



## MANAGEMENT OF INTELLECTUAL PROPERTY RIGHTS IN INDIA: AN UPDATED REVIEW

Mayank Tripathi

Research Scholar, Department of Management  
Sri Satya Sai University of Technology & Medical Sciences, Sehore

**Abstract:** The World Trade Organization's agreement on Trade-Related Aspects of Intellectual Property Rights set global minimum standards for the protection of intellectual property, substantially increasing and expanding intellectual property rights, and generated clear gains for the pharmaceutical industry and the developed world. The present review elaborates all aspects of Intellectual Property Rights in detail, along with their protection criteria.

**Keywords:** Copyright, geographical indication, industrial design rights, infringement, patents, trade secrets, trademarks.

**Introduction:** As was the case with China, India too showed signs of resistance to quick enforcement of International Intellectual Property Right (IPR) protection laws as demanded by the developed countries, particularly the United States of America. China could get away on grounds that it is not a member of the World Trade Organization (WTO), but India was required to comply. Under the terms of the WTO, India is required to implement WTO-standard IPR protection laws

by 2005. It must be acknowledged that there has been remarkable progress in IPR protection in the field of software and cinema products. India's general argument was that it did acknowledge, in principle, the case for strict IPR protection, but this can be done only in phases suited by its own ground reality. The reality is that absence of international IPR protection for some decades has spawned employment for millions and, therefore, an overnight clampdown on IPR violators would foment social unrest. However, under pressure from its own domestic industry and the United States, India strengthened its copyright law in May 1994, placing it at par with international practice. The new law, which entered into force in May, 1995, fully reflects the provisions of the Berne Convention on copyrights, to which India is a party. Based on its improved copyright

**For Correspondence:**

ravindra\_78600@yahoo.co.in

Received on: April 2018

Accepted after revision: August 2018

Downloaded from: [www.johronline.com](http://www.johronline.com)

protection, India's designation as a "priority foreign country" under the United States' Special-301 list was revoked and India was placed on the "priority watch list." Copyright enforcement is also rapidly improving.

Classification of copyright infringements as "cognizable offenses" expands police search and seizure authority. While the formation of appellate boards under the new legislation should speed prosecution, local attorneys indicate that some technical flaws in the laws, which require administrative approval prior to police action, need to be corrected. Processes for making drugs are patentable, but the patent term is limited to the shorter of 5 years from the grant of patent or 7 years from the filing date of the patent application. Product patents in other areas are granted for 14 years from the date of filing. However, as a signatory to the Uruguay Round of GATT, including its provisions on Trade-Related Intellectual Property Rights (TRIPS), India must introduce a comprehensive system of product patents.

**Intellectual Property Right:** IPR as a collective term includes the following independent IP rights, which can be collectively used for protecting different aspects of an inventive work for multiple protections:

- Patents
- Copyrights
- Trademarks
- Registered (industrial) design
- Geographical indications and
- Protection of undisclosed information

**Patents:** A patent is an exclusive right granted by a country to the owner of an invention to make, use, manufacture and market the invention, provided the invention satisfies certain conditions stipulated in the law. Exclusive right implies that no one else can make, use, manufacture or market the invention without the consent of the patent holder. This right is available for a limited period of time. In spite of the ownership of the rights, the use or exploitation of the rights by the owner of the patent may not be possible due to other laws of

the country that has awarded the patent. These laws may relate to health, safety, food, security, etc. Further, existing patents in similar areas may also come in the way. A patent in the law is a property right and hence, which can be gifted, inherited, assigned, sold or licensed.

**The Indian Patent Act:** The first Indian patent laws were promulgated in 1856. These were modified from time to time. New patent laws were made after the independence in the form of the Indian Patent Act 1970. The Act has now been radically amended to become fully compliant with the provisions of the TRIPS. While the process of bringing out amendments was ongoing, India became a member of the Paris Convention, Patent Cooperation Treaty and Budapest Treaty. The salient and important features of the amended Act are explained here.

**Novelty:** An invention will be considered novel if it does not form a part of the global state of the art. Information appearing in magazines, technical journals, books, newspapers, etc. constitute the state of the art. Oral description of the invention in a seminar/conference can also spoil novelty. Novelty is assessed in a global context. An invention will cease to be novel if it has been disclosed in the public through any type of publications anywhere in the world before filing a patent application in respect of the invention. Therefore, it is advisable to file a patent application before publishing a paper if there is a slight chance that the invention may be patentable. Prior use of the invention in the country of interest before the filing date can also destroy the novelty.

**Inventiveness (non-obviousness):** A patent application involves an inventive step if the proposed invention is not obvious to a person skilled in the art, i.e. skilled in the subject matter of the patent application. The prior art should not point toward the invention implying that the practitioner of the subject matter could not have thought about the invention prior to filing of the patent application. Inventiveness cannot be decided on the material contained in unpublished patents. The complexity or the

simplicity of an inventive step does not have any bearing on the grant of a patent.

**Usefulness:** An invention must possess utility for the grant of patent. No valid patent can be granted for an invention devoid of utility. The patent specification should spell out various uses and manners of practicing them, even if considered obvious.

**Term of the patent:** The term of the patent will be 20 years from the date of filing for all types of inventions.

**Timing for filing a patent application:** Filing of an application for a patent should be completed at the earliest possible date and should not be delayed. An application filed with provisional specification, disclosing the essence of the nature of the invention, helps to register the priority by the applicant. A delay in filing an application may entail some risks, like (i) other inventors might forestall the first inventor by applying for a patent for the said invention and (ii) there may be either an inadvertent publication of the invention by the inventor himself/herself or by others independent of him/her. The publication of an invention in any form by the inventor before filing of a patent application would disqualify the invention from being patentable. Hence, inventors should not disclose their inventions before filing the patent application. The invention should be considered for publication after a patent application has been filed. Thus, it can be seen that there is no contradiction between publishing an inventive work and filing of the patent application in respect of the invention.

**Copyrights:** Copyright is a right that is available for creating an original literary or dramatic or musical or artistic work. Cinematographic films, including sound track and video films, and recordings on discs, tapes, perforated roll or other devices are covered by copyrights. Computer programs and software are covered under literary works and are protected in India under copyrights. The Copyright Act, 1957, as amended in 1983, 1984, 1992, 1994 and 1999, governs the copyright protection in

India. The total term of protection for literary work is the author's life plus 60 years. For cinematographic films, records, photographs, post-humous publications, anonymous publication, works of government and international agencies, the term is 60 years from the beginning of the calendar year following the year in which the work was published. For broadcasting, the term is 25 years from the beginning of the calendar year following the year in which the broadcast was made.

**Coverage provided by copyright**

1. Literary, dramatic and musical work. Computer programs/software are covered within the definition of literary work.
2. Artistic work
3. Cinematographic films, which include sound track and video films.
4. Recording on any disc, tape, perforated roll or other device.

**Infringement of copyright:** Copyright gives the creator of the work the right to reproduce the work, make copies, translate, adapt, sell or give on hire and communicate the work to the public. Any of these activities done without the consent of the author or his assignee is considered infringement of the copyright. There is a provision of "fair use" in the law, which allows copyrighted work to be used for teaching and research and development. In other words, making one photocopy of a book for teaching students may not be considered an infringement, but making many photocopies for commercial purposes would be considered an infringement. There is one associated right with copyright, which is known as the "moral right," which cannot be transferred and is not limited by the term. This right is enjoyed by the creator for avoiding obscene representation of his/her works.

**Transfer of copyright:** The owner of the copyright in an existing work or prospective owner of the copyright in a future work may assign to any person the copyright, either wholly or partially, in the following manner:

1. For the entire world or for a specific country or territory or
2. For the full term of copyright or part thereof or
3. Relating to all the rights comprising the copyright or only a part of such rights.

**Trademarks:** A trademark is a distinctive sign that identifies certain goods or services as those produced or provided by a specific person or enterprise. Trademarks may be one or a combination of words, letters and numerals. They may also consist of drawings, symbols, three-dimensional signs such as shape and packaging of goods, or colors used as a distinguishing feature. Collective marks are owned by an association whose members use them to identify themselves with a level of quality. Certification marks are given for compliance with defined standards. (Example ISO 9000.) A trademark provides to the owner of the mark by ensuring the exclusive right to use it to identify goods or services or to authorize others to use it in return for some consideration (payment). Well-known trademark in relation to any goods or services means a mark that has become so to the substantial segment of the public which uses such goods or receives such services that the use of such mark in relation to other goods or services would be likely to be taken as indicating a connection in the course of trade or rendering of services between those goods or services and a person using the mark in relation to the first-mentioned goods or services.

Enactment of the Indian Trademarks Act 1999 is a big step forward from the Trade and Merchandise Marks Act 1958 and the Trademark Act 1940. The newly enacted Act has some features not present in the 1958 Act, and these are:

1. Registration of service marks, collective marks and certification trademarks.
2. Increasing the period of registration and renewal from 7 years to 10 years.
3. Allowing filing of a single application for registration in more than one class.

4. Enhanced punishment for offences related to trademarks.
5. Exhaustive definitions for terms frequently used.
6. Simplified procedure for registration of registered users and enlarged scope of permitted use.
7. Constitution of an Appellate Board for speedy disposal of appeals and rectification applications which, at present, lie before the High Court.

**Well-known trademarks and associated trademarks:** A well-known trademark in relation to any goods or services means a mark that has become known to the substantial segment of the public that uses such goods or receives such services. Associated trademarks are, in commercial terms, marks that resemble each other and are owned by the same owner, but are applied to the same type of goods or services. For example, a company dealing in readymade garments may use associated marks for shirts, trousers etc., meaning trademarks deemed to be, or required to be, registered as associated trademarks under this Act.

**Service marks:** The Indian Act of 1958 did not have any reference to service marks. Service means service of any description that is made available to potential users, and includes the provision of services in connection with the business of industrial or commercial matters such as banking, communication, education, financing, insurance, chit funds, real estate, transport, storage, material treatment, processing, supply of electrical or other energy, boarding, lodging, entertainment, amusement, construction, repair, conveying of news or information and advertising. Marks used to represent such services are known as service marks.

**Certification trademarks and collective marks:** A certification trademark means a guarantee mark that indicates that the goods to which it is applied are of a certain quality or are manufactured in a particular way or come from a certain region or use some specific material or

maintain a certain level of accuracy. The goods must originate from a certain region rather than from a particular trader. Certification marks are also applicable to services, and the same parameters will have to be satisfied. Further, these marks are registrable just like any other trademark. Agmark used in India for various food items is a kind of certification mark although it is not registered as a certification mark; the concept of certification mark was not in vogue at the time of introduction of Agmark. A collective mark means a trademark distinguishing from those of others, the goods or services of members of an association of persons (not being a partnership within the meaning of the Indian Partnership Act, 1932), which is the proprietor of the mark.

**Term of a registered trademark:**

The initial registration of a trademark shall be for a period of 10 years, but may be renewed from time to time for an unlimited period by payment of the renewal fees.

**Trade Secrets:** Trade secret points toward a formula, pattern, any instrument or design that is kept confidential and through which any business or trade can edge over its rival and can enjoy economic gain. Trade secrets can be anything from a chemical compound, manufacturing process, design or preserving materials or even a list of consumers or clients. It is also known as “confidential information” or “classified information.” To be safeguarded under trade secrets, the matter should be “secret.” Although the definition of trade secret is variable as per the jurisdiction, there are the following elements that are found to be the same:

- Is not known by the public.
- Provides some financial sort of gain to its holder.
- Involves reasonable efforts from the holder side for maintaining secrecy.
- Importance of data or information to him or for his rivals.
- The ease by which information could be learnt or duplicated by others.

Any enterprise or an organization can safeguard its confidential data or information by entering into a non-disclosure agreement with its employees. Such law of protecting confidential matters offers monopoly in respect of any secret data and information. Trade secrets offer protection for an indefinite time period. Unlike patent, this does not expire.

Every company invests its time and resources into discovering information regarding refinement of its various activities and operations. If other companies are to use the same knowledge, then the chance of first company survival and dominance into the industrial arena would be vitiated. When trade secrets are recognized, the inventor of such knowledge is entitled to consider that as part of the intellectual property.

**Trade secrets protection:** Trade secrets are kept secret and thus not disclosed to the public at large. The owner or creator takes concurrent steps and prevents his knowledge from slipping out of his hands to its rival side. In exchange of getting the chance to be appointed by the holder of trade secrets, a worker will ready to sign a contract not to disclose any material information and data of his employer. Any negligence or violation of the same will mean an imposition of financial penalties. Other business associates or companies with whom the inventor is engaged are often required to sign a similar contract, and any negligence to do so will lead to fines or penalties.

**Trade secrets infringement:** Misappropriate use of trade secrets can be called an unfair practice. Misappropriation is:

- Acquiring trade secrets related to another by a person who has a strong belief or reason that it was acquired by wrongful doings.
- Disclosing or using trade secrets of another person without any implied consent of its owner.

**Tips for safeguarding trade secrets:**

- Put a sign or any mark on various computer files and documents related to trade secrets that you are intending to keep confidential.

- Allow the accessibility of trade secrets only to those people who have authentic reason to know the information. The reason should be material and should benefit you in business.
- Make it obligatory for everyone using trade secrets to sign a non-disclosure agreement. It should describe every minute detail about the trade secret applicability, like how the person will use a trade secret, what will happen if he will pass over this agreement, etc.
- All employees should consider trade secrets as confidential data or information even if they are unaware about the trade secret.
- Always keep your trade secret in a private and restricted zone.

**Geographical Indications (GI):** GI signifies the name or sign used in reference to the products corresponding to the particular geographical area or somewhat related to the origin, like town, region or nation. Thus, GI grants the rights to its holder that acts as the certification mark and shows that the specified product consists of the same qualities and is enjoying a good reputation due to its origin from the specified geographical location. The TRIPs agreement has defined the “geographical indications rights” as the exclusionary rights for the indicator that identify the goods originated within the member nation territories, or area or region of that territory, where the reputation or other attributes of the goods is essentially related to the geographic origin of the place. GIs are a part of the intellectual property law and, therefore, like any other law, the regulation and governing conditions of GI also vary from one country to another as high differences have been found in the use of generic terms across the world. Such a case is prominent for food and beverages, which more commonly use the geographic terms.

GIs are aimed toward identifying the source of the product and are considered a valuable business tool. The global trade has made it crucial to harmonize the various approaches and

methods that the governments use for registering the GIs in their respective territories.

**GI Act in India:** In India, the GIs regime is regulated by the Geographical Indications of Goods (Registration and Protection) Act, 1999 and the Geographical Indication of Goods (Regulation and Protection) Rules, 2002. However, registering of the GI is not compulsory in the India as the owner of the unregistered GI can also enforce the actions with the help of passing off against the infringer, but it is recommendable to register the GI as the registration certificate acts as the prima facie evidence in the court at the time of arising of any dispute, and no additional evidence is required to prove the validity. Examples of some of the popular GIs are – Basmati Rice, Kanjeeपुरam sarees and Darjeeling tea. In the Indian act, GI is used for identifying goods from a particular geographical location and its origin. It encircles the agriculture goods and natural goods and is extended up to the manufactured goods also. In order to register the GI, the goods should possess unique characteristics and reputation with other qualities attributed to its geographical origin, e.g. climate, quality of soil, processing methods, etc.

**Industrial Design Rights:** Industrial design rights are defined as the part of the intellectual property rights that confers the rights of exclusivity to the visual designs of objects which are generally not popularly utilitarian. It safeguards the appearance, style and design of the industrial object, such as spare parts, textiles and furniture. “Industrial Design (ID) is the professional service of creating and developing concepts and specifications that optimize the function, value and appearance of products and systems for the mutual benefit of both user and manufacturer.” As these designs consist of esthetic features, they therefore do not provide any protection to the technical features of the article. The origin of design rights can be traced back in the United Kingdom as “Designing and Printing of Linen Act” (1787).

Designs are used in different products and across various industries like medical, handicrafts, jewelry, electrical appliances, etc. It precludes any trademark or artistic type of work. In India, the first-ever design-related legislation was enacted by the British Government, and was popularly named as the Designs Act, 1911.

**Advantages of industrial design rights:** Industrial designs help in making any product or item more beautiful and appealing and, therefore, they help in increasing the commercial viability of the product and in increasing its market potentiality. The industrial design registration helps in safeguarding the ornamental or esthetic elements of the article. Whenever an industrial design is being registered, it gives an exclusionary rights to the owner against unauthorized use, like copying or imitation, by a third party without his consent. This in turns facilitates a fair flow of investment. An effectual system also helps in benefiting the public by encouraging fair and effective competition and trading practices, which, at large, bolster the creativity, and the final result comes in the form of attractive and beautiful products. Safeguarding of industrial designs help in the overall economic development, which promote creativity in the industrial arena.

**Duration of the registration of a design:** The total term of a registered design is 15 years. Initially, the right is granted for a period of 10 years, which can be extended by another 5 years by making an application to the Controller before the expiry of the initial 10-year period. The proprietor of the design may make the application for such extension even as soon as the design is registered.

**Strategy for protection:** First to file rule is applicable for registrability of design. If two or more applications relating to an identical or a similar design are filed on different dates, the first application will be considered for registration of design. Therefore, the application should be filed as soon as you are ready with the design. After publication in the official gazette all registered designs are open for public

inspection. Therefore, it is advisable to inspect the register of designs to determine whether the design is new or not. There is yet another important provision for ensuring that the design is different from anything published anywhere in the world. This is quite a strict condition.

**Conclusion:** Intellectual property is a strategic asset for industry and public health. The growth of new global public-private partnerships, such as the malaria vaccine initiative, AIDS vaccine initiative have shown that the management of an intellectual property system is essential for development of, and subsequent access to, medicines. Work, including that done by WHO Commission on Intellectual Property and innovation, also shows that the creative management of intellectual property is required to help product development and dissemination.

**Source of Support:** Nil.

**Conflict of Interest:** None declared.

#### References

- Blouin C. Trade in health goods. New Delhi: WHO SEARO meeting on trade and health; 2007. Mar 6-7.
- Pharmaceutical market trend: Key market forecasts and growth opportunities. London: URCH Publishing; 2007. PIRIBO.
- Wilbulproprasert S. Workshop on differential pricing of essential drugs. Norway: World Health Organization and World Trade Organization Secretariats, Norwegian Foreign A. Airs Ministry, Global Health Council; 2001. Apr 8-11, Mobilization of domestic resources in developing countries.
- IMS International. [accessed on 2008 Jun 14]. Available from: <http://www.imsworld.org/>
- Smith RD, Chanda R, Tangcharoensathien V. Trade in health-related services. *Lancet*. 2009;373:593-601. [PubMed]
- Kraus L. Medication misadventures: The interaction of international reference pricing and parallel trade in the pharmaceutical

- industry. *Vanderbilt J Transnat Law*. 2004;37:L527–50.
- Kinnon C. World trade: Bringing health into the picture. *World Health Forum*. 1998;19:397–405.[PubMed]
  - San Francisco: Burrill Life Sciences Media Group; 2007. [accessed on 2008 Jun 14]. Burrill Life Sciences Media Group. Burrill Quarterly India Life Sciences. Available from: <http://www.burrillandco.com>.
  - Steinbrook R. Closing the ordability gap for drugs in low-income countries. *N Engl J Med*. 2007;357:1996–9. [PubMed]
  - Smith RD, Beaglehole R, Woodward D, Drager N. Global public goods for health: A health economic and public health perspective. Oxford: Oxford University Press; 2003.
  - Smith RD, Thorsteinsdóttir H, Daar A, Gold R, Singer P. Genomics knowledge and equity: a global public good's perspective of the patent system. *Bull World Health Organ*. 2004;82:385–9.[PMC free article] [PubMed]
  - Schaar G. Public-private partnerships in WTO litigation. Washington DC: Brookings Institution Press; 2003. Defending interests.
  - Correa CM. Implications of bilateral free trade agreements on access to medicines. *Bull World Health Organ*. 2006;84:399–404. [PMC free article] [PubMed]
  - Oxfam International. All costs, no benefits: how TRIPS-plus intellectual property rights in the US-Jordan FTA affect access to medicines. 2007. [accessed on 2008 Jun 14]. Available from:[http://www.oxfam.org/en/policy/briefpapers/bp102\\_jordan\\_us\\_fta](http://www.oxfam.org/en/policy/briefpapers/bp102_jordan_us_fta).
  - KEI. KEI research note 2007. Recent examples of compulsory licensing of patents. [accessed on 2008 Jun 14]. Available from: [http://www.keionline.org/index.php?option=com\\_content&task=view&id=41](http://www.keionline.org/index.php?option=com_content&task=view&id=41).
  - Federal Trade Commission. Generic drug entry prior to patent expiration. 2002. [accessed on 2008 Jun 14]. Available from: <http://www.ftc.gov>.
  - Basu S. Patents and pharmaceutical access. *Z Net global economics*. 2003. Mar 29, [accessed on 2008 Jun 14]. Available from: <http://www.zmag.org>.
  - Endeshaw A. Asian perspectives on post-TRIPS issues in intellectual property. *J World Intellect Prop*. 2005;8:211–2.
  - Dzung N. Vietnam patent law. Substantive law provisions and existing uncertainties. *Chicago Kent J Intellect Prop*. 2007;6:138–56.
  - Washington DC: Office of the United States Trade Representative; 2007. [accessed on 2008 Jun 14]. USTR. Special 301 Report. Available from:[http://www.ustr.gov/assets/Document\\_Library/Reports\\_Publications/2007/2007\\_Special\\_301\\_Review/asset\\_upload\\_le230\\_11122.pdf](http://www.ustr.gov/assets/Document_Library/Reports_Publications/2007/2007_Special_301_Review/asset_upload_le230_11122.pdf).
  - Priapantja P. Department of Health and World Health Organization; 2000. May 2-4, Trade secret: how does this apply to drug registration data? ASEAN Workshop on the TRIPS Agreement and its Impact on Pharmaceuticals.
  - Abbott F, Correa C. Geneva: QUNO; 2007. [accessed on 2008 Jun 14]. World Trade Organization accession agreements: intellectual property issues. Available from:<http://www.quno.org/geneva/pdf/economic/Issues/WTO-IPEnglish.pdf>.
  - Commission on Intellectual Property Rights. Integrating intellectual property rights and development policy. [accessed on 2008 Jun 14]. Available from: <http://www.iprcommission.org>.
  - Babar ZU, Ibrahim MI, Singh H, Bukhari NI, Creese A. Evaluating drug prices, availability, affordability and pricecomponents: implications for access to drugs in Malaysia. *PLoS*

- Med. 2007;4:e82.[PMC free article] [PubMed]
- Ando G. Pharma market in Malaysia grows by 11%, government outlines niche drug vision in IMP3. Boston: World Markets Research; 2006.
  - Azmi IM, Alavi R. TRIPS, patents, technology transfer, foreign direct investment and the pharmaceutical industry in Malaysia. *J World Intellect Prop.* 2001;4:947–74.
  - Kuala Lumpur: Intellectual Property Corporation of Malaysia; 2008. [accessed on 2008 Jun 14]. Mytad IPO, Calculations from patent statistics of Intellectual Property Corporation of Malaysia. Available from: <http://www.mipc.gov.my>.
  - Regional report—the ASEAN-Rockefeller foundation project on intellectual property laws review and capacity building on intellectual property rights related to public health in the ASEAN region. Jakarta: ASEAN Secretariat; 2005. ASEAN Secretariat.
  - Oh C. Compulsory licences: Recent experiences in developing countries. *Int J Intellect Prop Manage.* 2006;1:22–36.
  - Deepti R. Malaysian firm to establish plant in India. *Chem Week.* 2007:169.
  - Commission on intellectual property, innovation and public health. Geneva: World Health Organization; 2006. WHO. [PMC free article] [PubMed]
  - Milstien J, Kaddar M. Managing the effects of TRIPS on availability of priority vaccines. *Bull World Health Organ.* 2006;84:360–5. [PMC free article] [PubMed]
  - Haakonsson SJ, Richey LA. Trips and public health: the Doha Declaration and Africa. *Dev Pol Rev.* 2007;25:71–90.
  - Kerry VB, Lee K. TRIPS, the Doha declaration and paragraph 6 decision: What are the remaining steps for protecting access to medicines? *Global Health.* 2007;3:3. [PMC free article] [PubMed]
  - Musungu SF, Villanueva S, Blasetti R. South perspectives report. Geneva: South Centre; 2004. Apr, Utilizing TRIPS flexibilities for public health protection through south-south regional frameworks. 2004.
  - Amsden A.H. *Asia's Next Giant: South Korea and Late Industrialization.* Oxford: Oxford University Press; 1989.
  - Bercovitz-Rodriguez, Alberto . Historical trends in protection of technology in developed countries and their relevance for developing countries. United Nations: UNCTAD/ITP/TEC/18; 1990.
  - Bosworth, Derek L. The transfer of US technology abroad. *Res Policy.* 1980;9:378–88.
  - Cohen WM, Levinthal DA. Innovation and learning: The two faces of R and D. *Eco J.* 2005;99:569–96.
  - Cohen WM. Empirical studies of innovative activity. In: Stoneman P, editor. *Handbook of the Economics of Innovation and Technological Change.* Vol. 5. Oxford: Blackwell; 2005. pp. 182–264.
  - Correa DE. The TRIPs Agreement: New Intellectual Standards for Intellectual Property: Impact on Technology Flows and Innovation in Developing Countries. *Sci Pub Policy.* 2007;24:79–92.
  - Correa, Carlos Review of the TRIPS Agreement: Fostering the Transfer of Technology to Developing Countries, Third World Network 1999. Available from: [www.twinside.org.sg/title/foster.htm](http://www.twinside.org.sg/title/foster.htm). Correa, Carlos. *Intellectual Property Rights, the WTO and Developing Countries, The TRIPS Agreement and Policy Options,* Zed Books: London and New York: 2000a .
  - Corre RL. Reforming the intellectual property rights system in Latin America. *World Eco.* 2006;23:851–72.
  - Chamarik, Saneh, Goonatilake S, editors. *Technological independence: The*

- Asian experience. Tokya, New York, Paris: UNU; 2010.
- Desai AV. 'The Origin and Direction of Industrial R and D in India. Res Policy. 1980;9:74–96.
  - Dutfield, Graham Intellectual Property Rights and Development. Policy Discussion Paper, UNCTAD/ICTSD capacity building project on Intellectual Property Rights and Sustainable Development. 2001
  - Easterly, William, King R, Levine R, Rebelo S. Policy, technology adoption and growth. NBER Working Paper No. 4681. 1994 Mar
  - Easterly, William 1999. Explaining Miracles: growth Regressions Meet the Gang of Four (forthcoming T. Ito and A. Krueger eds. NBER-East Asia Seminar Economics, Volume 4), PRE Paper World Bank.
  - Eaton, Jonathan, Kortum S. Trade in ideas: Patenting and productivity in the OECD', NBER Working Paper No. 5049. Boston and Washington, D.C: NBER; 1995.
  - Ferrantino MJ. The effect of intellectual property rights on international trade and investment. *Weltwirtschaftliches Arch.* 1993;129:300–31.
  - Ginarte, Juan C, Walter GP. Determinants of patent rights: A cross-national Study. Res Policy. 2009;2:283–301.
  - Hall EA. The impact of a weakened patent policy on development incentives. *Quart Rev Econ Business.* 1999;31:79–88.
  - Yang G, Keith EM. Intellectual property rights and licensing: An econometric investigation. *Weltwirtschaftliches Arch.* 2009;13:99–105.
  - Young A. The tyranny of numbers: Confronting the statistical realities of the East Asian growth experience. *Quart Jf Econ.* 2006;110:641–80.
  - Watal J. The TRIPS agreement and developing countries--strong, weak or balanced protection. *J World Intellect Prop.* 2004;5:282–307.
  - The Patents Act, 1970 as amended by Patents (Amendment) Act 2005. Commercial Law Publisher (India) Private Ltd; 2005.
  - The Protection of Plant Varieties and Farmers' Rights Act, 2001 along with Protection of Plant Varieties and Farmers' Rights Rules. New Delhi: Akalank Publications; 2003.
  - 2005. p. The Copyright Act 1957 as amended up to 1999 along with Copyright Rules 1958 and International Copyright Order 1999.
  - The Design Act 2000 along with Design Rules 2001. New Delhi: Universal Law Publishing Co. Ltd; 2004.
  - The Trademarks Act 1999 along with trade Marks Rules 2002. Commercial Law Publisher (India) Private Ltd; 2004.
  - The Geographical Indications of Goods (Registration and Protection) Act, 1999 alongwith Geographical Indications of Goods (Registration and Protection) Rules 2002. New Delhi: Universal Law Publishing Co. Ltd; 2004.
  - The Semiconductor Integrated Circuits Layout Design Act 2000 along with Semiconductor Integrated Circuits Layout Design Rules 2001. New Delhi: Universal Law Publishing Co. Ltd; 2005.
  - R and D statistics department of science and technology. Government of India. 2002 May
  - Instructions for Technology Transfer and Intellectual Property Rights, Department of Science and Technology. 2000 Mar
  - Research and Development in Industry: An Overview; Department of Scientific and Industrial Research, Government of India. 2002