Module 8

Science: From Public Resource to Intellectual Property

Lecture 40

Intellectual Property Rights: An Overview

In this module, we shall discuss the new institutional context of knowledge production as a consequence of the changes in the patent law in India in compliance with the international context. Intellectual property protection first acquired a significant international law dimension in the nineteenth century with the adoption of important international treaties concerning intellectual property protection. The development of intellectual property protection assumed greater significance since the 1990s. This was due in part to the lack of consensus on the specific structure of an international regime. As a result, over the centuries, the Intellectual Property Rights (IPR) system was based on the principle of territoriality allowing individual countries significant margins of appreciation in developing their own laws and policies. In this regard, the adoption of the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement in 1994, which will be discussed later, has been a defining moment even though the principle of territoriality has been retained. It has contributed not only to the introduction and strengthening of the intellectual property protection in most developing countries but has also imposed for the first time minimum levels of protection that all member states of the WTO must respect. This can be attributed, in part, to the development of knowledge-based industries including the rapidly developing genetic engineering industry in the developed world.

The main types of intellectual property rights are largely individual property rights. Two main phases in the development of IPR regimes relevant for the present study can be identified. The first period ranges from the mid-nineteenth century to the adoption of the TRIPS Agreement. During this period, the main IPR treaties were largely mechanisms for coordinating national IPR policies. As a result, the member states were given significant leeway in adopting IPR laws suited to their own needs and priorities. The second period formally started in 1995 with the coming into force of the TRIPS Agreement. The major change that it has introduced is the imposition of minimum levels of protection. In principle, the TRIPS Agreement has not taken away from member states the right to independently adopt IPR laws, but this must take place within the constraints of the minimum standards introduced by the TRIPS Agreement, which will be discussed later. The TRIPS Agreement is still the governing treaty in the field of IPR, but the overall legal framework is fast developing. In some areas such as patents, there are proposals for further internationalising the legal regime by adopting an international substantive patent law treaty. Further, the minimum standards of the TRIPS Agreement are progressively becoming a thing of the past with the increasingly adoption of bilateral treaties that impose the introduction of higher standards of protection.
Patents

Patents constitute only one of several forms of existing IPR, but they deserve a specific introduction in today’s context because of their significance of the ways in which scientific knowledge has moved away from the public domain. Patents have consistently been conceived as privileges granted by the State over their several centuries of development. Their specific features have, however, significantly evolved from the formative years when patents were privileges granted by a ruler for specific activities such as importing products unavailable in the country to today where patents are meant to reward inventiveness.

The introduction of patent rights can be justified in different ways. They can, for instance, be justified as a reward for the effort expended in contributing to technological or economic development. This reward theory is largely applied in patent laws and treaties, but it does not provide a comprehensive basis for understanding patents. It does not account, for instance, for the fact that in practice, a patent examiner is not concerned about the economic relevance of an invention but only about the technical factors, which constitute the conditions for patentability in existing patent laws and treaties. Further, the reward theory tends to dissociate the patents system from the social utility of the inventions and does not provide a mechanism for ranking technologies that foster the sustainable development of a country and those that do not.

Patents can also be seen as a tool to promote technological development in fields where the low cost of copying an invention is likely to limit the economic incentives for inventiveness. One of the roles of patents is, thus, to ensure that information providers do not lose rights to the information by disclosing it given that intellectual contributions can be used by an infinite number of persons simultaneously.

Criteria for Attaining Patents

The criteria for granting patents are three-fold:

- Novelty
- Non-obviousness
- Utility

Let us discuss each criterion in detail.

The criteria for the grant of a patent are the object of a broad consensus. Most countries have followed the same general model for granting patent rights even without or before ratifying relevant treaties. This is, for instance, the case in India where the Patents Act 1970 was in tune with international regulations even though India was not a member state of the Paris Convention at the time. The standard cumulative conditions for the grant of a patent are those of novelty, non-obviousness and utility or industrial applicability.

The condition of novelty serves, first of all, to distinguish inventions from other unpatentable knowledge. A broad distinction between inventions and discoveries
separates the unearthing of causes, properties, or phenomena already existing in nature and the application of such knowledge to the satisfaction of social needs. It is on this basis that the natural world used to be deemed unpatentable and that plants would, for instance, have been seen as lacking the basic condition of novelty given the relatively limited human input in selecting and breeding them. The distinction between inventions and discoveries is one of the criteria that has evolved throughout the twentieth century and has led to a shift towards the recognition of life patents on micro-organisms. While the rise of life patenting has been mostly visible since the 1980s, the United States Congress determined already in 1930 that while a mineral is wholly created by nature without human assistance, a plant discovery resulting from cultivation is unique, isolated, not repeated by nature, and cannot be reproduced by nature unaided by man [cited in S Rep No. 315, 71st Cong, 2n Sess at 6 (1930) and HR Rep No. 1129, 71 Cong, 2d Sess at 7 (1930)].

Another aspect of novelty under the patent system is that it is, by and large, distinct from the public domain. In principle, any knowledge, which is already in the public domain before the filing of the application cannot be protected through patents. This is of significance with regard to traditional knowledge since a significant part of traditional knowledge implies information that is freely available to the public. It is also significant because the distinction between the knowledge in public domain and novel knowledge implies that under the existing patents system that only novel knowledge can be protected. One of the practical problems associated with the notion of public domain is that this imposes a duty on the relevant patent office to determine whether or not the application is already in the public domain. Given that inventions increasingly use knowledge from different parts of the world, a prior art search in India where the application is filed, may not be sufficient to determine the nature of the claim. One solution to this problem is, for instance, to determine that relevant prior art includes everything that has been made available to the public anywhere in the world by means of written disclosure. This is the solution adopted by the Patent Co-operation Treaty, a practical solution, which helps in clearly ascertaining the scope of the public domain but may not provide a comprehensive answer in the case of traditional knowledge, which has a higher likelihood of being in the public domain without being described in written form. It also fails to indicate whether traditional knowledge which is only known to insiders in a given community should be deemed novel or part of the public domain.

The second condition for the grant of a patent is the requirement of an inventive step. This implies what is claimed as an invention must not be obvious to someone who is deemed to be skilled in the specific field in which the invention is claimed. There is no specific standard, which is set a priori but a general rule of thumb would be that in a field like genetic engineering a person skilled in the art is someone who has the knowledge of a graduate scientist or technician in the relevant area.

And, finally, the invention must be useful or industrially applicable to be patentable. The basic idea behind the condition of usefulness is that the novel idea should have practical use. This provides the basis for distinguishing technological advances that can have practical applications and other categories of advances in knowledge such as scientific theories that might not, pro tempore, have direct applicability. Thus, abstract ideas, scientific and mathematical theories as well as
aesthetic creations generally fall outside the purview of the patent system because they do not have direct application. This is partly premised on the perceived need to keep scientific results in the public domain so that technological development immediately and freely benefits from scientific advances.

Besides the substantive conditions for patentability, patent applicants must also fulfil a number of procedural requirements. Among these, is the condition that a full-written description of the invention must be given. This must, at least by legal framework, be specific enough to allow someone skilled in the art to reproduce the invention. This is the principle of sufficient and enabling disclosure, which is, for instance, incorporated in the Substantive Patent Law Treaty.\footnote{7}

Even where the conditions for patentability are fulfilled, most patent regimes admit, to certain exceptions, to patentability. Thus, under the TRIPS Agreement, patentability can be denied where the commercial exploitation of the invention will, for instance, endanger human, animal or plant life or health or cause serious prejudice to the environment.\footnote{8} Before the adoption of the TRIPS Agreement, some patent regimes used to make a distinction between process patents covering the method or technology through which a product is manufactured and product patents encompassing the substance or product itself. A number of countries, thus, made a distinction between product and process patents in the pharmaceutical field and only permitted the patenting by pharmaceutical companies of the specific process through which a medicine was made but not the medicine itself. This was done largely to provide access to medicines for different segments of society. In India, this has, for instance, been of tremendous importance since 1970s in providing incentives for the development of a generic pharmaceutical industry. The distinction between product and process patents is progressively losing its significance because the TRIPS Agreement imposes patentability of process and product patents in all fields of technology.

**Rights Conferred**

The main rights conferred by a patent are the rights to prevent others from manufacturing, using or marketing the invention. The patent generally provides the exclusive right to exploit the subject-matter of the claims, including the right to manufacture, use and market it. However, the right to use the invention is not a direct consequence of the grant of a patent. The right to exploit is, in fact, like in the case of medicines or transgenic organisms, subject to a number of other conditions in most legal orders.

These rights are provided for a limited period of time in view of the need to maintain the balance between the reward offered to the inventor and society’s broader interest in having free access to the technology. The usual period is currently twenty years, as provided under the TRIPS Agreement. In most countries, the duration of patent rights is similar for all categories of inventions today. This is a surprising result because the current twenty-year period is largely an arbitrary political choice and can be justified on economic grounds only for certain categories of inventions but not for all. In fact, there are different grounds justifying differential duration, which include, in particular, the technological significance of the invention and its social relevance.
This proposition was partly implemented with success in the Indian Patents Act 1970, which provided for a reduced duration of process patents of seven years for substances intended for use as food or medicine. On the whole, rights conferred by patents provide the patent holder monopoly rights over the invention. This implies, for instance, that patent holders can, in principle, determine whether they want to manufacture the invention themselves or license it to a willing licensee. Patent holders, under the TRIPS regime, can also decide whether they want to manufacture the invention in each country where they hold the patent or whether they want to use their privilege to import protected products. In general, the rights of the patent holder extend not only to the patented product or process itself but also to products that encompass the invention.

These expansive rights are, however, neither absolute nor uncontroversial. First, the grant of a patent does not necessarily ensure the right to exploit the invention in case there is a specific law that prohibits the exploitation of certain types of inventions. Secondly, the exploitation of a patent must happen within the context of national laws regulating the use of the specific invention. Thirdly, patent rights can be curtailed in certain circumstances. The most significant tool, at the disposal of states, is compulsory licensing. This allows the State to force the patent holder after a few years to provide licences to other manufacturers in situations where a product is not sufficiently available in the market to cover the needs of the population. Compulsory licensing is an important tool at the national level to ensure that the monopoly granted to the rights holder does not lead to denying access to technological progress for the public, in particular, if the product is either not manufactured or is in sufficient quantities. This is particularly important in the case of medical patents because unavailability or insufficient availability of a patented drug has direct public health implications.

**Patents in Practice**

The practical usefulness of the patent system with regard to the promotion of economic development has been the object of ongoing debates for a long time. This has been the case in developed as well as developing world. This is, in large part, due to the fact that the patents system constitutes an exception to the market mechanism, which can only be justified, if it fosters sufficient benefits to society, at large. The reason why the system has been controversial is because benefits for a few actors have sometimes been losses for umpteen numbers of actors. Whether or not the patents system appears justifiable depends on the perspective that one adopts. In general, the patent system has proved a useful economic tool for bigger companies and an indispensable one in the case of industries like the pharmaceutical industry (cited in Cullet 2005). Doubts remain, however, whether the monopoly granted always promotes innovation, a problem which has become more starkly visible since the New Patents Act 2005. Another issue concerns the economic usefulness of the patents system for small economic actors. This appears to be in part because it is mostly companies that can not only bring about inventions but also provide the innovations that lead to a commercial product that mostly benefit from the patents system (McDonald 2002). This has led a few economists to declare that the evidence
provided by the existing system, that is under the TRIPS Agreement, would not lead to a recommendation to set it up, if it did not exist today, but that conversely there is not enough evidence to recommend abolishing it altogether\(^1\).

With regard to relations between more and less economically developed countries, the introduction of the patents system in economically weaker countries has been consistently controversial. Further, there are doubts whether patented technologies are always the most appropriate technologies in specific situations. If the need for patented technology is relatively low as might be the case in a number of least developed countries, the rationale for the introduction and strengthening of the patent system is significantly weakened.

**Process of Innovation and Patents**

The literature on patents may be listed under three categories. One deals with the legislation and the functioning of the patent system. The second category deals with the rationale of the system. The third area is covered by the literature that uses patents as technical information. Some of the important issues regarding patents and their use are as follows:

(a) To what extent are patents used commercially? If patent data are to have any practical value as an indicator of technological change, it is necessary to show that the number of patents, which indeed do lead to innovation, is significant; as a corollary to this, the question pertains to the varying value or quality of the patents. There is also the question of the varying time intervals separating patenting and commercialisation.

(b) If present data pertaining to patenting are used to compare across firms or industries, it is of importance to know whether the patent system is used uniformly by the participants in the comparison. It is possible to protect an invention in several ways, and the attitude towards the use of patents may vary.

(c) In comparisons between countries, there is a question whether the patents institutions can be compared. If patent legislation and the practice of the patent offices vary significantly, this will, of course, affect the validity and usefulness of any comparisons.

(d) Finally, we have the inherent problems of all historical time-series analysis. In our case, we must assume that the institutional framework and the attitudes are relatively stable over time, if we are to have results of any value.

**International Institutional and Legal Framework**

**World Intellectual Property Organisation**

The World Intellectual Property Organisation (WIPO) has been the main international intellectual property related institution in the United Nations system since 1967. However, prior to its establishment, some of the main international intellectual property treaties had been adopted\(^2\). The United International Bureaux for the Protection of Intellectual Property had been entrusted with carrying out administrative tasks linked to the implementation of the Paris and Berne Conventions. The WIPO
has become the focal point within the UN for intellectual property related matters as a consequence of an agreement with the UN making WIPO one of its specialised agencies\textsuperscript{13}.

The institutional mandate of the WIPO is rather specific, that is, to promote the protection of intellectual property throughout the world. More specifically, WIPO is meant to facilitate the efficient protection of treaties and to promote the harmonisation of national legislation. WIPO is also called upon to perform the administration of certain treaties in the field of intellectual property and to provide legal and technical assistance to member states, in particular to developing countries.

The mandate of the WIPO requires to be examined in detail. On the one hand, the WIPO Convention does not acknowledge potential links and/or conflicts with other fields and limits itself to ultimately seek to encourage creative activity\textsuperscript{14}. On the other hand, the UN-WIPO Agreement is much broader, since it includes in WIPO’s mandate the facilitation of transfers of technology related industrial property to developing countries in order to accelerate economic, social and cultural development. In fact, WIPO is specifically called upon to co-operate with relevant UN organs.

By 2005, WIPO administered more than twenty treaties in various fields of intellectual property. This includes treaties in the fields of patents, copyright, geographical indications and trademarks, for instance\textsuperscript{15}. This also includes procedural treaties such as the Patent Co-operation Treaty (PCT), which seeks to foster co-operation in the filing, searching, and examination, of applications for the protection of inventions\textsuperscript{16}. The PCT allows, for instance, the filing of a single application for any or all member states. The role of WIPO has remained largely unchanged prior to the WTO regime. However, in practice, the 1994 adoption of the TRIPS Agreement in the context of the WTO has significantly changed the institutional landscape including that of the WIPO concerning IPR at the international level. However, while the TRIPS Agreement is, to a large extent, the most visible and contentious part of the IPR system, it has only added layers to existing WIPO-administered conventions without replacing them. As a result, WIPO maintains its central role in the administration of IPR treaties. Further, it seeks to regain the initiative institutionally, for instance, by taking a lead on the question of traditional knowledge protection. The new role of the WTO in intellectual property was formalised through the adoption of a treaty between WIPO and WTO\textsuperscript{17}. This agreement seeks to foster co-operation between the two organisations – WIPO and WTO – concerning administrative matters such as notification of laws and regulations, as well as legal and technical assistance, and technical co-operation in favour of developing countries.

\textbf{Convention for the Protection of Industrial Property}

The Paris Convention for the Protection of Industrial Property (hereafter Paris Convention) is an early international IPR treaty, which was revised several times during the twentieth century and whose substantive provisions were essentially incorporated into the TRIPS Agreement. The genesis of the Paris Convention may be traced to the realisation during the nineteenth century that the domestic protection of patents and the impossibility to enforce them abroad was not sufficient in situations
such as international fairs where inventions from various countries were displayed. Fairs not only provided an opportunity to showcase inventions but also afforded foreigners opportunities to copy them. The Paris Convention was, therefore, adopted with a view to facilitating the articulation of existing national patent systems. There was no attempt to harmonise existing patent systems or to establish international standards of protection.

The Paris Convention is based on three main principles, viz., national treatment, right of priority and the independence of patents. The principle of national treatment seeks to ensure that each country provides the same protection to its citizens and citizens from other member states. The right of priority gives the person who files, for instance, a patent application in one country, precedence over other potential claimants in other countries. In other words, the person who has filed a patent application in one country is given twelve months during which s/he can decide to file in other countries without incurring the risk of seeing the subsequent applications invalidated because of another filing, publication or exploitation of the invention. The third principle is that patents granted in different countries, for the same invention, are independent of each other. In view of the fact that countries can have different patents for the same invention are separate rights limited to the territory of one given country. This may, for instance, imply that the duration of the patent may be different in different countries or in the extreme that a patent granted in one country may be denied in another because of specific restrictions on the subject matter, for instance.

A few important elements may be mentioned at this juncture. First, there is no requirement in the Paris Convention for all classes of invention to be protected. Secondly, the Convention does not oblige member states to grant patents but only obliges them to give the same treatment to nationals and foreigners. Further, countries are not obliged to join the revised versions of the Convention. This is important because it implies that under the Paris Convention, there is scope for asymmetrical levels of protection between countries. Thirdly, the Convention has had an interesting evolution concerning action that states can take in the case of abuse of rights. At first, the only sanction that states had, at their disposal, was to impose the forfeiture of rights granted. The 1995 revision of the Convention introduced the idea of compulsory licensing as an attempt to ensure that there could be different steps taken in the case of abuse of rights short of full forfeiture. Under the revised Convention, the importation of a patented article does not entail forfeitures. However, countries are given the right to take measures to prevent abuses, in particular in situations where the patent is not worked within the country. Forfeiture, then, becomes the ultimate penalty where compulsory licensing is seen as not having achieved the desired results.

Draft Substantive Patent Law Treaty

The adoption of the TRIPS Agreement in the context of the WTO incorporating a large part of the Paris Convention has not signaled the end of WIPO’s efforts to further develop patent law. Since the adoption of the TRIPS Agreement, WIPO has taken a number of new initiatives. It first led to a successful conclusion, the negotiations for a treaty seeking to harmonise procedural requirements in patent applications, which was eventually adopted in 2000. Since then, WIPO has embarked upon a much more ambitious project, which has the potential to be at least
as far-reaching as the TRIPS Agreement in the evolution of patent law around the world. The new proposal is for a substantive patent law treaty, which would harmonise the substantive requirements of patent law at the international level. The rationale behind proposals for harmonisation is that the costs of obtaining patents in different countries has significantly increased and that these costs could be lowered, if some of the basic principles underlying the grant of patents such as the definitions of prior art, novelty, inventive step and industrial applicability were harmonised. WIPO’s Standing Committee on the Law of Patents has been providing the forum for negotiations of a draft, but there is an expected high level of resistance to such a treaty and the successful conclusion of the negotiations cannot be taken for granted in the context of the Patents (Amendment) Act 2004.

**Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore**

Another novel initiative at the level of WIPO has been the setting up of the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (hereafter Intergovernmental Committee) in 2000. The rationale for the setting up of a separate body was the realisation that issues related to traditional knowledge cut across several existing WIPO bodies. More specifically, the underlying idea was to set up a forum for debating issues concerning the interplay between intellectual property and traditional knowledge, genetic resources, and traditional cultural expressions, something that had, for instance, not been done in the context of the TRIPS negotiations. The Intergovernmental Committee focuses on three interrelated issues: the question of access to genetic resources and benefit sharing, the protection of traditional knowledge and the protection of expressions of folklore. The Intergovernmental Committee has met seven times since 2002.

**Controversies over Patents System**

Patenting in India today raises many controversies, especially so in the context of the WTO regime. On the one hand, patents reward inventors with incentive to be inventive. Inventions are necessary for the economic development of any nation. On the other hand, patents restrict access to knowledge. They give monopolistic control over knowledge to the inventor – may be an individual or a firm.

In practice, the patents system is conceived as an exception to the rules of competition and free market capitalist economies. Since patents are conceived as exception, it has long been accepted that the privileges granted to inventors have to be counter-balanced with measures to ensure that society, at large, benefits from technological development. Consequently, while the patent holder is granted significant privileges, the public has a right to be informed of the content of the invention and the privileges are limited in time so that in the long term, the public, at large, fully benefit from technological progress. The existing patents system (The New Patents Act 2005 adopted by the Government of India) is, therefore, meant to foster innovation by providing specific benefits to the inventor while promoting the public disclosure of new technologies by private parties who may otherwise tend to rely on trade secrets to safeguard their position in the market.
Notes and References

1 See Paris Convention for the Protection of Industrial Property, 20 March 1883 (as revised and amended) and Convention for the Protection of Literary and Artistic Works, Berne, 9 September 1886.

2 There are exceptions such as geographical indications. Geographical indications are a form of IPR that do not protect novel elements but rather an accumulated goodwill built up over a long period of time. This goodwill is the outcome of a recognised or perceived link between a product and a geographical area. The purpose of geographical indications is to identify products but not to provide protection to the product as such. Further, geographical indications are atypical insofar as they are a collective right that only grant producers in a given area the right to use the indication for products of a specific geographical area and that is unlimited as long as the specific conditions for the grant of the geographical indication remain in place. Geographical indications can take the form of words, phrases, symbols and iconic emblems. Under the TRIPS Agreement, indications do not necessarily have to be the name of geographical place on the earth and can therefore include names that relate to a specific geographical area such as basmati in the case of rice. However, goods that are protected must originate in the region, to which they are associated, which implies that licenses for the production of a protected good outside its region of origin cannot be protected (See Michael Blakney. 2001. ‘Geographical indications and TRIPS’, Occasional paper, No. 8, Geneva: Quaker United Nations Office). Different countries use different criteria to demarcate areas that can be covered by an indication. These can range from a geographical unit linked to a political classification to ad hoc definitions such as where a specific wine-growing area is granted a right [See WTO, Review under Article 24.2 of the Application of the Provision of the Section of the TRIPS Agreement on Geographical Indications, WTO Doc IP/C/W/253 (2001)].

3 Thus, the reward theory could not have accounted for the limitations on patentability in the health sector in the Patents Act 1970.

4 India only joined the Paris Convention; in December 1998.


8 Article 27 (2), TRIPS Agreement.

9 Section 53, Patents Act 1970.

10 The TRIPS Agreement provides a set of minimum standards for patentability below which the member states of the WTO cannot go. This limits, for instance, the opportunities that countries previously had to restrict patentability in certain fields such as health and food. As a result of the much tighter framework in place, countries that want to use existing TRIPS flexibility have focused on compulsory licensing, which is perceived as a tool that can allow them to take care of some of the perceived problems brought about by more stringent criteria for patentability. One of the areas
in which compulsory licensing has been the object of much debate is health. In fact, it has been one of the main battlegrounds, since the TRIPS Agreement, between developed and developing countries, and an area where the developing world achieved some success in view of the health emergencies they face.

11 Stuart McDonald 2002.
14 Preamble, WIPO Convention.
17 UN-WIPO Agreement.
18 Article 2(1), Paris Convention.
19 Article 4bis, Paris Convention.
20 Article 5(A), Paris Convention.
26 The documents for all the sessions of the Intergovernmental Committee can be found at http://www.wipo.int/tk/en/.