29: Examples of securitization or monetization of IP assets²⁹

In 1997, pop star David Bowie bundled together the royalties of a music catalogue of his pre-1990 work in order to raise USD 55 million in capital. It became known as the “Bowie Bond.” Bowie’s copyright-based capitalization was followed by trademark securitizations, such as those accomplished by fashion designer Bill Blass, who used the first trademark securitization during 2000, when he bundled royalties received from trademark licenses to raise USD 25 million in capital. In 2002, Dreamworks issued a facility backed by the existing and future royalties of the film properties owned by the enterprise in order to raise USD 1 billion in capital.

Monetization of IP assets can address a variety of needs for an IP holder. For example, it can be used by an IP holder (company) not only to obtain an alternative source of financing, but also to obtain present value from a non-strategic royalty stream; to share risk in the future potential of the royalty stream, and to defer partnering on a product until the product valuation has improved.

If the IP holder is a university, the university can reduce the present value of the future sales on the royalty stream and use such funds to meet operating requirements, reduce the university’s administration costs burden, or to supplement its research funds. If the IP holder is an individual, the royalty stream may be used to reduce taxes, raise money for other projects, diversify assets, or it may be used for estate planning purposes. For companies in particular, this type of financing offers several advantages over traditional debt or equity funding mechanisms. In traditional debt financing, the loan is recourse; it contains several restrictive covenants; it is credit market dependent, and more importantly, repayment is not tied to performance. Equity financing is also dependent on market and sector favouritism, and it is dilutive. Royalty acquisitions, on the other hand, are non-dilutive, non-recourse, and are not dependent on capital markets; in addition, payments are often aligned with product sales, thereby reducing cash flow concerns.

4.4.5. Initial public offering

Reporting the value of intangible assets provides information to investors, which enables them to make informed decisions regarding investing in the capital markets. A capital marketplace relies for its efficient operation on information and disclosures that are reliable and useful and, based on which, people can make informed investment decisions.

4.4.6. Financial reporting

The balance sheet contains details of assets, liabilities and capital, and provides a picture of an enterprise’s financial position at a particular point in time. Study findings show that about 70 percent of the market capitalization of major corporations is comprised of intangible value. The vast majority of this value does not appear on these corporations’ balance sheets (Peckam, 2004).³⁰

The sum of values of the assets less liabilities as they appear on a balance sheet will not be the same as the value of the business as a whole. This difference is attributed to the concept of goodwill, which recognizes that an existing business will usually have substantial intangible assets, such as reputation, established relationships with suppliers and customers, and managerial skills; these assets will not appear on the balance sheet.

Like tangible assets, such intangible assets have value because they are expected to produce future benefits for the entity. If an entity produces an intangible asset, this should be treated in the same way as a purchase of a tangible asset. Similarly, if a firm incurs expenditure to develop an intangible asset, then this should be treated in the same way as expenditure on construction of a fixed asset (Lewis and Pendril, 1987).

Accounting practice for so-called goodwill has not dealt well with the increasing importance of intangible assets, with the result that companies have been penalized for making what they believed to be value-enhancing acquisitions. Either they had to suffer massive amortization charges on their profit and loss accounts, or they have had to write off the amount to reserves and, in many cases, they have ended up with a lower asset base than they had before the acquisitions.³⁰

By including intellectual capital assets on the balance sheet, a company can provide the most accurate information on the financial position of the company, thus preventing a situation whereby the management team can only account for roughly a quarter of the value on the balance sheet when the balance sheet is compared with the company’s market capitalization. This is because in most large companies, the largest asset will be intangible, and that asset will not be reported on the company’s balance sheet. Companies can also use the balance sheet recognition of intangibles as an investor relations tool by providing historic values, and using these values as a financial performance indicator.

³⁰ Lindeman Jan (2004). *Brand Valuation, A chapter from Brands and Branding. An Economist book. April 2004* (www.interbrand.com).

4.5. Licensing of IP assets

Licensing is the most preferred route for the commercialization of IP assets. The inventing institution enters into a licensing agreement with another company, which will commercialize the invention. The inventing institution in return receives royalties. The advantage here is that the license can be given to a number of entrepreneurs. Today, many entrepreneurs manufacture under license. Licensing enables the company to gain profits from the IP asset, with minimum risk and commitment. In order to enhance the commercial exploitation of IP rights through licensing, the following may be required:

- a. Provisions in national IP laws which authorize others to exploit IPR in case of non-use or non-commercialization of IPR, under certain circumstances;
- b. Provision in laws stipulating licensing procedures and licensing royalties;
- c. National licensing agency;

In some countries, institutions are established to promote technology transfer and commercialization at national level (see example of functions of such institutions Box 31):

Box 30: Statistics on licensing³¹

USD 500 billion – annual patent licensing revenues forecast for the US in 2005.

USD 5.5 trillion – value of US IP, as estimated by IBM in 2007.

USD 100 billion – value of the worldwide licensing market

USD 1.5 billion in licensing royalties collected by IBM in 2001 from its 3,411 patents.

USD 1 billion – total licensing revenues generated by patents acquired by Intellectual Ventures as of 2009. Intellectual Ventures (a USD 5 billion start-up company founded by Nathan Myhrvold and headquartered in Bellevue, Washington) was founded with the objective of amassing and licensing IP inventions and, more specifically, patents which can be used to collect royalties from companies that use the patented concepts in their products. So far, Intellectual Ventures has created a portfolio of about 27,000 patents, the bulk of which it has accumulated by acquiring them from other companies or individuals.

USD 150 million – royalties received by the University of Florida from sales of Gatorade.

USD 157 million – amount of licensing revenue earned by New York University in 2006. “New York University hauled in USD 157 million in 2006 by charging licensing fees to use faculty inventions. Stanford University, a distant second that year, collected USD 61 million.” (Tim Simmons, Staff Writer, ‘University inventions’ cash value unrealized’, The News & Observer, April 20, 2008).

Box 31: Functions of a national licensing agency

- **Connects inventors and investors;**
- **Sources and manages funding for commercialization;**
- **Assists inventors with marketing, licensing and negotiation services;**
- **Promotes the establishment of business incubators and industrial parks.**

³¹ Inventors income and success stories -http://www.inventionstatistics.com/Inventor_Income_Inventor_Success_Stories.html

4.6. Infrastructure for commercialization of IP rights

4.6.1. Prototype development policies and facilities

Prototype development is the step in the process that takes place in the interim period between the IPR grant and full commercialization. A prototype enables an investor to see the potential of the invention that is being proposed for a particular commercial usage. This function can be supported by creating a prototype development policy and also by providing a suitable facility where work on developing the prototype can be carried out.

Rapid prototyping at technology centers in South Africa

Rapid prototyping (RP) refers to a category of technologies that can automatically construct physical models from computer-aided design (CAD) files. RP machines are essentially “three-dimensional printers” which allow designers to quickly create tangible prototypes of their designs. Prototyping creates excellent visual aids for communicating design concepts to co-workers and potential customers. As a result of the establishment of the Tshumisano Partnership, there are now several technology centers across South Africa; these are located at universities of technology which offer a variety of services to SMEs (see Box 32).

Box 32: Statistics on licensing³²

- a. **Technology station – electronics:** Located in Tshwane University of Technology, it helps SMEs to become global competitors through prototyping.
- b. **Technology station – product development:** located in the Central University of Technology, its main function is to assist SMEs with product development.
- c. **Chemicals and chemical engineering station:** located in Tshwane University of Technology, it offers a wide variety of services to improve SMEs’ competitiveness.
- d. **Technology station – materials and processing technologies:** located in Vaal University of Technology, it provides support to SMEs in the area of technology transfer in the fields of composites and metals-based products.
- e. **Technology station – automotive components:** located in Port Elizabeth at the Nelson Mandela Metropolitan University, it is a one-stop multidisciplinary advisory center for automotive components and related industries.
- f. **Technology station – clothing and textiles:** located in Cape Peninsula University of Technology, it offers a range of specific services to the clothing and textiles SMEs sector.
- g. **Technology station – Agrifood:** located in the Cape Peninsula University of Technology, it supports the agricultural industry and food industries in the area of process development and improvement.
- h. **Agrifood technology station:** located in the University of Limpopo, it offers a wide range of scientific and technical services to the technology and food industries.

³² <http://www.rcips.uct.ac.za/fundinnov/rapidprototype/>

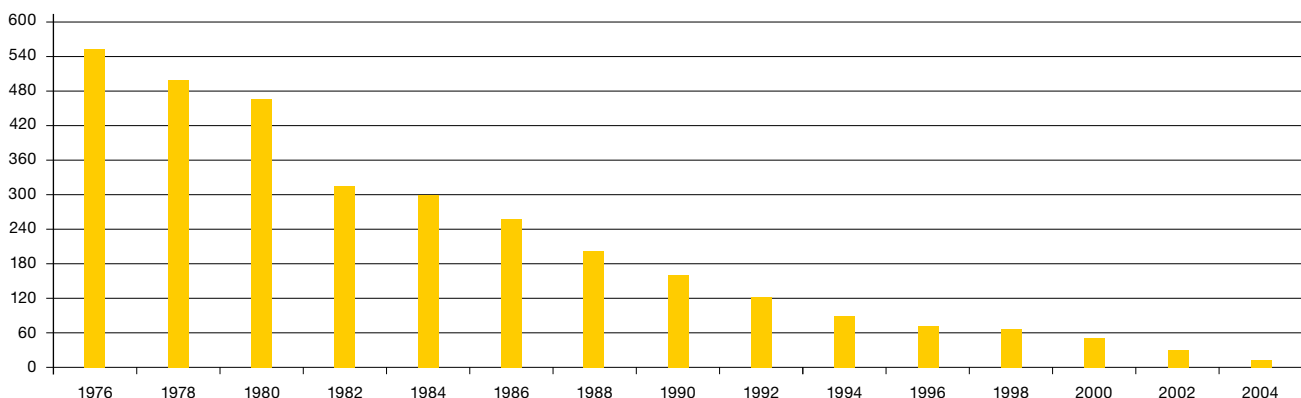
4.6.2. Science, technology and industrial (STI) parks

Most R&D institutions in developing countries receive government funding support. Science, technology and industrial (STI) parks enable the establishment of companies, based on R&D findings from research institutions. Because they are located in the vicinity of such research institutions, STI parks can provide the requisite infrastructure to support the commercialization of IPRs from RTOs (see Box 33 and Box 34, as well as the figure below).

Box 33: From government intervention to knowledge-intensive entrepreneurship³³

The University of Twente in the Netherlands regards «entrepreneurs as a bridge between the university and industry». The university's entrepreneurial journey began in 1980 when a program titled Temporary Entrepreneurial Positions (TOP) was introduced at the university to support researchers who wished to create new companies. Over the past 25 years, the university has created more than 500 spin-off companies. The impact of TOP is significant. It has led to the creation of a strong entrepreneurial culture in the university. This culture has helped to promote access to the university's research groups due to the creation of a network of companies which are active in fields of knowledge associated with the university. In addition, the program has had a significant impact on regional economic development, with 80 percent of businesses remaining in Twente and providing more than 2,800 jobs for highly educated people.

Growth of spin-off companies generated by University of Twente, The Netherlands (1980-2005)



33 http://en.wikipedia.org/wiki/Hsinchu_Science_and_Industrial_Park

34 *Entrepreneurship support at the University of Twente*
<http://www.oecd.org/dataoecd/19/10/37553904.pdf>

35 *Innovation and Entrepreneurship Policy Framework – The Malaysian Experience in Building Sustainable Incubation Industry (Movement)*
<http://search.sweetim.com/search.asp?q=SIRIM+Technology+Incubator+-graphs&ln=en&start=0&src=1001&lcr=0>

Box 34: Hsinchu Science and Industrial Park, China³⁴

Hsinchu Science and Industrial Park http://en.wikipedia.org/wiki/Industrial_park (HSP) was established by the Government of the Republic of China (Taiwan) on December 15, 1980, with investment from the Kuomintang. The industrial park straddles Hsinchu city and Hsinchu county on the island of Taiwan and was founded by Kwoh-Ting Li, former Finance Minister, Republic of China. Inspired by the success of Silicon Valley in the USA, Li consulted Frederick Terman on how Taiwan could follow the example of Silicon Valley. Li then convinced talented individuals who had emigrated from Taiwan to build companies in HSP.

HSP is now one of the world's most significant locations for semiconductor manufacturing. More than 400 high-tech companies – mainly involved in the semiconductor, computer, telecommunications, and optoelectronics industries – have been established in HSP since December 2003. The park's 400 technology companies accounted for 10 percent of Taiwan's GDP in 2007. HSP is home to the world's top two semiconductor foundries, Taiwan Semiconductor Manufacturing Company (TSMC) and United Microelectronics Corporation (UMC), both of which were established at the nearby Industrial Technology Research Institute. Located next door to HSP are two of Taiwan's science and engineering powerhouses, National Chiao Tung University and National Tsing Hua University.

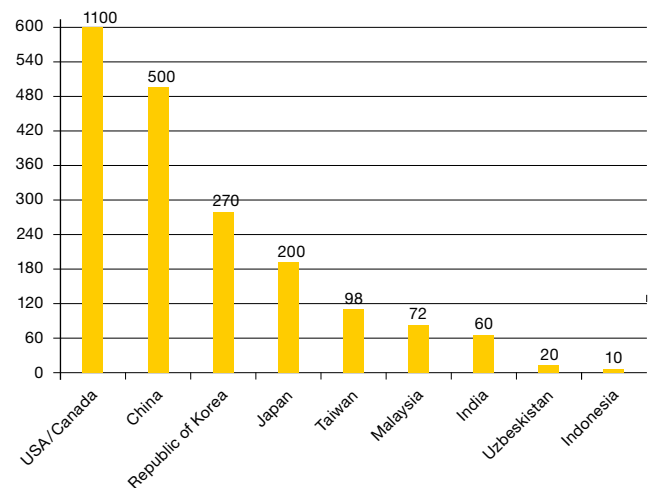
4.6.3. Incubation policy and technology incubators

Quite separate from the creation of STI parks, most countries are now creating incubation policies to support the establishment of technology incubators. In these incubators, technology-based SMEs are provided with the requisite resources to enable them to develop and expand; such resources include the provision of services e.g., financial assistance, legal counsel, management advice and office/manufacturing accommodation. Most countries that have developed IP policy and strategy have included the establishment of technology incubators as one of their strategic objectives. The aims of technology incubators vary according to the region where they are located, and they may include any of the following:

- A reduction in the company failure rate;
- A reduction in the unemployment rate;
- The development of an entrepreneurial spirit;
- An increase in university-company interaction;
- The development of a distinctive market niche;
- Technological development.

The figure below shows the number of business/technology incubators in selected countries.³⁵

Number of business/technology incubators in selected countries/territories (2007)



CHAPTER 5

COPYRIGHT AND COPYRIGHT INDUSTRIES

5.1. Introduction

Copyright is a legal term used to describe rights given to creators for their literary and artistic works³⁶. The types of works covered by copyright include literary works such as novels, poems, plays, reference works, newspapers, and computer programs, databases, films, musical compositions, choreography; artistic works such as paintings, drawings, photographs, sculpture; architecture; advertisements; maps; technical drawings.

Both the creators of original works protected by copyright and the heirs of such creators have certain basic rights. They hold the exclusive right to use, or authorize others to use, the work on agreed terms. In addition to literary and artistic works, copyright also protects derivative works, i.e., works derived from existing sources. Examples of derivative works include translation and adaptation.

In addition to the foregoing, there is a concept known as 'related rights'; this is not copyright, but is closely associated with it, since related rights are derived from works protected by copyright. Related rights are rights granted to performers, producers and broadcasters.

Many creative works protected by copyright require mass distribution, communication, and financial investment for their dissemination (e.g., publications, sound recordings, and films). For this reason, creators often sell the rights to their works to individuals or to companies, in order to be able to market the works in return for payment. These payments are often made dependent on the actual use of the work, and are then referred to as royalties.

Many owners of creative works do not have the means to pursue the legal and administrative enforcement of copyright, especially given increasingly worldwide use of literary, musical and performance rights. As a result, the establishment of collective management organizations (CMOs) or collective management societies is a growing trend in many countries. These societies can provide members with the benefit of the organization's administrative and legal expertise in, for

example, the collection, management and disbursement of royalties earned from the international use of members' work.

The copyright sector in most developing countries and LDCs is currently facing a number of challenges (see Box 35).

Box 35: Challenges facing the copyright sector in developing countries

- a. **Copyright offices are small departments within governments ministries;**
- b. **Low recognition of the importance of the copyright industries;**
- c. **Weak collective management organizations;**
- d. **Lack of national cultural strategies and policy;**
- e. **High level of piracy and weak enforcement of copyright;**
- f. **Outdated copyright laws;**
- g. **Lack of institutions available to promote copyright;**
- h. **Low level of awareness among creators and users of copyright;**
- i. **Low returns to creators.**

Most developing countries and LDCs are now beginning to realize the economic potential of copyright industries, and are developing policies and strategies designed to exploit the potential of the copyright sector.

36 *What is copyright?* World Intellectual Property Organization, Geneva, Switzerland. <http://www.wipo.int/ebookshop>

In this chapter, the following indicators are discussed:

1. The Copyright Office: legal status, key functions and staffing.
2. CMOs.
3. WIPOCOS – a software for the management of CMOs.
4. Economic impact of copyright industries and related industries.
5. National strategies for the promotion of the creative industries.
6. Traditional knowledge and folklore.
7. Information and Communication Technology (ICT) and IP

5.2. The copyright office

Status and autonomy of the copyright office

Just like industrial property offices, a copyright office may take several forms. Some offices operate as a division of a government department, whereas others are semi-autonomous or fully autonomous organizations. In some countries, the copyright office is more established than the industrial property office. In other countries the copyright office is an autonomous entity, and the industrial property office is a division within a government department (see Box 36 for example).

Box 36: The Nigerian Copyright Commission

The Nigerian Copyright Commission is an autonomous body established by the Copyright Act Cap 69 of the Laws of the Federation of Nigeria (1990). Sections 30 to 33 articulate the administration of copyright in Nigeria as follows:

30. There is hereby established a body to be known as the Nigerian Copyright Council. The council shall be a body corporate with perpetual succession and a common seal and may sue and be sued in its corporate name³⁷. The council shall-
- a. be responsible for all matters affecting copyright in Nigeria as provided for in this Act;
 - b. monitor and supervise Nigeria's position in relation to international conventions and advise Government thereon;
 - c. advise and regulate conditions for the conclusion of bilateral and multilateral agreements between Nigeria and any other country;
 - d. enlighten and inform the public on matters relating to copyright;

- e. maintain an effective data bank on authors and their works;
- f. be responsible for such other matters relating to copyright in Nigeria as the Minister may, from time to time, direct.

31. The council shall have a governing body which shall be composed as follows:

1. a chairman to be appointed by the President, Commander-in-Chief of the Armed Forces;
2. the Director of the Council;
3. a representative of the Federal Ministry responsible for culture;
4. a representative of the Federal Ministry of Education;
5. a representative of the Federal Ministry of Trade and Tourism;
6. a representative of the Federal Ministry of Internal Affairs;
7. a representative of the Federal Ministry of the Nigerian Police Force, not below the rank of a Commissioner of Police;
8. a representative of the Federal Ministry of the National Library;
9. two persons knowledgeable in copyright matters to be chosen by the Minister responsible for culture;
10. fifteen representatives of authors' associations who shall represent as far as possible the following interests to be appointed by the Minister, that is- (i) writers, (ii) publishers, (iii) musicians and music publishers, (iv) phonographic and videographic producers (v) cinematograph producers, (vi) theatre practitioners, (vii) broad casting organizations, and (viii) visual artists.

32. There shall be for the council, a Director who shall be the Chief Executive and shall be appointed by the President, Commander-in-Chief of the Armed Forces on the recommendation of the Minister. The Director shall be responsible for the day-to-day administration of the Council. Without prejudice to the generality of subsection (1) of this section, the Council shall have power:

- a. to appoint such other staff as it may determine;
- b. to pay its staff such remuneration and allowances as it may, from time to time, determine;
- c. as regards any staff in whose case it decides so to do, to pay to or in respect of such staff such pensions and gratuities as are payable to persons of equivalent grade in the public service of the government.

³⁷ Available at <http://www.nigeria-law.org/CopyrightAct.htm>

5.3. Collective management organizations (CMOs)

5.3.1 Role of CMOs

Establishing CMOs is a strategy which most countries today are actively considering, in order to promote the creative industries. Where CMOs are in place in a particular country, right owners can authorize CMOs to administer their rights, i.e., to undertake the following:

1. Monitor and manage the use of the works concerned;
2. Negotiate with prospective users, such as radio and television stations, discotheques, bars and airplanes, or groups of users, such as hoteliers, for use of the rights;
3. Authorize those users to utilize the works in return for payment of agreed royalties;
4. Collect such fees and distribute them among the owners of the rights.

5.3.2. CMOs as best practice in the management of copyrights and related rights

Establishing CMOs is today considered best practice in the management of copyrights and related rights. Developing countries have recognized the essential role and functions of CMOs in facilitating the collective management of the literary and artistic works of their members. Most developing countries have already begun the process of reviewing their laws, and some have already made provision for establishing CMOs in their revised legislation.

The following are some of the justifications for establishing CMOs as a strategy for promoting the creative industries:

1. The continued development of sophisticated technology for taping, recording, transferring, sharing, transmitting and broadcasting performances of music and works has made extensive piracy possible, and therefore the individual exercise of rights has become almost impossible.
2. Some users, such as broadcasting organizations, require rapid access to a vast body of work. These organizations prefer not to have to deal with individual right owners; rather, they prefer to deal with entities such as CMOs.
3. CMOs provide useful assistance to users of works through procedural simplification, such as negotiation, calculation of fees and the facilitation of access to works. This reduces administrative costs for the users.

4. CMOs can play an important role as lobbyists for the interests of their members, as was the case with the Performing Musicians Association of Nigeria (PMAN) when it lobbied for many years for a comprehensive review of the Copyright Act (1970). PMAN organized a country-wide protest march as part of its lobbying strategy; three weeks later, the law was passed.
5. CMOs can play a vital role in raising the awareness of IP-related issues among potential right owners, law enforcement agents and the public at large; CMOs can also play a vital role in raising awareness of the importance of protecting IP rights for right owners, as well as raising awareness of the importance of promoting creativity.

5.3.3. Types of CMOs

The nature and status of CMOs differ, depending on the form and the extent of government supervisions, as discussed below:

1. In some countries, such as Brazil, Italy and Nigeria, CMOs operate as central government departments. Essentially, they are central offices for the collection and distribution of right owners' fees.
2. In countries such as Algeria, Morocco and Senegal, CMOs are semi-public copyright organizations which manage rights on behalf of the right owners.
3. In the Russian Federation and the USA, CMOs are autonomous bodies or private agencies.
4. CMOs also differ with respect to whether they are the only organizations responsible for the management of all copyrights in a particular country, or whether there are several CMOs for different copyrights (e.g., a CMO for musicians and a CMO for authors).

5.3.4. Way forward for CMOs in developing countries

1. Experience, coupled with technological developments in recent years, has increasingly demonstrated that individuals' capacity to exercise rights is impractical. Any developing countries that have not already embraced the establishment of CMOs need to do so as a matter of urgency.
2. Having realized the importance and usefulness of CMOs as a way of protecting the interests of right holders and users, many developing countries have been incorporating provisions for the establishment of CMOs into their

legislation drafting processes. The inclusion of CMOs in legislation is a prerequisite for the effective protection and promotion of copyright and related rights, and also for the protection and promotion of IP rights in general.

3. The inclusion of reference to CMOs in copyright laws makes it necessary to develop appropriate IP policies and strategies, so as to ensure that the establishment of such organizations becomes a reality.
4. During the initial stages of their establishment, CMOs in developing countries are usually very weak in terms of their ability to meet their administrative costs. This may be due to the small number of members in place during the early stages of the CMOs' development, and the very limited capacity of these members to pay their annual membership fees because, up to this point, they may have been involved in creating works for which they received no payment. Therefore, it is recommended that governments make a commitment to meet the administrative costs of their respective CMOs until such time as the organizations are in a position to become self-financing; this is the situation that applied in the case of the establishment of the Copyright Society of Malawi (COSOMA) i.e., Government of Malawi provided financial support in the short term.
5. CMOs must strive to create a reliable and cost-effective rights management system, i.e., efficient mechanisms for royalty collection and distribution, and monitoring. Delivering efficiencies in the operation of these mechanisms will boost the confidence of CMO members; it will serve to attract more members, and it will also result in gaining the respect of other stakeholders.
6. Because piracy is one of the most notorious copyright infringement activities at a commercial level, and because it reduces revenue flows to CMOs and right owners, CMOs must establish and reinforce their close collaboration with other IP enforcement agencies such as the police, the judiciary and customs officials. CMOs should provide artists with mechanisms such as holograms and technical devices that prevent piracy.

5.4. WIPO software for collective management of copyright and related rights (WIPOCOS)

The WIPO project, WIPOCOS (WIPO Software for Collective Management of Copyright and Related Rights) is building a common digital platform which will help streamline the identification of protected musical works across 11 West African countries, thereby helping creators in these countries to get paid for their work as a result of using a simplified and standardized rights registration system. The project is aimed at building more efficient copyright infrastructures in developing countries. It was approved by WIPO Member States as part of WIPO's Development Agenda. WIPOCOS helps CMOs in participating Member States to share information on the identification of works and information on the identification of relevant interested parties, thus making cross-border licensing easier. During Phase One, the following 11 West African countries were involved in the project: Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal and Togo. According to a report published by the WIPO Director General in September 2010, some 13 countries in West Africa are already using the system³⁸.

5.5. Studies on the economic contribution of copyright and related industries

Copyright industries could contribute significantly to the economies of most developing countries if they were given adequate support. Such an economic contribution would be possible given the abundant resources of these countries in terms of copyrightable material. Despite this potential advantage, however, copyright has not as yet attracted the appropriate level of attention from decision-makers in developing countries – partly perhaps because there are no data available that can be used to inform decision-makers about the important role that copyright could play in the economy. Few Latin American countries have carried out such studies and thus have the requisite data on which to base the development of a national strategy for the copyright sector, or to influence decision-makers on the need to support this sector. Developing countries may wish to undertake such studies in order to achieve the requisite level of support for their copyright industries.

Recent years have seen the development of a greater appreciation of the economic contribution of the creative industries. Studies carried out in different countries not only confirm this but also show that the economic contribution is on an upward trend. In 2003, WIPO published the

³⁸ Report available at http://193.5.93.80/about-wipo/en/dgo/speeches/dg_report_a_48.html

WIPO Guide on Surveying the Economic Contribution of the Copyright-based Industries; this initiative was a direct response to the interest expressed by Members States in the economic contribution of copyright-based industries. The guide sets out a methodology for measuring the contribution of copyright activities in economic terms, thereby providing the basis for undertaking a comparative analysis between countries on the size of their respective creative sectors. Since it was published, a number of countries have successfully used the guide, and results show the substantial economic contribution that the creative industries have made in terms of their share of GDP and the generation of employment and trade. Research shows that the creative industries represent a dynamic sector which, on average, grows faster than the rest of the economy. The WIPO guide separates copyright-based industries into four groups. As follows:

- a. **Core copyright-based industries** are defined as those that are wholly engaged in the creation, production and manufacture, performance, broadcast, communication and exhibition, or distribution and sales of works and other protected subject matter.
- b. **Interdependent copyright-based industries** refers to industries which are engaged in the production, manufacture and sale of equipment, and whose function is exclusively or primarily to facilitate the creation, production or use of works and other protected subject matter.
- c. **Partial copyright-based industries** refers to industries where a portion of their activity is related to works and other protected subject matter, and where such activity may involve the creation, production and manufacture, performance, broadcast, communication and exhibition or distribution and sales of copyright works.
- d. **Non-dedicated support industries** refers to industries where a portion of their activity is related to facilitating broadcast, communication, distribution or sales of works and other protected subject matter, and where such activities have not been included in the core copyright industries.

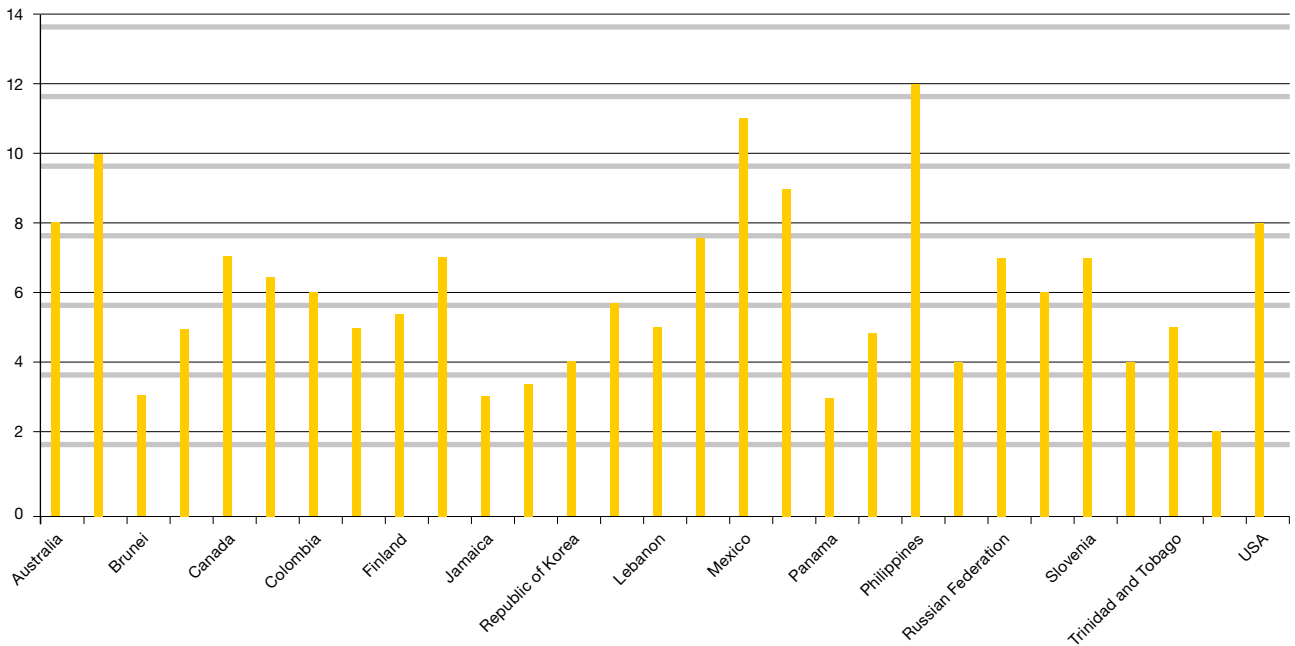
Box 37: Case study – Kenya

In 2007, a study on the economic contribution of copyright-based industries was carried out in Kenya. The survey showed that copyright-based industries and interdependent copyright industries contribute more to Kenyan GDP than do other sectors³⁹. For example, in 2007, the value added by copyright-based industries represented 5.32 percent of Kenya's GDP. The study findings generated increased interest in this sector, which has seen a rise in both budgetary allocation and staffing levels at the Kenya Copyright Board (KECOBO). In addition, the study has attracted the attention of the Kenya Revenue Authority (KRA) to the copyright sector. Currently, a memorandum of understanding (MoU) is being negotiated between KECOBO and the KRA on how to convert the predominantly informal copyright sector into a formal sector for the purpose of revenue generation and tax collection⁴⁰.

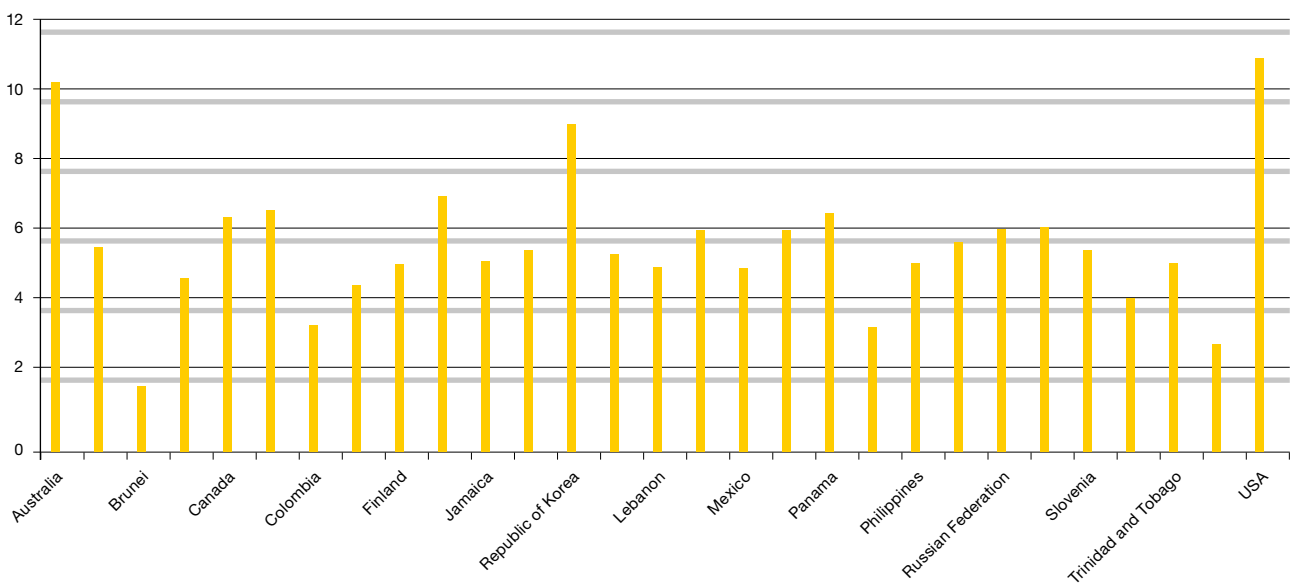
³⁹ See WIPO-funded study on the economic contribution of copyright-based industries in Kenya, WIPO-KECOBO, Summary at 11.

⁴⁰ Report of Evaluation of Kenya WIPO Portfolio (2005-2010)

Contribution of the copyright-related industries to the GDP



Contribution of the copyright-related industries to employment (%)



5.6. National strategies and policies for the promotion of copyright industries

Depending on the national interest, some countries may decide to devise policies or strategies to promote their creative industries. One such country is Jamaica which, in 2004, devised a national strategy and action plan to develop the Jamaican music industry. The strategy was created by the Ministry of Education, Youth and Culture in collaboration with the Global Alliance Program, UNESCO and the Inter-Agency Cultural Committee. This initiative sought to build on the many studies on the industry carried out during the previous decade; it also sought to identify strategies, actions and partnerships that would help to generate greater economic gains from one of Jamaica's most recognized and most promising exports. All of the major studies on the Jamaican music industry were reviewed before initiating consultations with industry representatives, members of the public and private sector representatives during the period December 2003 to September 2004. The strategy document contains seven strategies and seven action plans (see Box 38).

Box 38: Strategies and action plans – Jamaican cultural strategy

Strategies

1. **Create an enabling environment to support the development of the industry by way of incentives, relevant policies, data collection, legislation and enforcement, and also by promoting intersectoral linkages (e.g., tourism and information technology) in addition to developing more robust institutions within the music industry.**
2. **Increase the Jamaican music industry's market share through a better structured, targeted and more effective system of marketing and promotion.**
3. **Increase the profitability of the music industry by strengthening collecting societies and by stepping up anti-piracy efforts and measures.**
4. **Improve the Jamaican music product, and ensure continued standards of professionalism in service and product delivery by creating mechanisms to identify and develop new talent; providing ongoing training opportunities for industry persons; providing continued market research, and developing new and innovative music products and services.**

5. **Increase the level of financing opportunities, and diversify the range of such opportunities available to the music industry – venture capital, grants and loans from government, private and international sources.**
6. **Create stakeholder buy-in through public education to combat piracy, and change attitudes towards piracy; celebrate and commemorate industry achievements and heroes.**
7. **Coordinate and strengthen training institutions, and increase training opportunities in music education and professional development.**

Action plans

1. **The government should establish a dedicated organization with an overseas marketing office which has significant resources to support the music and entertainment industries. This would ensure that the requisite human and financial resources are available to address many of the issues, obstacles and needs highlighted in the national strategy.**
2. **Until such time as it is possible to establish a dedicated organization, the inter-agency cultural committee should be in charge, and it should convene a series of training and sensitization workshops for people working in public and private sector bodies that impact on the industry. Such bodies would include the Statistical Institute of Jamaica (STATIN), the Planning Institute of Jamaica (PIOJ) and the development banks. Public sector officials to be targeted would include those working in trade, tourism, sports, customs, information technology, and in the legislative arm of government. Also included would be selected private sector leaders.**
3. **A capacity building program proposal should be developed, and funding should be sought to assist industry associations, collecting societies and the data collection arm of the government. The proposal should be developed by the Entertainment Unit, in collaboration with industry stakeholders, the Department of Culture, the Jamaican Promotions Organization (JAMPRO), the Jamaican Intellectual Property Office (JIPO), STATIN and PIOJ.**
4. **Educational institutions and cultural institutions should work together to develop a detailed plan of action to review and revise music education programs at primary, secondary and tertiary levels, and also to advocate for more rigorous implementation of existing music education programs.**
5. **The Entertainment Unit in the Ministry of Culture should convene a series of meetings with the government's financial and planning institutions (Ministry of Finance,**

National Investment Bank of Jamaica, Development Bank of Jamaica and the Planning Institute of Jamaica) and, together with interested private financial institutions such as Pan Caribbean Financial Services, it should develop a public-private financial mechanism to support the industry.

- 6. The Entertainment Unit in collaboration with the Ministry of Finance and PIOJ should seek funding for a major venue development program, to be designed and implemented with inputs from stakeholders.**

5.7. Traditional knowledge (TK)

Importance of discussing TK

There is no agreed definition for “traditional knowledge”. WIPO, in its fact finding mission report, uses the term “traditional knowledge” to refer to “... tradition based literary, artistic or scientific works; performances; inventions; scientific discoveries; designs; marks, names and symbols; undisclosed information; and all other tradition based innovations and creations resulting from intellectual activity in the industrial, scientific, literary or artistic fields.”⁴¹

Traditional knowledge (TK) is information that people in a given community have developed over time, and continue to develop; such information is based on the experience and adaptation of TK to a local culture. TK is used to sustain the community and its culture, and to maintain the genetic resources necessary for the continued survival of the community⁴². TK includes mental inventories of local biological resources and animal breeds, as well as local plant crops and tree species. It may include information on trees and plants that grow well together, and indicator plants i.e., plants that show the salinity of the soil, or are known to flower at the beginning of the rainy season.

TK includes practices and technologies, such as seed treatment and storage methods, and tools that are used for planting and harvesting. It also encompasses belief systems that play a fundamental role in people’s livelihoods, maintaining their health, and protecting and replenishing the environment. TK is dynamic in nature, and may include experimentation in the integration of new plant or tree

species into existing farming systems, or into a traditional healers’ tests of new plant medicines. The term “traditional” is used when describing this knowledge, but this does not imply that such knowledge is old or non-technical in nature; rather that it is “tradition-based”. It is “traditional” because it is created in a manner that reflects the traditions of the communities in which it is deeply rooted, and therefore does not relate to the nature of the knowledge itself but to the way in which that knowledge is created, preserved and disseminated. TK is collective in nature and is often considered the property of the entire community, as opposed to belonging to any one individual within that community. It is transmitted through specific cultural and traditional information exchange mechanisms; for example, it is maintained and transmitted orally through elders or specialists (breeders, healers and herbalists), and often to only a select few people within a community.

Protecting TK

International attention has focused on IP laws to preserve, protect, and promote TK. Some of the reasons for this are as follows:

- In 1992, the Convention on Biological Diversity (CBD) recognized the value of TK in protecting species, ecosystems and landscapes; the Convention incorporated language regulating access to TK and its use. The implementation of these provisions required the revision of international IP agreements in order to accommodate TK. In response, WIPO established the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC).

- The Rio Declaration (1992), which was endorsed by the presidents and prime ministers of most countries in the world, recognized indigenous and local communities as distinct groups with special concerns that should be addressed by national governments. Initially, concerns were expressed about the territorial rights and traditional resources rights of these communities.

Indigenous peoples expressed their concerns about the misappropriation and misuse of their «intangible» knowledge and cultural heritage. Indigenous peoples and local communities have resisted, among other things, the use of traditional symbols and designs as mascots, derivative arts and crafts; the use or modification of traditional songs; the patenting of traditional uses of medicinal plants, and the copyrighting and distribution of traditional stories.

⁴¹ http://www.ciel.org/Publications/PriorArt_ManuelRuiz_Oct02.pdf

⁴² Stephen A Hansen and Justin W Van Fleet, *A Handbook on Issues and Options for Traditional Knowledge Holders in Protecting their Intellectual Property and Maintaining Biological Diversity*, American Association for the Advancement of Science (AAAS), 2003, Washington D.C. Available at http://community-wealth.org/_pdfs/articles-publications/commons/book-hansen-vanfleet.pdf

- Indigenous peoples and local communities have sought to prevent the patenting of TK and resources in cases where they have not given express consent. They have sought greater protection and control over TK and resources. Certain communities have also sought to ensure that their TK is used equitably – according to traditionally established restrictions on the use of TK, and also according to benefits determined by those communities.

Three broad approaches to the protection of TK have been developed⁴³. The first emphasizes protecting TK as a form of cultural heritage. The second looks at the protection of TK as a collective human right. The third, adopted by the WTO and WIPO, investigates the use of existing or novel sui generis measures to protect TK.

Currently, only a few countries offer explicit sui generis protection for TK. However, a number of countries are still undecided as to whether the law should give deference to TK. Indigenous peoples have been undecided on the degree of deference the law should accord to TK. Some experts have been willing to investigate how existing IP mechanisms (primarily patents, copyrights, trademarks and trade secrets) can protect TK. Some experts believe that an IP approach may work, but will require more radical and novel forms of IP law (“sui generis rights”). Others believe that the IP system uses concepts and terms that are incompatible with traditional cultural practices, and that the system favors the commercialization of their traditions, a move which they generally resist. Some IP practitioners have argued that the ideal form of protection should refer to collective human rights, in order to protect their distinct identities, religions and cultural heritage.

Commercialization of TK

Some facts on TK and medicine (natural products)⁴⁴ are set out in Box 39.

Box 39: Some facts on TK and medicine

- **Many countries have intensified their interest in natural products as sources of new biochemical compounds for drugs, or as sources that could assist the development of chemicals and agricultural products. This interest has been stimulated by the importance of TK as a leader in new product development. Of the 119 drugs developed from higher plants, and which are available on the world market today, it is estimated that 74 percent were discovered from a pool of traditional herbal medicine⁴⁵.**
- **It has been estimated that the annual world market for medicines derived from medicinal plants discovered by indigenous peoples amounted to USD 43 billion in 1985⁴⁶.**
- **Developing countries and their traditional peoples have contributed considerably to the global drugs industry. It is estimated that plant-derived prescription drugs in the USA originate from 40 species, of which 50 percent are found in the tropics⁴⁷.**
- **Total trade in herbal remedies and botanicals in 1995 yielded over USD 56 billion. The only payments made to the various local communities in the areas where the herbal remedies and botanicals were found were for the manual labor involved in harvesting them. According to Posey, less than 0.001 percent of profits from drugs developed from natural products and TK accrue to traditional people who provided technical leads for the research⁴⁸.**

43 Stephen A Hansen and Justin W Van Fleet, Op.cit.

44 Laird S.A., “Natural Products and the Commercialization of Traditional Knowledge” in Greaves, T (Ed.), *Intellectual Property Rights for Indigenous Peoples: A Sourcebook*, Society for Applied Anthropology, Oklahoma City, 1994, pp. 145-149.

45 Posey and Dutfield, op. cit. p. 34.

46 Juma, C and Ojwang, J.B., *In Land We Trust: Environment, Private Property and Constitutional Change*, ACTS Press, Nairobi, 1996, pp. 282-283.

47 Posey D, “Intellectual Property Rights for Native Peoples: Challenges to Science, Business, and International Law”, (Paper presented at the International Symposium on Property Rights, Biotechnology and Genetic Resources, Nairobi Kenya, 1991).

48 Mugabe J., “Intellectual property and Traditional Knowledge” - <http://www.wipo.int/tk/en/hr/paneldiscussion/papers/pdf/mugabe.pdf>

Access and benefit sharing on TK and genetic resources

An information kit was developed by the Secretariat for the Convention on Biological Diversity to build awareness on access and benefit-sharing (ABS)⁴⁹. The key themes addressed in the information kit are: access and benefit-sharing; uses of genetic resources; TK; the Bonn Guidelines; national implementation and the Nagoya Protocol on ABS. This is illustrated by the case study on the commercialization of the Hoodia plant in South Africa (see Box 40).

The Hoodia plant



Author: Winfried Bruenken (Ammun)

Box 40: Commercialization of TK of the Hoodia plant, South Africa

Hoodia is a succulent plant indigenous to southern Africa. It has been used for centuries by the indigenous San people to stave off hunger and thirst. In 1996, the South African-based Council for Scientific and Industrial Research (CSIR) patented active compounds of Hoodia for the potential commercialization of an appetite suppressant. This led to a licensing agreement between CSIR and some large pharmaceutical companies to develop and commercialize a Hoodia-based product. Initial actions were taken without the consent of the San people, which led to an outcry from NGOs and attracted media attention. As a result, a benefit-sharing agreement was signed with the San people. The agreement included:

Monetary benefits:

- Milestone payments during product development.
- Royalty payments in the case of commercialization.

Non-monetary benefits:

- Funds for the development, education and training of the San community.
- Funds to support projects and institutions working to improve research and protection of San TK and heritage.

⁴⁹ ABS information kit available at <http://www.cbd.int/abs/infokit/powerpoint/revised/factsheet-tk-en.pdf>

5.8. Information and Communication Technology (ICT) and IP

ICT as an enabler

ICT is a powerful tool for enhancing development in all areas of society, including learning; for reducing poverty; for combating the spread of disease, and also for promoting health, civil advocacy and good governance⁵⁰. ICT can be used to help rebuild lives through e-commerce. Many countries have seen the development of telecenters which enable communities to access ICTs and build networks that promote working from home (teleworking). Many countries have also seen a rise in the number of small offices/home

office businesses whose existence is made possible by the use of ICTs. Such businesses employ single mothers; people who are disabled; people who are disabled-dependent; those who earn low incomes, as well as unemployed men and women. ICTs enable these people to work from home with the aid of minimal resources and capital investment. This in turn enables communities to create their own enterprises, to be the drivers of local economic growth, and to control the future of the community. The total estimated number of people able to access ICT in the world is growing daily, as governments, organizations and individuals embrace ICT and expand its use. The table below shows the number of internet users as at 31st December 2011. Around 2.27 billion people, (33 % of the world population), were accessing internet⁵¹.

World Regions	Population (2011 Est.)	Internet Users Dec. 31, 2000	Internet Users Latest Data	Penetration (% Population)
Africa	1,037,524,058	4,514,400	139,875,242	13.5 %
Asia	3,879,740,877	114,304,000	1,016,799,076	26.2 %
Europe	816,426,346	105,096,093	500,723,686	61.3 %
Latin America/Carib.	597,283,165	18,068,919	235,819,740	39.5 %
Middle East	216,258,843	3,284,800	77,020,995	35.6 %
North America	347,394,870	108,096,800	273,067,546	78.6 %
Oceania/Australia	35,426,995	7,620,480	23,927,457	67.5 %
WORLD TOTAL	6,930,055,154	360,985,492	2,267,233,742	32.7 %

50 <http://www.tealictafrica.com/blog/ict4d-ict-for-development/>

51 <http://www.internetworldstats.com/stats.htm>

ICT policies and strategies

Governments worldwide recognize the crucial role that ICTs play in facilitating and accelerating socio-economic development⁵². A number of countries in both the developed world and the developing world are putting in place policies and strategies that will enable them to transform their economies into information-based/knowledge-based economies. For example, countries that have already put in place such policies and plans, or are at an advanced stage of implementing such programs, include the following: the USA, Canada and a number of European countries; Asian countries including India, Japan, Republic of Korea, Malaysia, Singapore, Sri Lanka, Thailand and Viet Nam; South American countries including Brazil, Chile, and Mexico; Australia and Mauritius.

In India, the government sees ICTs and their deployment for socio-economic development as an area where the country could quickly establish global dominance and reap tremendous payoffs in the creation of wealth and the generation of quality employment.

Finland regards the development and use of ICTs in its economy as key to national efforts to improve quality of life, knowledge and international competitiveness.

Both Malaysia's "Vision 2020", which envisages the country as a fully developed nation by 2020, and Singapore's vision of transforming the country into an 'Intelligent Island', consider ICTs as the main engine for promoting accelerated development and growth, and for gaining global competitive advantage.

Based on the Singaporean experience, Mauritius has developed a strategic ICT plan which forms an integral part of its overall vision for social and economic development.

Mexico also sees ICTs as key to achieving progress in social and economic development.

Finally, Rwanda, (as is also the case with Mozambique, Senegal and South Africa), is seriously committed to the deployment and exploitation of ICTs to facilitate its socio-economic development. From powerful countries, such as the USA, to small countries, such as Andorra, Mauritius and Rwanda, the need to embrace ICTs is growing.

Box 41 : The Republic of Rwanda ICT policy⁵³

The Government of Rwanda has made great strides towards making Rwanda the ICT leader of Africa. The development of the country's ICT plan hinges on the national development blueprint 'Vision 2020', Rwanda's social and economic development strategy. The ultimate goal of the strategy is to transform Rwanda into a prosperous nation by 2020. The ICT strategy contained in the blueprint focuses on the following eight pillars :

- 1. Human resources development.**
- 2. ICTs in education.**
- 3. Developing and facilitating the private sector.**
- 4. ICT infrastructure development.**
- 5. Foreign direct investment drive in ICTs.**
- 6. Legal, regulatory and institutional provisions and standards.**
- 7. Deployment and spread of ICTs in the community.**
- 8. Facilitating government administration and service delivery.**

such as Andorra, Mauritius and Rwanda, the need to embrace ICTs is growing.

Information and Communication Technology (ICT) and IP

E-commerce gives rise to new ways of infringing IPRs. These new threats need to be explored in order to ensure that the right holders are protected under existing legislative provisions. Products and services that are derived from IPRs are such an important aspect of e-commerce that this area should not be overlooked. In order to encourage and facilitate the development of e-commerce, measures for increasing consumer confidence in e-commerce transactions must be implemented. Related issues arising from the protection of legal rights include the following⁵⁴:

- a. Impact of domain names on trademark law;
- b. New forms of possible trademark infringement, such as meta tags, deep linking and framing;
- c. Liability of Internet service providers (ISPs) for copyright infringement;
- d. Development and legal protection of copyright measures;
- e. Ensuring that adequate levels of consumer protection are provided for e-commerce, particularly in relation to the provision of information and the use of payment cards;
- f. Access to adequate dispute resolution mechanisms.

52 *A Blueprint for Developing National ICT Policy in Africa*, available at http://www.atpsnet.org/Files/special_paper_series_5.pdf

53 <http://ocw.mit.edu/courses/foreign-languages-and-literatures/21f-034-media-education-and-the-marketplace-fall-2005/projects/ictrwanda.pdf>

54 ABS information kit available at <http://www.cbd.int/abs/infokit/powerpoint/revised/factsheet-tk-en.pdf>

CHAPTER 6

PLANT VARIETY RIGHTS AND SEED INDUSTRIES

6.1. Introduction

Plant varieties are protected by granting breeders rights (limited in time) over the varieties that they have created through a system of plant variety protection. This provides an incentive for the development of improved plant varieties for agriculture, horticulture and forestry. Most countries that have introduced plant breeders' rights have done so by adopting legislation based on the International Convention for the Protection of the New Varieties of Plants (UPOV Convention) (see at <http://www.upov.int>).

The UPOV Convention specifies the acts that require the breeders' authorization in respect of the propagating material of a protected variety and, under certain conditions, in respect of the harvested material. The breeders' right means that, during the period of protection, the authorization of the breeder is required to propagate the variety for commercial purposes. The UPOV Convention establishes that the breeder may make his authorization subject to conditions and limitations, which can include the payment of a royalty.

Most countries now include reference to areas related to breeders' rights in their national IP strategies and policies. This chapter discusses the following indicators which are relevant in the context of promoting this sector:

1. Plant variety protection office: legal status, autonomy, key functions and staffing;
2. Importance of breeders' rights;
3. National agricultural policy or strategy;
4. Plant breeding and seed associations.

6.2. Plant variety protection office

Status and autonomy of plant breeders' rights

Just like industrial property and copyright, the administration and management of plant variety rights may be run by a department within a government ministry or by an autonomous institution. Currently, most developing countries are in the process of putting in place plant variety protection laws. In some countries, e.g., Viet Nam, the protection of plant varieties is provided for under the Intellectual Property Law. Kenya, where significant progress has been made in the protection of plant varieties, has a semi-autonomous institution (the Kenya Plant Health Inspectorate Service) which operates under the aegis of the Ministry of Agriculture (See Box 42 for details).

Box 42: The Kenya Plant Health Inspectorate Service

As a result of the liberalization of the seed industry, coupled with demands for ensuring quality control of agricultural inputs and plant health, the government established the Kenya Plant Health Inspectorate Service (KEPHIS)⁵⁵. The Plant Breeders' Rights Office of Kenya operates under the aegis of this service. KEPHIS, an autonomous organization, in turn operates under the aegis of the Ministry of Agriculture. It has its own board of directors, as well as a director general who serves as the chief executive officer. The Board of KEPHIS is responsible for policies relating to financial management, Operations, and the management of human resources.

A new plant variety is always the fruit of many years of very expensive effort and labor by the plant breeder. For this reason, the plant breeder's innovations must be protected by law against unfair exploitation. Breeders must also be rewarded for their innovativeness, creativity, patience and experience. In 1972, Kenya enacted the Seed and Plant Varieties Act Cap 326 of the Laws of Kenya; this law became operational on January 1, 1985. The objectives of the legislation were broad, and were designed to protect the breeder, the consumer and the seed industry. Part V of the Act makes extensive provisions to protect the proprietary rights of plant breeders in relation to breeding and the discovery of new plant varieties. The period in which the rights can be exercised under the Act extends up to up to 25 years. These rights confer on the plant breeder the exclusive right to reproduce or authorize others to produce propagating material of the plant variety for commercial purposes; to commercialize the plant variety, and to allow the exporting of it, or the stocking of it for sale. The legislation was revised in 1991, and again in 1997, having taken into account developments in the international seed industry and seed trade.

The Plant Breeders' Rights (PBR) Office was established in March 1997, and has operated under KEPHIS since January 1998. It is headed by a director who reports to the Director General of KEPHIS. The PBR Office has the following functions:

- a. Receiving and processing applications for plant breeders' rights;
- b. Performing the requisite tests and maintain the varieties that have been granted rights;
- c. Issuing grants and publicizing information relating to such grants;
- d. Maintaining the register of plant breeders' rights and any other information relating to those rights.

Between 1997 and 2005 KEPHIS received 611 applications for plant variety rights (PVR); some 170 applications have been granted such rights. A total of 275 applications were received from Kenyan applicants and 336 were received from non-national applicants. By 2009, a total of 994 applications had been received and 219 PBRs had been granted. PBRs are granted, and the variety is protected, when an application has been made and the variety is proven to be new, distinct, uniform, stable, and properly denominated.

Impact of plant variety rights in Kenya

The following developments have been recorded in Kenya's agricultural industry, and have been attributed to the implementation of Plant Variety Protection (PVP) in Kenya

- a. *Increased level of investment in the breeding and commercialization of new varieties:* This has concentrated on the establishment of physical facilities and technology.
- b. *Increased collaborations between local breeders, foreign breeders and international institutions:* This involves capacity building, funding, germplasm exchange and the commercialization of foreign varieties in Kenya. In addition, local breeders have extended partnerships with farmers for on-farm testing of newly-bred varieties.
- c. *Increased number and range of improved varieties available to farmers:* The number of varieties introduced by breeders in the period following the establishment of PVP is reportedly higher than before the enactment of the plant variety protection law; this is particularly so in the case of maize. Most of the new varieties are superior to the existing ones, particularly in terms of yield, tolerance to pests, resistance to diseases, nutritional qualities, tolerance to biotic stresses, and earliness in maturity. Since maize is a staple food for 80 percent of the Kenyan population, the production of disease-resistant/pest-resistant new varieties for maize is regarded as having made a positive contribution to food security concerns in the country.
- d. *Enhanced access to internationally bred materials:* Most of the applications for PVP received by the Kenyan PVP office, are made by foreign breeders (55 percent). This demonstrates the increased availability of foreign germplasm, which can be used in the development of improved varieties.
- e. *Generation of foreign exchange and employment:* Most of the varieties for which PVP applications have been made in Kenya are owned by international breeders that produce ornamental plants for export to Europe.

They therefore provide an important source of foreign exchange earnings and create employment for local people.

- f. **Greater support for cash crop sector:** The PVP service in Kenya evidently supports industrial cash crops agriculture to a far greater extent than does the food crop sector in Kenya. About 82 percent of PVP applications have been for cash crops; only 18 percent of these applications have been for food crops.

6.3. Importance of breeders' rights

Benefits for society (farmers, growers and consumers)

The "Symposium on Plant Breeding for the Future", held in Geneva on October 21, 2011 (see http://www.upov.int/meetings/en/details.jsp?meeting_id=24133), demonstrated the importance of plant breeding to meet the challenges of increasing population, climate change, parallel demands for food and energy production and evolving human need.

The effects of breeding are quite broad in their scope, and it is important to be aware of the diversity of breeding objectives, such as improved yield, disease and pest resistance, tolerance to stresses (e.g. drought, heat), etc. However, there are many other advantages that new varieties can bring to consumers and society as a whole, such as reduced cost of high quality food, efficient land use, diversity of plant derived products etc. Farmers deliver those benefits because they are the first beneficiaries of new varieties that enable them to meet their own needs and those of consumers.

The conclusion from the "Symposium on the Benefits of Plant Variety Protection for Farmers and Growers", held in Geneva, on November 2, 2012, (see http://www.upov.int/meetings/en/details.jsp?meeting_id=26104), was that PVP improves incomes for farmers and growers, by encouraging the breeding of new varieties, enabling them to respond to the environmental and economic challenges confronting agriculture. PVP provides farmers and growers with access to the best local and global varieties, combined with information and delivery of good quality planting material. The Symposium demonstrated that PVP provides business opportunities for small farmers and growers, therefore facilitates win-win cooperation between farmers and breeders. PVP is also a tool for capturing value through farmer cooperation

Plant Variety Protection provides an incentive for farmers and growers to become breeders themselves, and allows them to use the best available, protected varieties for breeding work. It offers an effective and transparent system that is easily accessible for small and medium-sized enterprises, empowering farmers and growers in the production chain and helping them to develop local, national and international businesses.

Technology transfer

The “Seminar on Plant Variety Protection and Technology Transfer: the Benefits of Public-Private Partnership”, held in Geneva, on April 11 and 12, 2011 (see http://www.upov.int/meetings/en/details.jsp?meeting_id=22163), demonstrated the importance of plant variety protection for plant breeding in the public sector and the role that it plays in technology transfer by encouraging public-private partnerships. Plant variety protection provides a system to increase availability of varieties suited to farmers’ needs and provides a mechanism to facilitate dissemination of varieties to farmers, and to add value to their produce.

The UPOV Report on the Impact of Plant Variety Protection (see http://www.upov.int/export/sites/upov/en/publications/pdf/353_upov_report.pdf) demonstrated that in order to enjoy the full benefits which plant variety protection is able to generate, both implementation of the UPOV Convention and membership of UPOV are important, and can open a door to economic development, particularly in the rural sector. The range of ways in which plant variety protection can produce substantial benefits differs from country to country, reflecting their specific circumstances. However, the UPOV system of plant variety protection provides an effective incentive for plant breeding in many different situations and in various sectors, and results in the development of new, improved varieties of benefit for farmers, growers and consumers.

6.4. Agricultural policy and strategy

Agriculture remains the basis of the economy of most developing countries, including LDCs. In Africa, for example, agriculture contributes up to 50 percent of GDP. As a result, there is no development blueprint in Africa that does not feature agriculture as one of the identified priority economic sectors. Most decision-makers in African countries have also realized that traditional agricultural practices have limitations, and have led to poverty, hunger and food insecurity. Consequently, countries are devising strategies that can drive agricultural development and bring it the next level. Some of the issues that are considered in these strategies and policies, and which are relevant to IP, include:

- a. Increasing production;
- b. Increasing productivity;
- c. Enhancing value addition;
- d. Introducing agriculture-led industrialization;
- e. Developing new pest and disease resistant, environmentally adapted, and high-yielding varieties;
- f. Promoting R&D;

- g. Promoting technology transfer and the commercialization of seed varieties;
- h. Creating incentives for breeders;
- i. Access to international markets through branding and trademarks.

Box 43: Agricultural policy in Kenya: issues and processes⁵⁶

1. **Increasing agricultural productivity and incomes, especially for small-holder farmers.**
2. **Emphasis on irrigation, in order to reduce over-reliance on rain-fed agriculture in the face of limited high-potential agricultural land.**
3. **Encouraging diversification into non-traditional agricultural commodities and value addition, in order to reduce vulnerability.**
4. **Enhancing food security, reducing the number of people suffering from hunger, thereby achieving the Millennium Development Goals (MDGs) (of the United Nations).**
5. **Encouraging private-sector-led development of the sector.**
6. **Ensuring environmental sustainability.**

From September 8 to 10, 2009, the Food and Agriculture Organization of the United Nations (FAO), UPOV, the Organisation for the Economic Cooperation and Development (OECD), the International Seed Testing Association (ISTA); and the International Seed Federation (ISF), jointly organized the Second World Seed Conference with the title “Responding to the Challenges of a Changing World: The Role of New Plant Varieties and High Quality Seed in Agriculture” (see http://www.upov.int/export/sites/upov/about/en/pdf/wsc_leaflet_outcome.pdf).

The objective of the Conference was to identify the key elements necessary to ensure a suitable environment for the development of new varieties, the production of high quality seeds and their delivery to farmers.

The opening statement of the Declaration of the Second World Seed Conference, the first such conference in 10 years, was that “Urgent government measures and increased public and private investment in the seed sector are required for the long term if agriculture is to meet the challenge of food security in the context of population growth and climate change.”

The Conference discussions concluded that the development of new varieties of plants is a major contributor to food security within the framework of agriculture, and that policy-makers should put in place predictable, reliable,

effective and affordable regulatory seed frameworks to ensure that farmers have access to high quality seed at a fair price. In this context, one recommendation was to encourage countries to participate in the international harmonized systems of UPOV, ISTA, the International Treaty on Plant and Genetic Resources for Food and Agriculture (the International Treaty) and OECD.

6.5. Plant breeding and seed associations

African Seed Trade Association (AFSTA)

AFSTA's mission is to promote trade in quality seed and technologies in Africa for the benefit of members and farmer, with objectives: to promote the use of improved quality seed, to strengthen communication with African seed industries and with the world, to facilitate establishment of national seed trade associations in Africa, to provide information to members, to interact with regional governments and NGO's involved in seed activities in order to promote the interests of the seed industry, to promote activities that lead to regulatory harmonization throughout Africa to facilitate movement of seed, and to develop a statistical database on African seed production and trade.

Source: website: www.afsta.org

The Asia and Pacific Seed Association (APSA)

APSA was established in 1994, through the cooperation of FAO and DANIDA, with the aim of promoting quality seed production and marketing in the Asia and Pacific Region. Today, APSA is the largest regional seed association in the world. It has strong links with international organizations such as FAO, CGIAR institutions, ISF, ISTA, UPOV, OECD, WTO, among others. APSA members include national seed associations, government agencies, public and private seed companies, and associate members.

Source: website: www.apsaseed.org

European Seed Association (ESA)

ESA's mission is to assure the effective protection of intellectual property rights relating to plants and seeds, fair and proportionate regulation of the European seed industry and freedom of choice for its customers (farmers, growers, industry, consumers). In doing so, it represents the European seed industry via the European institutions and their representatives, i.e. the European Parliament, the Council, the Commission and the Community Plant Variety Office (CPVO), as well as towards other industry associations, NGOs, the international press and the wider interested public. ESA's main activities relate to the timely and competent information of its membership, to serve as a dialogue platform for the entire industry and towards other interested parties, and to actively reach out, advocate and lobby for the interests

of the seed sector on the base of commonly agreed policy positions and strategies.

Source: website: www.euroseeds.org

International Association of Horticultural Producers (AIPH)

AIPH is a coordinating body representing horticultural producers' organizations all over the world. It was set up in Switzerland in 1948 to stimulate international marketing of flowers, plants and landscaping services. An increasing number of growers organizations have joined AIPH with 25 countries represented in 2000. Member countries pay a membership fee that corresponds to the production value of horticultural production of the country in question.

International Community of Breeders of Asexually Reproduced Ornamental and Fruit Varieties (CIOPORA)

CIOPORA is the international association that groups together breeders of ornamental and fruit varieties of asexual reproduction, with a view to assist them in the protection of their Intellectual Property Rights.

Founded in 1961, CIOPORA represents both, individual plant breeders and plant breeding companies, which hold a vast majority of the most important plant varieties in the horticultural and fruit sectors. As ornamental and fruit varieties account for more than 60% of all the Plant Breeders' Right titles and Plant Patents granted worldwide, the importance for the association to exert influence on Plant Variety Protection related legislation becomes obvious.

With this goal in mind, CIOPORA works closely with international organizations, such as UPOV, WTO and WIPO, as well as with national governments in order to guarantee the sufficient protection of plant breeders' Intellectual Property Rights.

Source: website: www.ciopora.org

International Seed Federation (ISF)

The mission of ISF is to facilitate the international movement of seed, related know-how and technology; to mobilize and represent the seed industry at a global level; to inform its members; and to promote the interests and the image of the seed industry.

In order to fulfill its mission, ISF promotes strong co-operation among national and regional seed associations. It endeavors to work in partnership with organizations responsible for international treaties, conventions and agreements and those that shape policies that impact the seed industry.

Source: website: www.worldseed.org

56 *Agricultural policy in Kenya – issues and processes*, available at http://www.dfid.gov.uk/R4D/PDF/Outputs/Futureagriculture/Ag_policy_Kenya.pdf

CHAPTER 7

GEOGRAPHICAL INDICATIONS

A geographical indication identifies a product as something originating in a territory or region, or a locality in a territory, where a given quality, reputation or other characteristic of the product is attributable to its geographical origin⁵⁷. Like trademarks, geographical indications are typically words or terms; however, when associated with a product, geographical indications positively attribute a known quality to the product that is associated with a specific geographical location. Geographical indications cannot be used to describe a product unless it originates in the region associated with the name. For example, Swiss watches are associated with a tradition of high quality, and therefore the term Swiss watch is a geographical indication which assumes that a watch comes from Switzerland. Roquefort cheese (from France) is another product that is associated with high quality; it too is a geographical indication. Roquefort cheese can only be used to describe cheese that is produced in Roquefort-sur-Soulzon, France, and is aged in traditional cellars (a practice that is also associated with a geographical indication). Other examples of geographical indications include:

- Bordeaux wine (France);
- Parma ham (Italy);
- Stilton cheese (the UK);
- Darjeeling tea (India);
- Cognac brandy (France),
- Queso Murcia (Spain)

Geographical indications serve four main purposes. They:

- identify where a product is from (its source);
- indicate the unique qualities of a product;
- promote a product with a distinguishing name (for business purposes), and
- prevent infringement and unfair competition by establishing a legal basis for using a location name in order to avoid confusion with similar products.

Box 44: Darjeeling tea

Darjeeling is a Himalayan city in the Indian state of West Bengal. It is internationally renowned as a tourist destination, for its tea industry, and also for the Darjeeling Himalayan Railway, a UNESCO World Heritage site. Darjeeling is the administrative capital of the Darjeeling region which has a semi-autonomous status within the state of West Bengal⁵⁸. Darjeeling tea draws its name from Darjeeling city. Darjeeling tea has the following description⁵⁹:

- a. **Darjeeling tea is defined as tea that has been cultivated, grown, produced, manufactured and processed in tea plantations located in the hills of Sadar Sub-Division as well; as the hilly area of Kalimpong Sub-Division comprising the Samabeong Tea Estate, Ambikoi Tea Estate, Mission Hill Tea Estate, Upper Fagu and Kumai Tea Estates – and Kurseong Sub-Division, excluding the areas in the jurisdiction list 20, 21, 23, 24, 29, 31 and 33, and comprising the Subtighuri Sub-Division of New Chumta Tea Estate, Simulbari and Marionbari Tea Estate of Kurseong Police Station in the Kurseong Sub-Division of the District of Darjeeling in the State of West Bengal, India.**
- b. **Darjeeling tea is widely acknowledged to be the finest tea because its flavor is so unique that it cannot be replicated.**
- c. **The quality, reputation and characteristics of Darjeeling tea are essentially attributable to its geographical origin. It possesses a flavor and quality that sets it apart from other teas, giving it the stature of a fine vintage wine. As a result, it has won the patronage and recognition of discerning consumers worldwide for more than a century. Any member of the trade or public who orders or purchases Darjeeling tea will expect it to be the tea that is cultivated, grown and produced in the defined region of the District of Darjeeling; they will also expect it to have the special characteristics associated with such tea. Consequently, Darjeeling tea that is worthy of its name cannot be grown or processed anywhere else in the world. Darjeeling tea cannot be replicated anywhere. It is this equity that is required to be protected by the Tea Board and the Ministry of Commerce under the norms of the TRIPS Agreement of the World Trade Organization (WTO).**

⁵⁷ A Hansen and Justin W VanFleet, Op.cit.

⁵⁸ <http://en.wikipedia.org/wiki/Darjeeling>

⁵⁹ Darjeeling tea – definition, geographical indication and importance – <http://www.darjeelingtea.com>

- d. Today, there are 87 estates producing “Darjeeling tea” in an area comprising 17,500 hectares. Total production ranges from between 9 and 10 million kilograms annually. The Darjeeling tea industry currently employs over 52,000 people on a permanent basis; a further 15,000 people are engaged during the picking season, which lasts from March to November. A unique feature of this workforce is that women account for more than 60 percent of the total complement of workers.**
- e. One half of the plantation workers’ salaries is paid in cash and the other half is paid in kind – the workers are provided with free accommodation, subsidized cereal rations and free medical benefits.**



Author: Darkone



Author: P.K.Niyogi



Author: yoppy

The objectives of the protection of “Darjeeling tea” are to⁶⁰:

- Prevent misuse of the word “Darjeeling” for tea that is sold worldwide;
- Deliver the correct product to the consumer;
- Enable the commercial benefits of the equity of the brand to reach the Indian tea industry, and, consequently, plantation workers;
- Achieve international status for the term “Darjeeling tea” – similar to the terms “Champagne” or “Scotch Whiskey”, with regard to both brand equity and governance/management

Economic importance of the geographical indications of Darjeeling tea

The economic importance of the geographical indications of Darjeeling tea is as follows:

- Most of the annual production of Darjeeling tea, totaling about 9.5 million kilograms, is exported. The major buyers of the tea are Germany, Japan, the UK, the USA and other EU countries including the Netherlands and France. In 2000, about 8.5 million kilograms of Darjeeling tea with a total value of USD 30 million were exported.
- The difference between the international retail price and the auction price for packed Darjeeling tea is between 500 percent and 1000 percent, rising to 5000 percent for select Darjeeling tea. In Japan, for example, while auction prices reach USD 3.5 per kilogram, and private sales reach USD 5.5 per kilogram, Darjeeling tea can retail at USD 300 per kilogram. Simultaneously, production costs have been rising steadily. The difficult terrain, the long “winter dormancy”, the ageing tea bushes and the high cost of labor are causing severe hardship in many Darjeeling tea plantations.

⁶⁰ *Protection of Darjeeling tea* – available at www.wipo.int/edocs/mdocs/geoint/en/wipo_geo_lim_11/wipo_geo_lim_11_11.pdf

CHAPTER 8

LEGAL AND INSTITUTIONAL FRAMEWORK FOR THE ENFORCEMENT OF IP RIGHTS

8.1. Introduction

The enforcement of IPRs is the weakest aspect of IP systems in most developing countries and LDCs. Enforcement of IPRs is critical. IPRs only have a value if the right owners are in a position to enforce their rights. This is executed through the courts with the collaboration of law enforcement agencies. The enforcement of IPRs should be swift and affordable, and it should have legal standing. Enforcement requires effective coordination and collaboration of the activities of the various agencies involved.

In most developing countries and LDCs, the following challenges are often cited in connection with the enforcement of IPRs:

- a. Weak enforcement of IP laws;
- b. IP enforcement is provided in various IP laws;
- c. IP enforcement is undertaken by various organizations, however, in most cases, this is done in an uncoordinated manner;
- d. Border measures are inadequate and border officials do not have the requisite skills to deal with issues related to IPRs;
- e. IP disputes take a long time to resolve. LDCs do not have special IP courts, and IP enforcement officials do not have adequate knowledge on IP;
- f. Enforcement is rendered even more difficult due to low public awareness of IP on the part of consumers and the public; the low level of public awareness also extends to economic and health issues related to pirated and counterfeited goods;
- g. In some countries, the law contains provisions for such low fines that the infringers have no problem paying the fines and continuing with the infringement.

Most national IP strategies and policies have tried to address some of these issues.

8.2. Economic impacts of counterfeiting and piracy

The Guidebook on Enforcement of Intellectual Property Rights⁶¹ contains comprehensive information on the economic impact of counterfeiting and piracy. The costs to businesses whose products are pirated and counterfeited include: (i) loss of sales; (ii) competitive disadvantage to those enterprises which “free ride” on the R&D and marketing investment of legitimate enterprises; (iv) the possibility of legal liability for defective imitation products; (v) loss of goodwill and prestige by a brand in a situation where counterfeits are freely available; and (vi) the expense of monitoring the market and instituting legal proceedings against infringers. These costs are incurred in both developed and developing countries. The losses sustained by industry are reflected in losses to the public revenue; they are also reflected in unemployment in the affected industries. The prevalence of infringing activities in a country will also act as a deterrent to investors to invest in industries where proprietary rights are important. Some infringement statistics sourced from the Guidebook on Enforcement of Intellectual Property Rights are set out in Box 45.

⁶¹ Blakeney, M, *Guidebook on Enforcement of Intellectual Property Rights*, Queen Mary Intellectual Property Research Institute, Queen Mary, University of London

Box 45: Infringement statistics

- a. **The 1998 European Commission Green Paper on counterfeiting and piracy indicated that counterfeiting accounts for between 5 percent and 7 percent of world trade.**
- b. **The USA copyright industry estimates that its losses due to piracy are between USD 12 billion and USD 15 billion a year.**
- c. **Within the European Union, counterfeit and pirated goods account for between 5 percent and 10 percent of vehicle spare parts sales; 10 percent of CD sales; 16 percent of film (video and DVD) sales, and 22 percent of sales of shoes and clothing.**
- d. **Trade diversion: All countries – whether developed countries, developing countries or least developed countries – are vulnerable to loss of revenue as a result of piracy and counterfeiting. For example, the development of the successful computer software industry and movie industry in India has spawned equally extensive developments in the type of copyright piracy that affects these industries.**
- e. **Loss of tax: It is estimated that the tax and customs/excise losses caused by counterfeiting and piracy are considerable. It is also estimated that in the phonographic industry, VAT losses incurred by EU governments as a result of counterfeiting and piracy amount to some EUR 100 million.**
- f. **Investment: The major cost to developing countries where piracy and counterfeiting occur is the loss of access to foreign investment caused by investors' concerns that IP, which is created as the result of a particular investment, will be stolen. This discouragement of investment has the obvious short-term effect of reducing taxes and revenues, and the longer-term effect of stifling economic development. More specifically, the establishment of key industries in developing countries – such as industries in the IT, biotechnology and pharmaceutical areas, where IPRs play a key role – is difficult to establish in the absence of effective enforcement of IP laws. Similarly, technology transfer arrangements are difficult to secure in cases where the basis of such arrangements is the bundling of proprietary technologies as part of the technology.**
- g. **Employment effects: In social terms, the damage suffered by businesses as a result of counterfeiting and piracy is ultimately reflected in the negative impact that this has on employment creation.**

8.3. IP enforcement laws and regulations

IP enforcement legislation makes provision for dispute resolution and the prevention of IP violations using civil and administrative procedures and criminal prosecutions, coupled with systems for the awarding of damages by way of legal remedy. In some countries, enforcement clauses form part of certain IP laws; during the revision of such laws, the enforcement components of the IP legislation are also reviewed and strengthened in order to comply with TRIPS requirements and other best practices. Conversely, some countries consolidate the various pieces of legislation relating to counterfeiting and piracy activities into a single piece of legislation. Where national IP enforcement legislation is already in place, such legislation should be evaluated in order to establish whether it contains provisions for the following judicial and administrative procedures, and remedies:

- Special courts, which have jurisdiction over IP infringement;
- IP right holders have standing, can be represented, and have mandatory appearance in court to claim their civil rights;
- A judicial authority, which can order relevant parties to produce evidence;
- Means to identify and protect confidential information that is produced as evidence;
- Remedies, e.g., injunctions and damage compensation, which may be ordered;
- Authority to order the infringer to inform the IP right holders of the identity of third persons involved in the infringement;
- Indemnification of defendants wrongfully enjoined;
- Provisions governing the length of proceedings;
- Provisions governing the cost of proceedings.

8.4. Border measures

8.4.1. Introduction

In order to increase protection against counterfeiting and piracy, some countries may need to expand authorities' staff resources and improve enforcement practices, e.g., provide comprehensive IP training for customs officials, border protection officials and immigration officials. In addition, there is a growing need for information sharing with right holders; for enhanced recordation processes; for the measurement and improvement of current enforcement tools; for the development of special scrutiny databases to help track and identify suspect shipments, and to outlaw the importation of any quantity of counterfeit or pirated products including via mail/courier services.

8.4.2. Customs authorities

Most countries have already complied with the TRIPS Agreement in terms of satisfying the minimum standards required for IP protection. These countries are now examining ways to ensure the creation of a foolproof enforcement mechanism. One of the ways to do this is to provide for the implementation of a registration mechanism whereby customs authorities can legally intercept parallel imports and restrict the intrusion of such imports into official/authorized distribution channels.

Customs authorities should have the power to intercept, seize and confiscate goods found to be, or suspected to be, infringing IPRs that are registered and are in force in the country. Registration of the IPRs with the customs authorities would enable such authorities to store the IPRs in their electronic databases; this would in turn enable alerts to be sent to all airports and other entry points in the relevant country. The new regulations would be in addition to existing IP laws and would serve as an enforcement mechanism which could be used at the country's various points of entry. The regulations would give customs officials the authority to intercept, detain, confiscate and destroy counterfeit or pirated goods even before such parallel imports enter normal distribution channels.

Customs authorities should be empowered to suspend the clearance of infringing goods on the basis of a particular registration appearing in an authority's electronic database. IPR owners today are, therefore, better placed to minimize their losses, and to intercept any actual or potential losses caused by parallel imports or counterfeit goods, simply by registering with the relevant customs authority. The cost of such registration is negligible when compared with the potential losses that could be incurred as a result of counterfeiting and piracy activity by others (see Box 48).

Box 46: India's customs laws and border protection measures⁶²

India has developed new enforcement rules which mark a significant achievement in the evolution of border protection measures in that country; the new enforcement rules also signal the alignment of Indian customs and IPR-related legislation with global norms. Given India's obligations as a WTO member to implement the border protection measures envisaged in Articles 51 to 60 of TRIPS Agreement which deals with the Intellectual Property Rights (Imported Goods) Enforcement Rules, 2007 ("Enforcement Rules") were introduced in mid 2007. The Enforcement Rules have been modeled on the lines of the legislation drafted by the Geneva-based World Customs Organization; the Rules seek to define the role of the Indian customs authorities in combating IPR infringements at the borders. It is noteworthy that while the mandatory obligations under Articles 51 to 60 of the TRIPS dealing with border measures are restricted to copyright and trademarks infringement only, the enforcement rules also deal with patents, designs and geographical indications violations; this is in line with the best practices prevailing in certain other countries, most notably within the European Union. The enforcement rules allow for actions to be taken against goods infringing IPRs, e.g., prohibition/suspension in trading/confiscation and disposal of such goods, *inter alia*, provide for:

- The filing of a notice by the right holder;
- Registration of said notice by the customs authorities;
- A time limit for right holders to join infringement proceedings;
- A single point for registration of the notice filed by the right holder;
- Adequate protection to be provided to the customs authorities for authorized acts;
- Suo-moto actions by the customs authorities in specified circumstances; and
- Disposal of the confiscated goods.

The determination as to whether any particular consignment that has been imported violates any of the rights of the right holder would require a good working knowledge of such legislation by the relevant customs officials and would also require specific expertise in the area of copyright and trademark infringement. This issue has also been recognized by the Indian customs authorities. The establishment of a separate IPR unit within each Customs Authority has been mooted; this unit would deal with any action involving suspected infringement of IPRs by any importer.

²⁷ *Intellectual Property Rights Enforcement Rules 2007* – available at <http://www.cbec.gov.in/customs/cs-act/notifications/notfns-2k7/csnt47-2k7.htm>

8.5. Specialized IP courts

Most courts in developing countries have limited capacity to handle IP disputes. This is due to the inadequate training of judges and court prosecutors on IP related issues. As a result, IP disputes take a long time to be determined. Many countries do not have specialized IP courts, and IP issues are handled by commercial courts. In order to strengthen IP enforcement, some countries are now including the establishment of IP courts in their IP strategy. The following are the advantages and disadvantages of specialized IP courts⁶³:

Advantages

- a. Specialization may result in giving judges the requisite time and focus to keep up to date with new IP issues and laws, and hand down fair decisions.
- b. The existence of specialized courts may encourage specialization at the bar and also in the prosecution service, thereby further improving the quality of IP litigation.
- c. Increased familiarity with IP legislation and common fact patterns leads to faster and more assured decision-making.
- d. IP courts reduce caseload and, in particular, the burden of more difficult cases on courts of general jurisdiction.
- e. Special discovery procedures may be developed.
- f. Special courtroom procedures may be adopted e.g., the admissibility of remote testimony, or videotaped depositions. The UK system has streamlined the procedures to which all parties must consent, in order to reduce court time and costs even further.
- g. Special rule-making structures may be created e.g., the Rules of Court approach for the Thai IP court.
- h. Special appellate procedures may be instituted e.g., leapfrog jurisdiction in the Thai IP Court.
- i. The creation of IP courts is a clear indication and enduring legacy of the importance that a society (or government) places on IPRs.

Disadvantages

- a. It can be expensive to create and maintain separate courts.
- b. The cost of providing special training for judges and staff may be high.
- c. The IP caseload may not warrant separate courts.

- d. Specialized courts tend to be centralized; this presents procedural challenges, so as to avoid inconvenience for litigants who are based far away from the IP court.
- e. It may result in a bar where specialization leads to monopolization if the bar is too small.
- f. The perspective of generalist legal practitioners may be lost; IP case law may be out of sync with general trends in the law. This risk can be reduced by creating a judges' roster, or by adjudicating on cases where IP and other issues are mixed.
- g. Familiarity between the bar and the court may result in reducing formality too much.
- h. Specialization can come at the cost of prioritization, and the IP court may be obliged to hear cases that would not otherwise (and perhaps should not) have been brought to court.

63 "Is there need for specialized IP courts?" Available at <http://www.aseansec.org/21388-4.pdf>

64 "A specialized court for intellectual property disputes will be established in the Russian Federation." Available at - <http://www.cmslegal.ru/A-specialized-Court-for-Intellectual-Property-Disputes-will-be-established-in-Russia-30-11-2011>

65 http://en.wikipedia.org/wiki/Intellectual_Property_High_Court

66 See the official website - <http://www.aca.or.ke/>

67 <http://www.state.gov/e/eb/tpp/ipe/>

Box 47: Specialized IP courts – The Russian Federation⁶⁴

On 23 November 2011, the State Duma adopted a legislation dealing with amending certain legislative Acts of the Russian Federation in connection with the creation of the Court for Intellectual Property Disputes.

The jurisdiction of the IP Court will extend to include the following categories of disputes:

- 1) Challenges to the regulatory and legal acts of the federal executive authorities in the area of the protection of IPRs and in relation to the rights and lawful interests of the applicant in the specified area;
- 2) Cases concerning the grant or termination of legal protection of IP (except for copyright, neighboring rights, and topologies of integrated microcircuits), including:
 - a. Challenges to non-normative acts, decisions and actions (including omissions) of Rospatent, the federal executive body responsible for patenting genetic modifications in plants and animals, as well as the federal executive bodies authorized to consider a patent application for a secret invention;
 - b. Challenges to the decisions of the antimonopoly authority, recognizing the acquisition of the exclusive right to the commercial branding of the legal entity, trade marks, or service marks as an act of unfair competition;
 - c. The determination of patent holders;
 - d. The invalidation of a patent for an invention, utility model or industrial design, or for genetic innovations in plant varieties and animal breeds; a decision to grant legal protection to a trademark, appellation of origin, and to grant exclusive rights to this appellation, unless otherwise provided by law; and
 - e. The early termination of legal protection for a trademark on the grounds of its non-use.

Box 48: Specialized IP courts – Japan

The IP High Court was established as a special branch of the Tokyo High Court in order to strengthen the Japanese judiciary's ability to deal with IP litigation under Japan's planned pro-patent system. The IP High Court has jurisdiction as an appellate court for cases originating within the geographical jurisdiction of the Tokyo High Court. The IP High Court was established on April 1, 2005, in order to accelerate and reduce the costs of patent litigation in Japan⁶⁵.

8.6. IP enforcement agencies

In most countries, IP enforcement is undertaken by several agencies which report to a variety of government ministries. In some countries this system works well; in others, the coordination of enforcement is difficult. Consequently, some countries are now in the process of establishing IP enforcement agencies to coordinate all enforcement activities. Below are two examples of IP enforcement agencies

The Anti-Counterfeit Agency of Kenya⁶⁶

This autonomous agency, established following an Act of Parliament in 2008, combats trade in counterfeit as well as other dealings in counterfeit goods. The main functions of the Anti-Counterfeit Agency of Kenya are to:

- Enlighten and inform the public on matters relating to counterfeiting;
- Combat counterfeit trade and other dealings in counterfeit goods in Kenya, in accordance with the Act;
- Devise and promote training programs on combating counterfeiting;
- Coordinate the national, regional and international organizations involved in combating counterfeiting.

US Office of International Intellectual Property Enforcement⁶⁷

The Office of International Intellectual Property Enforcement (IPE) promotes US innovation by advocating for the effective protection and enforcement of IPRs around the world. The IPE's advocacy seeks to strengthen economic rules and norms, increase US business and private sector growth and investment, and create market access for US goods and services. The IPE team work closely with economic, commercial, and public diplomacy officers at the State Department's embassies, consulates and missions to ensure that the interests of American right holders are represented overseas, and to highlight the integral role of IPR protection in supporting global economic stability. The IPE actively participates in multi-lateral and bilateral negotiations and discussions on IPR-related issues, and distributes training and technical assistance funds to help build IPR law enforcement capacity in developing countries. The IPE also directs an international public diplomacy initiative to broaden awareness of IPR's important role in addressing international concerns, e.g., counterfeit medicines and Internet piracy. In addition, the IPE is active in interagency efforts to combat trade in counterfeit and pirated goods worldwide.

8.7. Public and consumer education and awareness

a. **Public and consumer education and awareness:**

The public should be made aware of the existence of an IP enforcement system and thus ensure that the system functions efficiently. Public information campaigns should be introduced at the country's major entry and exit points. The government should launch a nationwide consumer awareness campaign to highlight the damage caused by counterfeiting and piracy.

b. **Consumer education and awareness:** One of the key functions of enforcement is to inform consumers about the issue of counterfeiting and pirated products, so that consumers can steer clear of such products.

Box 49: Business Action to Stop Counterfeiting and Piracy (BASCAP)⁶⁸

Business Action to Stop Counterfeiting and Piracy (BASCAP) was established in 2005 by the International Chamber of Commerce (ICC) to participate in the fight against counterfeiting and piracy. BASCAP's objective is to encourage the global business community to more effectively identify and address IPR issues and also to petition for greater commitments by local, national and international officials in the enforcement and protection of IPR.

BASCAP aims to:

- Increase both awareness and understanding of counterfeiting and piracy activities, as well as the economic and social harm associated with such activities;
- Compel governments to act and to allocate resources in order to improve IPR enforcement;
- Create a culture change so as to ensure that IP is respected and protected.

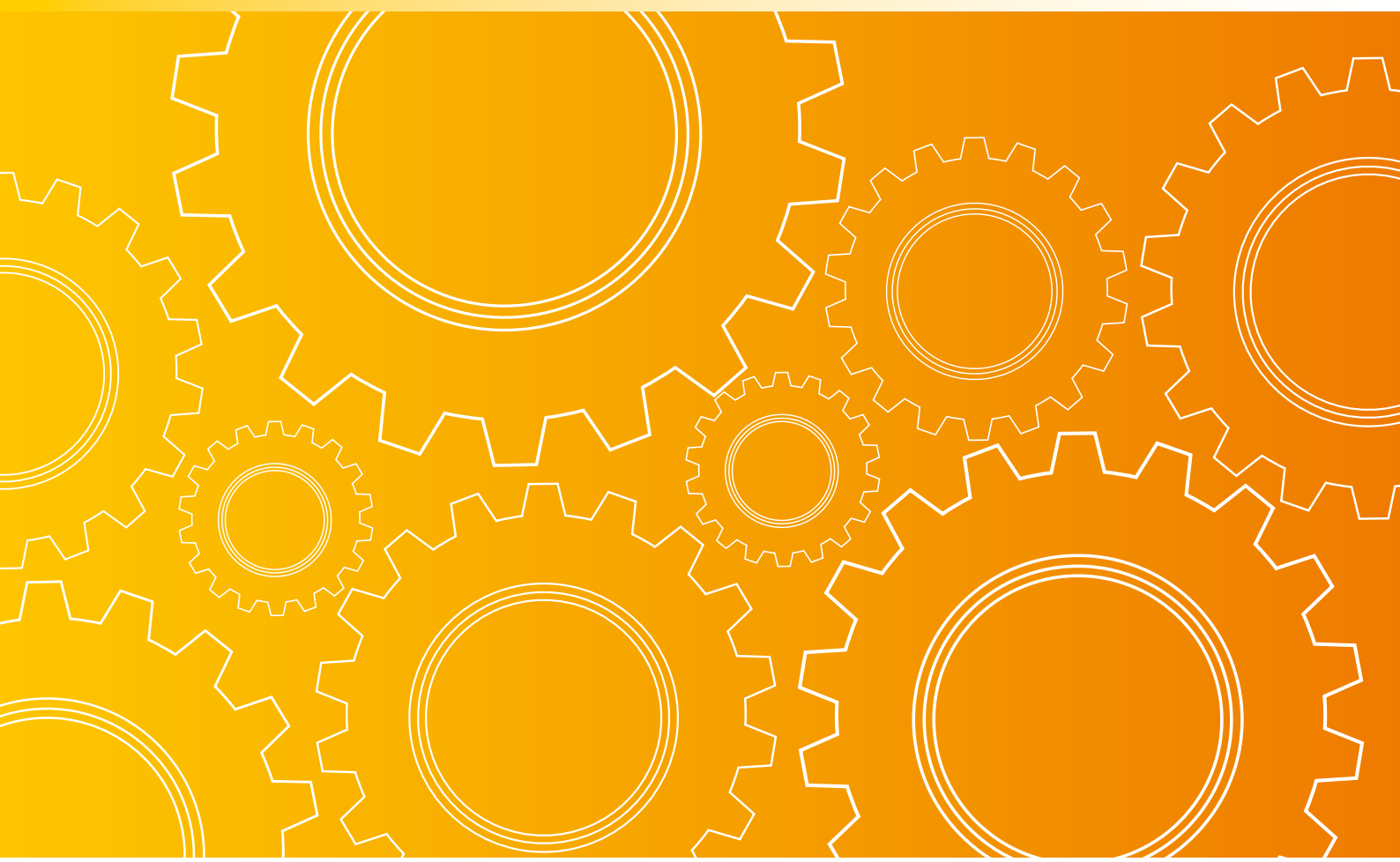
BASCAP draws attention to the damage caused by counterfeiting and piracy, including:

- harm to the economy, loss of employment prospects;
- danger to consumer health and safety;
- loss of innovation and poor quality products;
- financial links to organized crime;
- erosion of technology transfer.

8.8. Training of enforcement officers

- a. **Training of IP judges and court prosecutors:** Empowerment of enforcement officials through technical and legal training in international protection standards, enforcement provisions, and dispute settlement mechanisms is required. Once an IP court is established, a country needs to continue to ensure that qualified and well-trained IP judges and prosecutors are available. In order for this to be achieved, the national IP office must create the requisite programs to build the competencies of IP enforcement officers.
- b. **Training of customs officers:** Trained custom officers can help to prevent counterfeits and pirated products from entering commercial channels.
- c. **Training of IP enforcement police officers:** Police officers are very effective at arresting and prosecuting IP violators. Police officers should therefore be trained to identify IP violations.

68 <http://en.wikipedia.org/wiki/BASCAP>



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