

# IP and Development

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# PART 1

## Introduction to IP

# Types of Intellectual Property Rights

Patents

Copyrights

Trademarks

Plant variety protection

Trade Secret

Industrial Designs

Geographical indications

Protection of design of IC

Utility Models

# Patent

- Protects inventions
- Two types: product and process
- Criteria: Novelty, inventive step and industrial application
- .Prevents others from using the patented invention for a limited period
- Provides against an application after an examination
- Comes with safeguards to prevent abuse of patent monopoly (Compulsory License)

# Copyrights

- Protects art, literary, dramatic, musical and artistic works (computer programmes) and performance
- Criterion: Original Work
- A bundle of rights
- Duration varies country to country
- Registration is not mandatory

# Trademarks

- Protects brand names but now even includes 3d images in certain jurisdiction
- Criteria: Distinctiveness
- Registration is optional
- Protects brand names in specific classes
- Can be perpetual

# Plant Variety Protection

- Protects new varieties
- Provides limited monopoly to variety satisfies three criteria viz. new, distinct, uniform and stable
- Provides exclusive rights to breeders
- Registration is mandatory

# Other IP

- ***Utility models:*** Not mandated by TRIPS Agreement. Similar to patents but confers rights for a shorter duration to certain kinds of small or incremental innovations. The requirements for acquiring a utility model are less stringent than patents. Usually need to prove “novelty” but may not need to prove “inventive step” or “non-obviousness”
- ***Industrial Designs:*** Industrial designs protect the aesthetic aspects (shape, texture, pattern, colour) of an object, rather than the technical features. TRIPS, requires that an original design be eligible for protection from unauthorised use by others for a minimum of 10 years.



## ...Other IP

- ***Geographical Indications:*** Geographical Indications (GIs) identify the specific geographical origin of a product, and the associated qualities, reputation or other characteristics. They usually consist of the name of the place of origin.
- ***Trade Secrets:*** Trade secrets consist of commercially valuable information about production methods, business plans, clientele, etc. They are protected (as long as they remain secret) by laws which prevent acquisition by commercially unfair means and unauthorized disclosure.

# Nature of Intellectual Property Rights

- It grants a set of negative rights to the holder
- Does not ensure market success
- It is termed intangible asset
- It can be licensed
- It is often used as a tool to prevent competition
- It has implications for development policy

# IP and Development :

## A reality Check

# Rationale for IP Protection

- To recoup investment in R&D and creative work
- To create incentive to creativity
- To facilitate technology transfer
- To facilitate foreign direct investment

# IP Protection and Promotion of R&D

The relationship is context specific and generally IP will not promote R&D in countries where the infrastructure and other conditions are not met

- On the relationship between patents and R&D in the context of developing countries, a WHO Expert Commission has noted:

*“Intellectual property rights have an important role to play in stimulating innovation in health-care products in countries where financial and technological capacities exist, and in relation to products for which there are profitable markets. However, the fact that a patent can be obtained may contribute little or nothing to innovation if the market is too small or scientific and technological capability inadequate. Where most consumers of health products are poor, as are the great majority in developing countries, the monopoly costs associated with patents can limit the affordability of patented health-care products required by poor people in the absence of other measures to reduce prices or increase funding. Because the balance of costs and benefits of patents will vary between countries, according to their level of development and scientific and technological infrastructure, the TRIPS agreement allows countries some flexibility in finding a balance more appropriate to their circumstances.”*

See <http://www.who.int/intellectualproperty/documents/thereport/ENPublicHealthReport.pdf>

# CDP Discussion Paper on IP and R&D

- “simply raising the level of IPR protection would not encourage more innovation expenditure or additional efforts in the context of developing countries where innovation capabilities are lacking. In other words, more stringent IPR protection leads to higher R&D expenditure only when there are pre-existing R&D capabilities, which is not the case in typical developing countries “

# IP and Technology Transfer

- Patents provides exclusive rights this will increase the bargaining power of the patent holder
- Patent protection reduces the chance of reverses engineering
- Long duration of patent protection ( 20 years) thus provides a monopoly without any compulsion on the part of the patent holder to agree for technology transfer on fair an equitable terms

# CDP Paper on IP and Technology Transfer

- “IPRs (particularly patents) can be a serious deterrent factor in countries’ efforts to make a transition to a sustainable mode of development with the help of STI. We argue that IP systems need to evolve further from an institution that protects IP to one that fosters dissemination of technology”.



# IP and Innovation

- little evidence that strong IP rights encourages greater R&D in developing countries

e.g. Switzerland...in the late 19<sup>th</sup> Century....although no patent law...Swiss were the most innovative in this period. During this period, Swiss made world famous inventions in areas like textile machinery, steam engine, food processing milk etc.

# IP and Innovation

## ➤ UK Commission on IP & Development:

*“We conclude that in most low income countries, with weak scientific and technological infrastructure, IP protection at the levels mandated by TRIPS is not a significant determinant of growth. On the contrary, rapid growth is more often associated with weaker IP protection. In technologically advanced developing countries, there is some evidence that IP protection becomes important at a stage of development but that stage is not until a country is well into the category of upper middle income developing countries”*

# CDP Paper on Implications of IP on Innovation

- “the increased patent litigations over fragmented IPRs and the emergence of patent trolls are also a matter of concern for policymakers in both developed and developing countries because these create numerous regulatory and antitrust issues, and threaten the wider usage of IP for innovation and knowledge creation “

# IP and FDI

## UK Commission on IP & Development:

- “The evidence that foreign investment is positively associated with IP protection in most developing countries is lacking”
- What is clear from the literature is that strong IP rights alone provide neither the necessary nor sufficient incentives for firms to invest in particular countries.

# IP and FDI

- If this was the case, then large countries with high growth rates but weak IPR regimes would not have received large foreign investment inflows in the past and even now e.g. China, India, Malaysia
- FDI usually depends on other factors e.g. stability, incentives such as tax breaks, local capacity, operating cost, market size; technological capacity.
- In fact, high levels of IPRs protection **may lead title-holders to prefer the exportation of the final product rather than investment in or the transfer of technology to a foreign country** as the main channel for exploitation of their intellectual assets. IPRs may, hence, deter rather than foster technological catch-up and industrial development.

# IP and Industrial Development

# What is the Need of the Hour?

- Industrialization
- This needs access to technology
- The IP regime should facilitate access to technology and catching up with technology
- IP has implications on access to technology and may adversely impact technology catching up process
- IP affects the access to knowledge and thus reduces absorption capacity

# Industrial Development

Patents	Chemicals, drugs, plastics, engines, turbines, electronics, industrial, control and scientific equipment
Trademarks	All industries
Copyright	Printing, entertainment (audio, video motion pictures) software, broadcasting
Integrated Circuits	Microelectronics industry
Trade Secrets	Chemistry, biotechnology, food and other processing industries
Industrial Designs	Clothing, automobiles, electronics, etc.
Utility Models	Mechanical industry



# Stages of Industrial Development

**1. Initiation Stage**

**2. Internalization Stage**

**3. Generation Stage**

**IP has implications on the first two stages**

# Initiation

- **Countries with no technological and research base**.....example Least Developed countries and many developing countries.
- **“Mature” technologies are incorporated through informal channels of technology transfer** (acquisition of machinery, reverse engineering (e.g. pharmaceutical local production in African countries, packaging, filing), learning by doing and subcontracting).....
- **Strong IP protection are unlikely to promote local innovation**....what is important is maximum use of the policy space available....e.g. use of transition period for LDC
- This is recognised by the TRIPS Agreement [Art. 66.1](#)  
“In view of the **special needs and requirements** of least-developed country Members, **their economic, financial and administrative constraints**, and their **need for flexibility to create a viable technological base**, such Members **shall not be required to apply the provisions of this Agreement**”.

# Internalization

- Some low intensity R&D industries emerge. Local producers are able to develop minor innovations largely by exploiting existing technologies rather than undertaking R&D efforts.
- **High IP protection/enforcement** (esp. patent protection) **may have little or no effect on innovation** but instead **may reduce diffusion and increase cost of foreign inputs and technologies**. E.g. China pharmaceutical industry
- Ideal would be a flexible IP system but this may be limited by the TRIPS Agreement and FTAs.

# Internalization

- Need to ensure that IP legislation makes full use of flexibilities to allow reverse engineering and technological diffusion.
- Flexibilities such as strict criteria for assessing patentability criteria, exceptions to exclusive right (such as for experimentation and early working of an invention), parallel importation, compulsory licences, exceptions and limitations for educational purposes in copyright law, appropriate application of trademark law etc are crucial.

# IP and Social Development

# Patent and Public Health

- Protection of IPRs in the area of public health....has led to considerable controversy and tension
- “Research based” pharmaceutical companies (basically multinational companies) use the protection and enforcement of patents and test data to gain monopoly rights which then allows them to charge very high prices and obtain high profitability.
- For instance at one time the cost of HIV/AIDs treatment per person per year was more than US\$10,000 per person per year (pppy) in 2000. Today prices have reduced dramatically to to less than \$150 pppy today. This price reduction has been critical in getting 6.6 million people in low- and middle-income countries access to ARVs.
  - This is very much due to the entry generic drugs from India that had no patent protection for products and thus was able to manufacture generic versions of patented products.

However in 2005, India put in place patent protection for pharmaceutical products, which means that India is no longer able to manufacture generics versions as freely as it used to. As a result, prices of medicines are likely to remain high.

# IP and Public Health

-In designing IP laws that affect public health (e.g. patents, trademarks, test data protection), should retain maximum policy space for generic competition by making maximum use of the flexibilities/safeguards provided by the TRIPS Agreement.

-Worth recalling the WTO's Doha Declaration on the TRIPS Agreement and Public health that confirm the right of WTO members to implement the TRIPS obligations in a manner that ensures the protection of public health particularly access to medicines by all.

# Copy Rights and Access to Knowledge

- **Copyright ownership** is largely in the **hands of the major industrialised nations** and of the major multimedia corporations **placing low per capita income countries** as well as smaller economies **at a significant disadvantage**.
- In 1998 US, UK, Germany, Spain, France and Italy between them produced nearly 2/3 of global exports of books.
- In some instances developing countries have a share e.g. India (software industry) but by and large many writers and musicians in developing countries particularly in Africa rely on foreign publishers....
- In short a lot of the copyright is foreign owned. Developing countries have to fork out royalties and high sums of money to access educational/reference material.
- **High prices of books and materials and limited access to internet-based resources is part of the education crisis in sub-saharan Africa.**

In 2001 a UK Commission Report on IP and Development noted that:

**“I.....evidence shows that weak levels of copyright enforcement have had a major impact on diffusion of knowledge and knowledge-based products in certain cases, such as computer software, throughout the developing world.** Indeed, it is arguably the case that many poor people in developing countries have only been able to access certain copyrighted works through using unauthorised copies available at a fraction of the price of the genuine original product.”



# Copyrights and Access to Knowledge

In designing copyright law, it is important to utilize to the maximum the flexibilities available to facilitate access to knowledge. This includes having reasonable term of protection as well as using exceptions and limitations.

# IP and Agriculture

# IP and Agriculture

- An estimated 75% of the world poorest 1.2 billion people live in rural areas and depend on farming.
- GDP originating in agriculture is deemed to be about four times more effective in reducing poverty than that originating outside the sector.
- Until recently agriculture in developing countries seemed largely unaffected by IPRs...but this situation is changing rapidly particularly as various components of plants, even traditional breeding methods are being patented.
- Given the importance of agriculture, the impact of IP legislation on various agricultural inputs/outputs should be examined with care.

# ...IP and Agriculture

- An issue that an IP policy also needs to carefully assess is whether patent protection should be available for cells and sub-cellular components, including genes.
- Allowing patenting of genes and cells may have significant implications for agriculture particularly where diffusion of genetically modified plant varieties are accepted as farmers and breeders can be restricted from using varieties that incorporate patented genes unless royalties are paid.
- The TRIPS Agreement does allow excluding the patentability of genes and other substances found in nature, even if claimed in a purified or isolated form.

# ...IP and Agriculture

## Conclusion:

- In designing an IP laws that affect agriculture, should take into account the characteristics of agricultural production, the changes that may be brought about by the growing liberalization of agricultural trade in the context of trade agreements, the diverse inputs needed for a sustainable production, as well as food security considerations.
- **An important issue is the structure of the seed supply system.** A large part of seeds sown in developing countries is produced by the farmers themselves through the customary practice of saving seeds for their own use or exchange.
- The large participation of farmers-saved seed may be found even in countries with modernized, export-oriented agricultural systems. In Brazil, for instance, an estimated 70% of the 22 million hectare soybean crop is planted with farmer-saved seed.
- So policies should be crafted to ensure that such policies do not hamper farmers rights.
- **A clear advantage of PVP as compared to patents** is that PVP allows under certain conditions the use of a protected variety for further research and breeding ('breeders exception') and the saving of seeds by farmers. **However the economic evidence about the impact of PVP as an incentive for breeding is inconclusive.**

# Who Benefits of IP System?

- Largely the developed countries & some sectors in advanced developing countries
- May benefit from some IP protection/enforcement
- There may be tension between private and public interests so need to maintain the balance

# IP Statics

- In 2001, less than 1% of US patents were granted to applicants from developing countries, nearly 60% of which were from seven of the more technologically advanced developing countries
- In 2006, 18 countries were considered intensive users, (i.e. had more than 1000 Patent Cooperation Treaty (PCT) filings) making up 94.8% of the patent filings. Aside from China, these were OECD countries.
- In 2007, more than 60% of the PCT filings originated from the US, Japan and Germany.
- In developing countries and LDCs, most patent holders are foreigners which means what is being protected is foreign owned property. For example, 91% of patents granted in Malaysia in 2008 were to foreigners and this trend has been constant.
- Between 1991 and 2004 only 20 patents were granted to applicants from LDCs (compared to 1.8 million patents granted to developed countries)

# Developed Countries and IP : History

## Case of Switzerland:

For example in the 19<sup>th</sup> century, Switzerland's chemicals and textiles industries were strongly opposed to the introduction of patents as it would restrict their copying of processes abroad. Then Switzerland was a poor country without many natural resources, whose economy was largely reliant on farming.

In 1859 a small company based in Basel “borrowed” the aniline dying process which had been developed and patented in Britain two years before. The company, later called Ciba, soon became a massive industrial enterprise, swiftly outstripping competing firms in Britain. In 1995, Ciba merged with another Swiss firm, Sandoz, to form the conglomerate Novartis.....currently a huge multinational pharmaceutical company.

## Case of United States:

US was a notorious pirate particularly of English work. For almost 100 years the US refused to grant copyright protection to foreign authors on the grounds it was important to meet the nations needs for knowledge and enlightenment and to reduce deficit in international royalty payments. As a result American publishes and producers freely pirated foreign literature.



# ...History

**The experience of many Asian countries that build technological capacity is similar.**

**Japan:** benefitted from IP generated in other developed countries. Its patent protection was designed with an ultimate objective of contributing to the industrial development. For e.g. until 1975 it excluded food, beverage, pharmaceutical products and chemical compounds from the scope of patent protection. This weak patent protection is how Japan obtained technology and facilitated its absorption. There were complaints of discrimination by the Japan Patent Office in that foreign applicants had to wait longer to obtain patents compared to domestic applicants.

It only increased patent protection on receiving pressure from the US. In any case by then Japanese enterprises that developed significantly and were developing their own innovations

**Taiwan:** employed weak policy to facilitate local absorption of foreign knowledge through reverse engineering. Its government openly encouraged counterfeiting as a strategy to develop local industries. Only under pressure from the US beginning 1983, it instituted stronger IP law

# Things to Keep it in Mind

- important to consider how IP policy/law affects (positively/negatively) the different manufacturing fields.
- What are the strengths and weaknesses in the each sectors
- Who are the beneficiaries locals or foreign entities
- IP in itself not a sufficient condition to encourage innovation...other conditions include significant market, sufficient capital, qualified personnel, solid scientific base and may need other national policies e.g. giving grants!!
- Ample evidence that IPRs may not promote innovation even when such conditions are met.
- For instance, a review of 23 empirical studies found weak or no evidence that strengthening patent protection increased innovation, but rather the number of patents applied for. (Source: Boldrin & Levine 'Against Intellectual Monopoly' , , 2007, <http://www.dklevine.com/general/intellectual/againstnew.htm>)