

Extension Bulletin (2014)

Intellectual Property Rights: Importance and Management in Public Research



Institute Technology Management Unit (ITMU)

Indian Institute of Soil Science

Indian Council of Agricultural Research

Nabibagh, Berasia Road, Bhopal - 462038

Intellectual Property Rights: Importance and Management in Public Research



हर कदम, हर डगर
किसानों का हमारा फर
भारतीय वनस्पति अनुसंधान परिषद

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Institute Technology Management Unit (ITMU)
Indian Institute of Soil Science
Indian Council of Agricultural Research
Nabibagh, Berasia Road, Bhopal - 462038

Compiled & Edited by

Sanjay Srivastava

Shinogi K C

Hiranmoy Das

Ramana S

Rashmi I

Radha T K

Pradip Dey

Subba Rao A

Published by

A. Subba Rao

Director

Indian Institute of Soil Science

Nabibagh, Berasia Road

Bhopal-462038 (M.P)

Printed at

Bhandari Offset

E-3/12, Arera Colony, Bhopal (M.P.)


Publishing Year: 2014

Intellectual Property Rights: Importance and Management in Public Research

Foreword

Knowledge and research findings have now become the most important resources, and the key elements for economic development. The intellectual property protection system has increasingly become an effective legal tool for protecting the interests of the owner of intellectual products, promoting the development of science, technology and the social economy, and allowing international competition. The purpose of developing this bulletin is to assist researchers, research managers and their research institutions, in ensuring that they have an understanding of the importance of Intellectual property rights (IPR) as well as procedure/methodology in managing their intellectual property, and therefore, to maximise the returns from public investment in research. In addition, the bulletin also contains valuable information on the history of IPR in India and abroad, a list of patents granted in national agriculture research system, copyright and plagiarism. I congratulate the editors for bringing out this important publication.

Bhopal
January 2014


(A. Subba Rao)
Director

Preface

The purpose of this bulletin is to create awareness among scientists working in public research organizations about some existing and emerging issues related to the management of Intellectual Property Rights (IPRs). The Institute Technology Management Unit (ITMU) of Indian Institute of Soil Science, Bhopal has compiled the information from relevant sources to prepare this publication. The publication does not contain the complete information about the IPRs but, may be useful as a preliminary guide to the IPRs related to the public research system like Indian Council of Agricultural Research (ICAR). In this bulletin, the information regarding the Indian Patent system and Acts/Rules related to IPR were adopted from the *Manual of Patent Practice and Procedure* of the Indian Intellectual Property Office, and their official website and the international patenting system and related information from the official website of World Intellectual Property Organization (www.wipo.int).

The format of this bulletin is made in such a way that gives an overall general idea about the important Acts and Rules governing the Intellectual Property Rights in India. In order to enhance better understanding about the IPRs in the public research system, we have categorized appropriate information under seven chapters; Introduction to Intellectual Property Rights, Importance of Intellectual Property Rights in public research system, Landmarks in managing IPs from the public/private research system, History of Intellectual Property Rights in India, Patenting procedure in India, Copyright infringement and plagiarism, and Patenting of microorganisms. Further, a glossary of important IPR related terms are also included in the bulletin. We believe that this may motivate the scientists/innovators to protect their innovations that have already been developed as well as to respect the innovators' rights.

Bhopal
January 2014

Sanjay Srivastava
Shinogi K C
Hiranmoy Das
Ramana S
Rashmi I
Radha T K
Pradip Dey
Subba Rao A

Abbreviations

IP	:	Intellectual Property
IPR	:	Intellectual Property Rights
GI	:	Geographical Indication
IEEE	:	Institute of Electrical and Electronics Engineers
WIPO	:	Formation of World Intellectual Property Organization
PCT	:	Patent Cooperation Treaty
UCSF	:	University of California, San Francisco
EMR	:	Exclusive Marketing Rights
TRIPS	:	Trade Related Aspects of Intellectual Property Rights
UNESCO	:	United Nations Educational, Scientific and Cultural Organization
IPA	:	International Publishers Association
DOI	:	Digital Object Identifier
PPVFR	:	Protection of Plant Varieties and Farmers' Rights
UPOV	:	International Union for the Protection of New Varieties of Plants
NIF	:	National Innovation Foundation
USPTO	:	United States Patent and Trademark Office
WTO	:	World Trade Organization
CGPDTM	:	Controller General of Patents, Designs, Trademarks and Geographical Indications
CSIR	:	Council for Scientific and Industrial Research
CTA	:	Copyright Transfer Agreements
INFORMS	:	Institute for Operations Research and the Management Sciences
MTCC	:	Microbial Type Culture Collection and Gene Bank
IDA	:	International Depository Authority

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Introduction to Intellectual Property Rights

Intellectual property, very broadly, means the legal rights which result from intellectual activity in the industrial, scientific, literary and artistic fields. Countries have laws to protect intellectual property for two main reasons. One is to give statutory expression to the moral and economic rights of creators in their creations and the rights of the public in access to those creations. The second is to promote, as a deliberate act of Government policy, creativity and the dissemination and application of its results and to encourage fair trading which would contribute to economic and social development. The World Intellectual Property Organization defines the Intellectual property (IP) as creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce. IP is protected in law which enables people to earn recognition or financial benefit from what they invent or create Intellectual property is usually divided into two branches, namely industrial property and copyright (www.wipo.int).

Industrial Property

The broad application of the term "industrial" is clearly set out in the Paris Convention for the Protection of Industrial Property (Article 1 (3)): "Industrial property shall be understood in the broadest sense and shall apply not only to industry and commerce proper, but likewise to agricultural and extractive industries and to all manufactured or natural products, for example, wines, grain, tobacco leaf, fruit, cattle, minerals, mineral waters, beer, flowers, and flour." Industrial property can usefully be divided into two main areas: one area can be characterized as the protection of distinctive signs, in particular trademarks (which distinguish the goods or services of one undertaking from those of other undertakings) and geographical indications (which identify a good as originating in a place where a given characteristic of the good is essentially attributable to its geographical origin). The protection of such distinctive signs aims to stimulate and ensure fair competition and to protect consumers, by enabling them to make informed choices between various goods and services. The protection may last indefinitely, provided the sign in question continues to be distinctive. Other types of industrial property are protected primarily to stimulate innovation, design and the creation of technology. This category includes inventions (protected by patents), industrial designs and trade secrets.

The social purpose of IPRs is to provide protection for the results of investment in the development of new technology, thus giving the incentive and means to finance research and development activities. A functioning intellectual property regime should also facilitate the transfer of technology in the form of foreign direct investment, joint ventures and licensing. The protection is usually given for a finite term.

Patent

A patent is the right granted or a document, issued, to an inventor, upon application, by a government office (or a regional office acting for several countries), which describes an invention and creates a legal situation in which the patented invention can normally only be exploited (manufactured, used, sold, imported) with the authorization of the owner of the patent. "Invention" means a solution to a specific problem in the field of technology. An invention may relate to a product or a process. The protection conferred by the patent is limited in time (generally 20 years). By granting an exclusive right, patents provide incentives to individuals; a recognition for their creativity and material reward for their marketable inventions. The requirements for patenting an invention is Industrial applicability (Utility), Novelty, Inventive step, and Patentable subject matter. Utility Model is also known as a petty patent. To qualify, the invention must be new and industrially applicable. It has a term of protection of seven years, without renewal.

Trademark

A trademark is a sign (words, letters, numerals, pictures, shapes and colors), or a combination of signs, which distinguishes the goods or services of one enterprise from those of another. A trademark is a sign used on goods or in connection with the marketing of goods and it may appear not only on the goods themselves but also on the container or wrapper in which the goods are sold. The main categories of trademark are: Collective Marks (those owned by an association, whose members use the mark to identify themselves with a level of quality and other requirements set by the association), Certification Marks (given for compliance with defined standards, but are not confined to any membership), and Service Marks (used in connection with services like hotels, restaurants, airlines, tourist agencies, car-rental agencies, laundries and cleaners).

Geographical Indication (GI)

This is a sign used on goods that have a specific geographical origin and possess qualities or a reputation that are due to that place of origin. Agricultural products typically have qualities that derive from their place of production and are influenced by specific local factors, such as climate and soil. Whether a sign functions as an indication is a matter of national law and consumer perception. However, the use of geographical indications is not limited to agricultural products. They may also highlight particular qualities of a product, which are due to human factors found in the place of origin of the products, such as specific manufacturing skills and traditions. That place of origin may be a village or town, a region or a country.

An appellation of origin is a special kind of GI used on products that have a specific quality that is exclusively or essentially due to the geographical environment in which the products are produced. GIs are protected in accordance with national laws under a wide range of concepts, such as laws against unfair competition, consumer protection laws, laws for the protection of certification marks or special laws for the protection of geographical indications or appellations of origin. In essence, unauthorized parties may not use geographical

indications if such use is likely to mislead the public as to the true origin of the product. Applicable sanctions range from court injunctions preventing the unauthorized use, to the payment of damages and fines or, in serious cases, imprisonment.

Copyright

In most European languages other than English, copyright is known as author's rights. Copyright refers to the main act which, in respect of literary and artistic creations, may be made only by the author or with his authorization. That act is the making of copies of the literary or artistic work, such as a book, a painting, a sculpture, a photograph, or a motion picture. The second expression, author's rights refers to the person who is the creator of the artistic work, its author, thus underlining the fact, recognized in most laws, that the author has certain specific rights in his creation, such as the right to prevent a distorted reproduction, which only he can exercise, whereas other rights, such as the right to make copies, can be exercised by other persons, for example, a publisher who has obtained a license to this effect from the author. The main social purpose of protection of copyright and related rights is to encourage and reward creative work.

Chapter II

Importance of Intellectual Property Rights in Public Research System

The Craft of the Research, one of the famous books dealing with research ethics reads as '*Everything we've said about research begins with our conviction that it is a thoroughly social activity, one that links us to those whose research we use and in turn to those who will use ours. It is also an activity no longer confined to the small social world of the academy. Research is now at the center of industry, commerce, government, education, health care, warfare, even entertainment and religion. It influences every part of our society and our lives, public or private. Because, research and its reporting have become a seamless part of our social fabric* (Booth et al, 1995).

Recent developments in the national and international arena have exposed public sector research organizations, including those dealing with development issues like agriculture to Intellectual Property Rights (IPRs). Paul David (2004) rightly commented about the Intellectual Property (IP) issues of the research sector as *when the tools of a science are privately appropriated and access to them is restricted, research and development follow paths directed by strategic Intellectual Property ownership, rather than those directed by scientific inquiry*. In fact, many IP protection activities are extremely time sensitive. Any attempt to secure it after the fact greatly weakens the protection and in some cases removes it entirely. Since most patent jurisdictions are first-to-file systems, the timing of patent application is critical (Ackerman and Allaway, 2007). Realizing these facts the Indian Government also started to put more efforts in encouraging filing of patents, to encourage innovation and investment in the research and development activities.

Patenting an invention has a huge value in improving the research system as the patent document helps the scientists to know about what is going on in the national as well as international research. For instance, a scientist, who has not consulted the patent literature, may start working on a problem for which the solution might have already been found by someone else and it is available in the patent literature. Thus, there may be duplication in the research work which results in mere waste of resources and time. Hence, to enhance the performance of the national and international research system, an inventor has to disclose his invention in such a manner that any person, other than the inventor, skilled in the art should be able to work out the invention in the patent document.

In this view, while planning for a new research area it is important for a researcher to do an advanced search for the published research works of that area especially associated with Intellectual Property (IP) enabled technologies; otherwise the duplication of any patented research work is a violation of the with Intellectual Property Rights (IPRs) of another inventor. IP deals with the various potentially exploitable knowledge forms

per se that are created and IPRs means the legal instruments that protect the IP holders' interests Further, the IPR framework includes not only the research domain but the right of a community over the traditional knowledge associated with them, the farmer's right over the technology he/she developed locally etc. and so the researcher should take care to conduct his/her research without infringing upon the IP rights of inventors from scientific community as well as community's or cultivators' rights. Finally, it is also of utmost important for a researcher to defend own IP rights against other users.

For any research organization, to withstand in the challenging research set-up of outside world the prime requirement is creating awareness among its employees about their IP rights as well as others'. So, giving the right training to the employees regarding the importance and management of Intellectual Property Rights has immense importance. Because only employees who are trained to understand the value of the Intellectual Property are much more likely to disclose their invention internally and protect it externally till it is filed for patenting.

Agriculture Research

Globalization of research and development and the growing assertion of ownership of agricultural resources through the application of IPRs by both the private and the public sectors characterize the environment under which the public research organizations currently operate. Agriculture Research in a broad term encompasses not only research using plant and animal genetic resources but also research on agricultural and food policy, natural resources and their management, farming systems and practices etc. The basic rationale behind most of the agriculture research programmes is the attainment of food security where all people have access to safe and nutritious food to meet their dietary needs. Even in its simplest form agriculture research belongs to the impure public good as it contains elements of both pure public and private goods. For instance, The ultimate end product of agriculture - food – is a private good so far as it is both rivalrous (no longer exists once consumed) and excludable (the owner can exclude others from consuming it). Further, the knowledge required in growing agronomically appropriate crops of high quality and yield is pure public good (non-rivalrous and non-excludable) whereas the application of that knowledge embodied in the resulting technology is potentially exclusive (impure public good).

IPRs alter the nature of technology or knowledge from public to private by introducing excludability without rivalry that means through licensing and royalties some consumers are excluded however, the technology remains non-rivalrous. Since the main objective of the public research organizations presumed to be the provision of research products for the general public in an equally accessible manner there is an innate conflict in the application of IPRs to the provision of public goods. Therefore, it is generally argued that patenting research tools inhibits further research and thereby limits innovation (Cliff, 2007). On the other hand Boettlinger and Chi-Ham (2007) argue that if an IP manager chooses not to patent an enabling technology... the ability to

control its application is lost. Because, where access to complementary enabling technologies necessary to produce a product is blocked, an institution with a patent to one of the research tools required has more power than the one that does not.

In the recent past partnership between public and private sector also hailed as crucial strategy for the delivery of patented public goods especially in the health and agriculture sector. For example, the technology behind high yielding variety seeds is a part of public research system where private sector partners are required for the development, manufacture and/or distribution of these public researches.

Fate of Your Technology If Not Get Patented in Time

How many of us know that the real inventor of wireless was not Guglielmo Marconi (Italy), but Jagadish Chandra Bose (India)? In 1895, J.C. Bose made a public demonstration, in presence of the Lt. Governor of Bengal, of wireless radio. However, his Invention was mostly ignored, and the credit went to Guglielmo Marconi, who made a demonstration in 1897. The Mercury Coherer (needed to detect radio waves) used by Guglielmo Marconi to receive the radio signal in his first transatlantic radio communication over a distance of 2000 miles from Poldhu, UK to Newfoundland, St. Johns in December 1901 was invented by Sir J. C. Bose. Guglielmo Marconi was credited worldwide for this achievement, but the fact that the receiver was invented by Bose was totally concealed (Aggarwal, 2006).

Sir J C Bose was unwilling to patent because he thought science was for the benefit of humankind, and one should not make money from it. Bose's place in history has recently been re-evaluated by Institute of Electrical and Electronics Engineers (IEEE) of USA, and he is credited with the invention of the first wireless detection Transmitting and Receiving Antenna with the invention of the first wireless detection device and the discovery of millimeter length electromagnetic waves and is considered a pioneer in the field of biophysics.

In Acharya Prafulla Chandra Ray's words to the audience assembled in 1916 to greet Bose on his knighthood, that "If he had taken out patents for the apparatus and instruments which he had invented, he could have made millions by their sale". More importantly, he would perhaps have become an Indian role-model for production of wealth through science. As it is, Bose abandoned radio waves altogether and there were no trained students to continue the research; and India's tryst with technical physics came to a premature end (Kochhar, 2000).

Landmarks in Managing IPs from the Public / Private Research System

International Scenario

The first Patent Act of the U.S. Congress was passed on April 10, 1790, titled "An Act to promote the progress of useful Arts". The first patent was granted on July 31, 1790 to Samuel Hopkins for a method of producing potash (potassium carbonate).

Formation of World Intellectual Property Organization (WIPO)

This is the global forum for intellectual property services, policy, information and cooperation, established in WIPO Convention held at Stockholm on July 14, 1967 to promote the protection of intellectual property throughout the world through cooperation among States and, where appropriate, in collaboration with any other international organization. The origins of WIPO go back to 1883 and 1886, with the adoption of the Paris Convention and the Berne Convention respectively. The WIPO Convention provides that membership is open to any state that is: A member of the Paris Union for the Protection of Industrial Property, or member of the Berne Union for the Protection of Literary and Artistic Works; or A member of the United Nations, or of any of the United Nations' Specialized Agencies, or of the International Atomic Energy Agency, or that is a party to the Statute of the International Court of Justice; or Invited by the WIPO General Assembly to become a member state of the Organization. To become a member, a State must deposit an instrument of ratification or accession with the Director General of WIPO at Geneva. At present there are 186 member states.

The Patent Cooperation Treaty (PCT)

It is an agreement for international cooperation in the field of patents concluded in 1970. It is a special agreement under the Paris Convention open only to countries, which are members of the Paris convention and is administered by International Bureau (IB) under WIPO, in Geneva. The principal objective of the PCT is to simplify the patent system over the previously established means of applying for patent protection in several countries for inventions and to render it more effective and more economical in the interest of the users and the national patent offices that have responsibility for administering PCT. It provides a unified procedure for filing patent applications to protect inventions in each of its contracting states. A patent application filed under the PCT is called an international application, or PCT application. Before introduction of the PCT system, virtually the only means by which protection of an invention could be obtained in several countries was to file a separate

application in each country. Each of the application is dealt with in isolation, and thus, involves repetition of the work of the filing and examination in each country.

Bayh-Dole Act

United States Senators Birch Bayh and Bobe Dole sponsored a small amendment (P.L.96.517) to the Patent and Trademark Act in the US Congress in January 1980 to manage interventions that were created with the investment of more than \$75 billion a year in government sponsored R&D. The act became effective from 12th December 1980 in the country and the key change made by Bayh-Dole Act in the patent scenario was in ownership of inventions made with federal funding. Before the Boyh-Dole Act, federal research funding contracts and grants obligated inventors (wherever they worked) to assign inventions they made using federal funding to the federal government. But, Bayh-Dole permits a university, a small business, or non-profit institution to elect to pursue ownership of an invention in preference to the government.

Recombinant DNA Patent

The Stanford University was granted a patent in 1980 for recombinant DNA technology invented in the laboratories of Stanley Cohen (Stanford) and Herbert Boyer (UCSF). The Cohen-Boyer licensing program was widely successful and recombinant DNA (rDNA) products provided a new technology platform for a range of industries. Over the duration of the life of the patents (they expired in December 1997), the technology was licensed to 468 companies, many of them fledgling biotech companies who used the licenses to establish their legitimacy. The Stanford and the University of California system accrued US\$255 million in licensing revenues (to the end of 2001) over the 25 years of the licensing program. Here, the pragmatic decisions made by Stanford in the management of the Cohen-Boyer patents played the key role in adapting its licensing strategies as circumstances changed.

Indian Scenario

George Alfred DePenning, a civil engineer and inventor from Calcutta made the first application for a patent in India on 3rd March 1856 for his invention "An Efficient Punkah Pulling Machine". This petition was the first to be filed under Act VI, and was officially numbered as No.1 of 1856. He submitted the specifications for his invention along with drawings to illustrate its working on 2nd September 1856. These were accepted and the invention was granted the first ever Intellectual Property protection in India. He later went on to secure Patents No. 2, 4, and numerous others during his long and productive life. DePenning is the first patent agent of India and founder of DePenning & DePenning the oldest firm of Intellectual Property attorneys in India.

The first Indian to get a US Patent was Sir J C Bose for his "detector for electrical disturbances". Though he wanted to stay away from patents, under pressure from his friends, he finally submitted a patent application to the US patent office for the same and granted it on 29 March 1904.

The first patent application filed on behalf of Indian Council of Agricultural Research was on 21st November 1957 by Venkatarama Radhanandakishore and Yelavarthy Nayudamma, Central Leather Research Institute, Madras (Tamil Nadu). The invention was related to the preparation of fat liquours from an indigenous non-edible oil viz., Sardine fish oil by sulfating the oil under suitable conditions and thereafter mixing it with mineral oil.

History of Intellectual Property Rights in India

Patents

The first legislation in India relating to patents was the Act VI of 1856. The objective of this legislation was to encourage inventions of new and useful manufactures and to induce inventors to disclose secret of their inventions. The Act was subsequently repealed by Act IX of 1857 since it had been enacted without the approval of the sovereign. Fresh legislation for granting 'exclusive privileges' was introduced in 1859 (Act XV of 1859). This legislation contained certain modifications of the earlier legislation, namely, grant of exclusive privileges to useful inventions only and extension of priority period from 6 to 12 months. This Act was based on the United Kingdom Act of 1852 with certain departures including allowing assignees to make application in India and also taking prior public use or publication in India or United Kingdom for the purpose of ascertaining novelty.

In 1872, the Act of 1859 was revisited and renamed as "The Patterns and Designs Protection Act" under Act XIII of 1872 to provide protection relating to designs. The Act of 1872 was amended in 1883 (XVI of 1883) to introduce a provision to protect novelty of the invention. In 1911, the Indian Patents and Designs Act, 1911, (Act II of 1911) was brought in replacing all the previous legislations on patents and designs. This Act brought patent administration under the management of Controller of Patents for the first time. This Act was amended in 1920, 1930, 1945, 1950 (Act XXXII of 1950), and 1952 (Act LXX of 1952).

In 1957, the Government of India appointed Justice N. Rajagopala Ayyangar Committee to examine the question of revision of the Patent Law and advise government accordingly. Based on the final recommendation of the committee, the Patent Act, 1970 was passed.

The Patent Act, 1970 came into force on 20.4.1972 replacing Indian Patents and Designs Act, 1911. However, the 1911 Act continued to be applicable to designs. The Patents Act, 1970 in comparison with Indian Patents and Designs Act, 1911 has far more reaching effect in some areas such as food, drug and medicines where all the patents granted under this category are deemed to be endorsed with the words "Licence of Right". Product Patents for Drugs & Medicines including certain class of chemicals, which are produced by chemical reactions, have been abolished. However, inventions relating to methods or processes of their manufacture are patentable. This act remained in force for about 24 years without any change and in respect of obligations effective from January 01, 1995; India has amended the Patents Act, 1970 through the Patents (Amendment) Act, 1999 effective retrospectively from January 01, 1995. This Act provides for a "mail box" to receive and hold product patent applications in the fields of pharmaceuticals and agricultural chemicals and also on fulfillment of certain conditions specified in the law, for grant of Exclusive Marketing Rights (EMR) to sell or distribute these products in India.

On 7th September 1998, India deposited its instrument of accession to the Patent Co-operation Treaty (PCT) and is bound by PCT as 98th contracting State of PCT from 7th December 1998. Furthermore, nationals and residents of India are entitled to file international applications for patents under PCT at Patent office, Kolkata as receiving office. With effect from 19th November 1999 Patent office branches at Mumbai, Chennai & New Delhi are also receiving the PCT applications allowing the applicants to file application at their regional Patent office.

India became a signatory of Trade Related Aspects of Intellectual Property Rights (TRIPS) in the Uruguay Round agreement of 1995. Further, India has enacted fully TRIPS-compliant Trademarks Act, Copyright Act, Designs Registration Act, Geographical Indications Act and Protection of Layouts for Integrated Circuits Act. A novel Plant Varieties' Protection and Farmers' Rights Act 2001 and the Bio-diversity Act 2002 are also in Place.

The Second Amendment to the Indian Patent Act, 1970 brought through the Patents Amendment Act 2002 (Act 38 of 2002) came into force w.e.f. 20th May 2003. Some of the changes made in the Patents Amendment Act 2002 were: Inventions relating to method of treatment of plants are to be made patentable, the term of Patent is made 20 years, conditions for granting compulsory licenses, patenting micro-organisms, and an appellate to hear appeals from decisions of the controller.

The Third amendment to the Patent Act 1970 was introduced through the Patents Amendment Ordinance, 2004 w.e.f. 1st January 2005. As on date, India is fully in compliance with its international obligations under the TRIPs Agreement. This Ordinance was later replaced by the Patents (Amendment) Act 2005 (Act 15 of 2005) on 4th April, 2005 which was brought into force from 1st January, 2005. Some of the important features of this amendment were; extension of product patents to all fields of technology including food, drugs, chemicals and micro organisms; deletion of the provisions relating to Exclusive Marketing Rights (EMRs); introduction of a provision for enabling grant of compulsory licence for export of medicines to countries which have insufficient or no manufacturing capacity to meet emergent public health situations etc.

Copyrights

Copyright law entered India in 1847 through an enactment during the East India Company's regime. According to the 1847 enactment, the term of copyright was for the lifetime of the author plus seven years post-mortem. But in no case could the total term of copyright exceed a period of forty-two years. Further, the government could grant a compulsory licence to publish a book if the owner of copyright, upon the death of the author, refused to allow its publication.

In 1914, the then Indian legislature enacted a new Copyright Act which merely extended most portions of the United Kingdom Copyright Act of 1911 to India. Act was continued with minor adaptations and modifications till the 1957 Act was brought into force on 24 January 1958.

India has a comprehensive copyright law Indian Copyright Act. 1957, amended in 1983, 1984, 1992, 1994 and 1999 (w.e.f. January 15, 2000). The amendment in 1994 was a response to technological changes in the means of communications like broadcasting and telecasting and the emergence of new technology like computer software. The 1999 amendments have made the Copyright Act fully compatible with Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. & fully reflects Berne Convention. The amended law has made provisions for the first time to protect performers' rights as envisaged in the Rome Convention. With these amendments the Indian Copyright law has become one of the most modern copyright laws in the world. Moreover, India is signatory to both the International copy- right conventions i.e. the Berne Convention of 1886 and Universal Copyright Convention of 1952. India is also an active member of WIPO (World Intellectual Property Organization) and UNESCO. In the Indian law, copyright falls into 'public domain' 60 years after the death of the author.

International Publishers Association (IPA) specially helped by the Association of American Publishers (AAP), have developed a system called Digital Object Identifier (DOI). The technocrats in India are also developing methodology by which firstly, copyright infringement can be checked and secondly, it can detect the source form where the infringement has originated. Such developments have deterrent effect on the pirates. Special cells for copyright enforcement have been set up in 23 States and 6 Union Territories, and states have been also advised to designate a nodal officer for copyright enforcement to facilitate easy interaction by copyright industry organizations and copyright owners (Sahay and Sharma, 2008). In addition, for collective administration of copyright, copyright societies have been set up for different classes of works.

Trademarks

India's statutory Trademarks Law dates back to 1860 and there was no official trademark Law in India prior to 1940. Numerous problems arose on infringement, law of passing off etc and these were solved by application of section 54 of the Specific Relief Act, 1877 and the registration was obviously adjudicated by obtaining a declaration as to the ownership of a trademark under Indian Registration Act 1908. To overcome the aforesaid difficulties the Indian Trademarks Act was passed in 1940, which corresponded with the English Trademarks Act.

India affords full protection to trademarks under The Trade and Merchandise Act Marks Act, 1958. A new statute i.e. the Trade Mark Act, 1999 has been enacted in India to bring it in conformity with the TRIPS Agreement, to which India is a signatory. Indian Trademarks Act, 1999, came into force on September 15, 2003. The new act has removed the inconvenient provisions of the old Act and has fostered the rights of the traders and other service providers significantly.

Industrial Design

In 1911 the Designs Act was passed by the then British Government in India. The Designs Act of 1911 governs industrial designs. The registration of a design confers on the registered proprietor the right to take action against third parties who apply the registered design without license or consent. Under the TRIPS Agreement, minimum standards of protection of industrial designs have been provided for.

New Designs Act, 2000 India had achieved a mature status in the field of industrial designs and in view of globalization of the economy. The present legislation is aligned in view of the changed technical and commercial scenario and made to conform to international trends in design administration. This replacement Act is also aimed to inact a more detailed classification of design to conform to the international system and to take care of the proliferation of design related activities in various fields.

Geographical Indications

India, as a member of the World Trade Organization (WTO), enacted the Geographical Indications of Goods (Registration & Protection) Act, 1999 which has come into force with effect from 15th September 2003. The source of Geographical origin of the biological material used in invention is required to be disclosed in the specification.

Biological Diversity

The Biological Diversity act was passed in 2002 and had received the assent of the President on the 5th February 2003. The Act aims to provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto. Indian citizens, companies etc. are allowed free access to biological resources within the country for research purposes but are barred from transferring findings to foreign entities without the National Biodiversity Act (NBA) approval.

Protection of Plant Varieties and Farmers' Rights (PPVFR)

The Protection of Plant Varieties and Farmers' Rights Act 2001 was enacted in India to protect the new plant varieties. Under the TRIPS agreement it is obligatory on part of a Member to provide protection to new plant variety either through patent or an effective sui generis system or a combination of these two systems. India opted for sui generis system and enacted The Protection of Plant Varieties and Farmers' Rights Act 2001. However, in many countries such plants can be protected through Breeders' Rights, patents and UPOV (International Union for the Protection of New Varieties of Plants) Convention. More importantly, this act provides safeguards to farmers by giving them (farmers' rights) while providing for an effective system of protection of plant breeders' rights. The farmer's rights include his traditional rights to save, use, share or sell his

farm produce of a variety protected under this Act provided the sale is not for the purpose of reproduction under a commercial marketing arrangement.

Traditional Knowledge

Traditional knowledge is in the public domain and should, therefore, not qualify for patents. This is indeed what happened with turmeric and might well have occurred with pigeon pea extracts and ngali nut oil (*Canarium indicum*, native to parts of Indonesia, Papua New Guinea, New Britain, New Ireland, the Solomon Islands, and Vanuatu). But for resolution of the issue, there has to be a database and computerization of traditional knowledge. While creating a database of knowledge handed down orally is difficult, this constraint is responsible for many of India's patent-related problems. While existing traditional knowledge is not patentable, increments to knowledge can indeed be patented, as they are in the US. The database of the National Innovation Foundation (NIF) demonstrates that India is not lacking in such incremental addition to traditional knowledge.

It is paradoxical that despite two amendments to the Indian Patent Act 1970- amendment 1999 and 2002, such inventive components of traditional knowledge cannot be patented in India. Small innovators have to file for patents in the United States Patent and Trademark Office (USPTO), with higher application fees and transaction costs. Traditional knowledge cannot be patented if documented under the TRIPS agreement of the WTO. That is why neem and turmeric products when patented by the USPTO were revoked once India proved that these were the products of Indian traditional knowledge. One of the major issues needing resolution is the protection of traditional knowledge under a new "sui generis" system. The Council for Scientific and Industrial Research (CSIR) has already undertaken the documentation of traditional knowledge so that it is available for prior art search.

Rules Governing Intellectual Property Rights in India

1. The Copyright Act, 1957, The Copyright Rules, 1958 and International Copyright Order, 1999
2. The Patents Act, 1970 The Patents Rules, 2003, Patents (Amendment) Rules, 2006, The Intellectual Property Appellate Board (Patents Procedure) Rules, 2010 and The Patents (Appeals and Applications to the Intellectual Property Appellate Board) Rules, 2011
3. The Trade Marks Act, 1999, The Trade Marks Rules, 2002, The Trade Marks (Applications and Appeals to the Intellectual Property Appellate Board) Rules, 2003 and The Intellectual Property Appellate Board (Procedure) Rules, 2003
4. The Geographical Indications of Goods (Registration and Protection) Act, 1999 and The Geographical Indications of Goods (Registration and Protection) Rules, 2002

5. The Designs Act, 2000 and The Designs Rules, 2001
6. The Semiconductors Integrated Circuits Layout-Design Act, 2000 and The Semiconductors Integrated Circuits Layout-Design Rules, 2001
7. The Protection of Plant varieties and Farmers' Rights Act, 2001 and The Protection of Plant varieties and Farmers Rights' Rules, 2003
8. The Biological Diversity Act, 2002 and The Biological Diversity Rules, 2004
9. Intellectual Property Rights (Imported Goods) Rules, 2007

Administrative Structure of the Indian Patent Office

Patent system in India is administered under the Controller General of Patents, Designs, Trademarks and Geographical Indications (CGPDTM), appointed under sub-section (1) of Section 3 of the Trade Marks Act, 1999. The Office of the CGPDTM functions under the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry. The Head Office is at Kolkata and other Patent Offices are located at Delhi, Mumbai and Chennai. The CGPDTM delegates his powers to Senior Joint Controller of Patents & Designs, Joint Controllers of Patents & Designs, Deputy Controllers of Patents & Designs and Assistant Controllers of Patents & Designs regarding various procedures for patent grant. Examination of patent applications is done by Examiners of Patents & Designs.

Appropriate Office for Patent Application

Patent Office	Territorial Jurisdiction
Mumbai	The States of Gujarat, Maharashtra, Madhya Pradesh, Goa, Chhattisgarh, the Union Territories of Daman & Diu and Dadra & Nagar Haveli
Delhi	The States of Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand, National Capital Territory of Delhi and the Union Territory of Chandigarh
Chennai	The States of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and the Union Territories of Pondicherry and Lakshdweep
Kolkata	Rest of India

A foreign applicant shall give an address for service in India, the jurisdiction will be accordingly decided. An Indian applicant also can give his Patent Agent's address as address for serving documents if he/she wishes to do so.

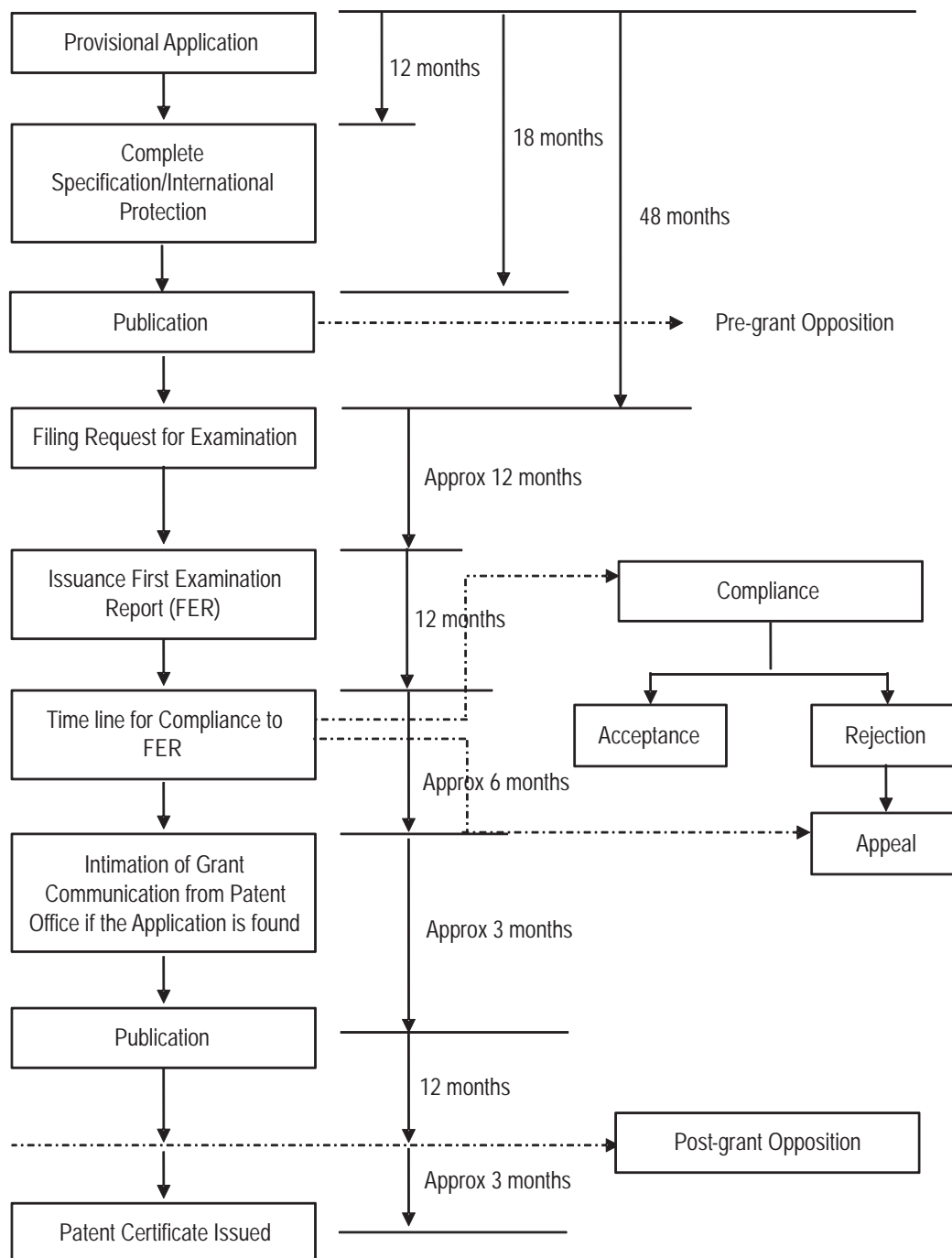
Time Taken for the Grant of IPRs in India

IPRs	Time for the Grant	Term	Renewal Period
Patent	2-3 years	20 years	Annual
Trademark	1-2 years	Perpetual on renewal and the use of mark in Trade	10 years
Geographical Indications		Perpetual renewal	10 years
Design		10 years	5 years
Copyright	1-12 months	Life time of author + 60 years after his/her death from its publication date	

If a granted/ registered IP is not renewed in time it is liable to be expired or removed from the register. In the case of a patent it can expire if the patentee has failed to pay the renewal fee (a patent once granted by the Government has to be maintained by paying annual renewal fee) or the validity of the patent has been successfully challenged by an opponent by filing an opposition either with the patent office or with the courts.

Patenting Procedure in India

Steps Involved in Patenting and Time Requirement



(Source: Altacit Global Attorneys-at-Law, www.altacit.com)

Types of Patent Application

There are six types of applications that can be filed for patent: Ordinary Application, Convention Application, PCT International Application, PCT National phase Application, Application for Patent of Addition, and Divisional Application.

1. Ordinary Application

An application for patent made in the Patent office without claiming any priority of application made in a convention country or without any reference to any other application under process in the office is called an ordinary application. Such an application can be filed by an inventor himself (as an applicant) or by a person to whom the invention is assigned by the inventor (an assignee is the applicant), without claiming any priority of application made in a convention country or without referring to any other application being processed in the Patent Office. The applicant can be either of Indian or foreign origin.

2. Convention Application

When an applicant files the application for a patent, claiming a priority date based on the same or substantially similar application filed in one or more of the convention countries, it is called a convention application. In order to get convention status, an applicant should file the application in the Indian patent office within twelve months from the date of first filing of a similar application in the convention country. The priority document and its verified English translation (if required) also should be submitted by the applicant. A convention application shall be accompanied by a complete specification. When two or more applications for patents constituting one invention have been made in one or more convention countries, one application may be made within twelve months from the date on which the earlier or earliest of those applications was made. Multiple fees has to be remitted for claiming multiple priorities so that other applications filed earlier in the convention countries, will be deemed to have been published in India. An applicant of convention application shall furnish when required by the Controller, the copies of specification or documents (priority documents) certified by the official chief of the patent office of the convention country.

3. PCT International application

PCT is an International filing system for patents in which the applicant gets an international filing date in all the designated countries, conferring the late entry (up to 31 months) to the national offices without affecting the priority date. This is a simple and economical procedure for the applicants seeking protection for their inventions in many countries. Indian Patent office is a Receiving office for International Applications by nationals or residents of India. An international application shall be filed with the appropriate office under Rule(4) in triplicate either in English or in Hindi language

4. PCT-National Phase Application

An international application made according to the Patent Cooperation Treaty, designating India can enter national phase within 31 months from the priority date of international application or date of filing of international application whichever is earlier. This application filed before the Controller in the Indian patent office claiming the priority and international filing date is called PCT National Phase application. Applicant can enter national phase with a request made on a plain paper but Form 1 is preferred by the Indian Patent office during National Phase Entry. The title, description, drawings, abstract and claims filed with the application shall be taken as the complete specification for the purposes of filing in India. The filing date of the application shall be the international filing date accorded under the Patent Cooperation Treaty. Although it is obligatory on the part of IB (WIPO) to send pamphlets to the designated offices for convenience and faster processing, the applicant shall submit the necessary documents in duplicate upon entry into national phase. The Patent Office may ask for any other documents, which are necessary in addition to what was submitted along with the application. Certified copies of the priority documents are to be filed within 3 months from the date of communication from the Patent Office.

5. Application for Patent of Addition

When an applicant feels that he has come across an invention which is a slight modification of the invention for which he has already applied for / has patent the applicant can go for patent of addition since the invention does not involve a substantial inventive step. It is also possible to convert an independent patent to a patent of addition at a later date if the subject matter was an improvement in or modification to a main invention for which he holds a patent. There is no need to pay separate renewal fee for the patent of addition during the term of the main patent. A Patent of Addition expires along with the main patent unless it is made independent according to the provisions in Section 54 However a Patent of Addition will not be granted unless the date filing of Application was the same or later than the date of filing of the complete specification in respect of the main invention It should be noted that a patent of addition will not be granted before granting of the patent for the main invention.

Specification and Drawings

The prime requirement of the patent law is to protect the invention disclosed in the specification. The specification is a techno-legal document containing scientific information constituting patent rights. The specification, thus, forms a crucial part of the patent documents. It is mandatory on the part of the inventor to disclose clearly and completely various features constituting the invention. Under the patent law, the disclosure is in the form of provisional and complete specification as the case may be.

a. Provisional Specification

When the applicant finds that his invention has reached a presentable form but not the final shape, he may prepare a disclosure of the invention in the form of a written description and submit it to patent office as a Provisional Specification which describes the invention. A provisional specification helps to establish the priority of the applicant over any other person who is likely to file an application for patent in respect of the same invention being developed concurrently. The applicant also gets twelve months time to fully develop the invention and ascertain its market potential without the fear of losing the priority right over the invention. Immediately on receiving the provisional specification the patent office accords a filing date for the application and provides a period up to twelve months for filing the complete specification, during which the applicant can fully develop his invention by himself or with the help of others who are interested in the economic value of the patent. No extension of time is permissible for filing complete specification.

Filing Provisional Specification : The provisional or complete specification is required to be submitted in Form 2 along with the application form 1 and other documents. The first page of the Form 2 should contain: (a) Title of the invention, (b) Name, address and nationality of each of the applicants for the patent (c) Preamble to the description

A provisional specification is not a rough draft or a skeleton of the Complete specification. The Complete Specification, which follows a Provisional Specification, does not replace the latter. Both are permanent and separate documents.

b. Complete Specification

The Complete specification is a techno-legal document which fully and particularly describes the invention and discloses the best method of performing it.

Filing of Complete Specification

- i. An application for Patent is to be filed in Form 1, in duplicate along with requisite fees as given in the First Schedule and should be accompanied by the complete specification in Form 2 and other essential documents in duplicate
- ii. The first page of the Form 2 contains: a) Title of the invention, b) Name, address and nationality of each of the applicants for the patent, c) Preamble to the description
- iii. The description should start from the second page of Form 2 followed by statement of claims for which protection is sought and end with the date and signature of the Applicant or his authorized agent.

- iv. An abstract should be attached separately to the complete specification. Drawings, if any, referred in the specification shall be submitted along with the specification.
- v. Documents to be attached along with complete specification:
 - a. Statement and Undertaking regarding foreign filing details in respect of the same invention (Form 3)
 - b. Declaration as to Inventorship (Form 5): In case of a convention application, PCT National Phase application and when complete specification is filed after provisional [S.10(6) & Rule 13(6)]. It should be filed within one month from the date of filing.
 - c. Priority Document should be submitted within three months from the date when required by the Controller. If the document is not in English, then a translated copy should be furnished.
 - d. Power of Attorney (Form 26) (if the application is made through a patent agent)
 - e. Proof of Right (if the application is made by the assignee (Proof right to apply can be produced either in the body of the application (Declaration by the Inventor(s) /Applicant(s) in the convention country in Form 1) or by way of separate assignment deed. If the application is made by the legal representative 'death certificate or probate or certificate of inheritance' of the deceased should be filed as proof of right.
 - f. Proof of right shall be submitted within six months from the date of application.
 - g. If the applicant wishes, he can request for early publication on Form 9 along with the prescribed fee.
 - h. A request for examination on Form 18 along with the prescribed fees should be submitted so that the application is taken up for examination.

Documents Required for IP Application

Patent

1. Application form in triplicate
2. Provisional or complete specification in triplicate. (Provisional specification must be followed by complete specification within specified period of time)
3. Drawing in triplicate (if necessary)
4. Abstract of the invention (in triplicate)
5. Information and undertaking listing the number, filing date and current status of each foreign patent application in duplicate
6. Priority document (if priority date is claimed)
7. Declaration of inventorship where provisional specification is followed by complete specification or in case of convention application
8. Power of attorney (if filed through Patent Agent)
9. Fee in cash/by local cheque/by demand draft

Copyright

1. A signed power of attorney
2. If the applicant is not the author/s, a Deed of Assignment executed by the author/s, assigning his/their rights to the applicant, legalized by the Indian Consulate in the applicant's country
3. The author's name or authors' names for joint works
4. Three copies of the work of art

Trademark

1. A signed power of attorney in front of 2 witnesses
2. 30 prints of the mark
3. Date of the first use in India or the date intended to be used
4. Applicant's name, address, nationality, the list of goods and/or services, and the nature of business if the applicant is a corporate

Designs

1. A signed power of attorney in front of 2 witnesses
2. sets of figures or photographs in color or black and white, preferably of various views of the complete article
3. A certified copy of the priority document showing the filing date, number and country, if priority is to be claimed

Download Application Forms

- ★ Patent: <http://www.ipindia.nic.in/ipr/patent/patents.htm>
- ★ Copyright: copyright.gov.in/frmDownloadPage.aspx
- ★ Trademark: <http://www.tmrindia.com/Forms/formindex.htm>
- ★ Designs: <http://www.ipindia.nic.in/ipr/design/designform.htm>

Patents Granted for Indian Council of Agricultural Research

Patents Granted up to 1990

No.	Title of Invention	Date of Filing	Grant Date	Name of Inventors	Patent No.
Jute Technological Research Laboratories, Calcutta					
1.	Brightening of Dark Hessian	15/03/1968	1954	P. K. Saha, S. S. Paul, P. B. Sarkar	53248
2.	Portable Air-Flow Jute Fibre Fineness Tester	04/03/1974	NA	NA	114995
3.	Photoelectric Meter to Measure Brightness, Colour and Lustre of Flat Surfaces	09/02/1973	NA	NA	137081
Cotton Technological Research Laboratory, Bombay					
4.	An Apparatus for Measuring the Thickness Variation of an Aligned Tuft of Cotton and Like Textile Fibres	27/02/1985	NA	NA	134316
5.	A New Poly-Set Resin Finishing Process for Production of Durable Press Cotton Fabric	18/08/1986	NA	S. N. Pandey, P. Nair, A. J. Shaikh	166489
6.	A New Durable Chemical Finishing Process for Production of Antibacterial Fabrics				

Indian Lac Research Institute, Ranchi					
7.	A Process for the Preparation of Water Thinned Shellac Paints	11/12/1973	NA	139708	
8.	A Process for the Preparation of Rubber Compositions having Excellent Mechanical Properties by the Incorporation of a Modified Lac	28/11/1973	NA	141510	
9.	A Method of Producing Splitted Slivers from Jute Finisher Card	17/07/1975	NA	143855	
10.	A Process for the Preparation of Shellac Emulsion Paints for Wall Finishes	05/04/1976	NA	141675	
Indian Agricultural Research Institute, New Delhi					
11.	Improvements in or Relating to the Process of Preparing Carbaryl Emulsifiable Concentrate Formulations With Increased Bioactivity"	25/04/1984	NA	160505	Balraj Singh Parmar, Shiv Dutta
National Dairy Research Institute, Karnal, Haryana					
12.	Mechanized Conical Process Vat	26/08/1987	NA	165440	Satya Prakash Agrawala, Ish Kumar Sawhney, Bikram Kumar

Patents Granted after the Year 1990

No.	Title of Invention	Date of Filing	Grant Date	Name of Inventors	Patent No.
Central Institute of Brackishwater Aquaculture, Chennai, Tamil Nadu					
13.	Immobilizing matrix from bagasse for bacterial biomass and a process for preparation thereof	06/04/2006	03/07/2013	Kishore Kumar Krishnani, Ismail Saheb Azad, Baijnath Prasad Gupta, Mudagandur Shashi Shekhar, Ravichandran Pitchaiyappan	256572
Central Institute for Dryland Agriculture Hyderabad					
14.	A Seed-cum-Fertilizer Drill	20/11/1992	NA	V. M. Mayande, J.C. Katyal	181133
Central Institute of Freshwater Aquaculture, Bhubaneswar, Orissa					
15.	A Manually Operated Low Cost Handy Cryofreezer for Gamete Cryopreservation	04/05/2005	16/02/2012	Suresh Chandra Rath, Niranjan Sarangi, Padmanav Routray, Satya Dev Gupta,	251022
16.	Male-Specific Protein of Indian Major Carp, Labeo Rohita (Ham.)-A Key For Sex Differentiation and Brood Stock Management	04/05/2005	24/04/2014	Prem Kumar Meher, Supriya Dash, Priyabrat Swain, Padmanav Routray, Satya Dev Gupta, Niranjan Sarangi, Ranjit Kumar Jana, Jyotiranjan Bal	252072

Central Institute Of Post-Harvest Engineering And Technology, Ludhiana, Punjab

17.	Development of a Process for Conversion of Paddy Husk Ash into Bleaching Material for Edible Oil	05/09/2002	24/03/2008	Sanjeev Kumar Tyagi, Syed Mohamed Ilyas, Onkar Domaji Wanjari	216982
18.	Pre - Grinding of Oilseeds Prior to Mechanical Expelling -A New Process of Energy Saving	05/09/2002	24/03/2008	Onkar Domaji Wanjari, Syed Mohamed Ilyas, Sanjeev Kumar Tyagi	217106
19.	Method of Determining Maturity of Intact Mango in Tree	02/12/2004	03/02/2012	Shyam Narayan Jha, Sangeeta Chopra, ARP Kingsly	250880
20.	A Low Energy Process for Dehulling of Mustard Seeds	07/07/2004	30/11/2011	Sanjeev Kumar Tyagi, Syed Mohamed Ilyas, Onkar Domaji Wanjari	250045
21.	A New Technique of Processing the Mustard Seed for Reducing Refining Cost and Improving Quality Of Oil	27/09/2004	04/03/2011	Sanjeev Kumar Tyagi, Onkar Domaji Wanjari, Syed Mohamed Ilyas	246575
22.	A Process of Separating a Compound Containing Allylisothiocynate from Mustard Seed	29/10/2004	08/12/2011	Sanjeev Kumar Tyagi, Syed Mohamed Ilyas, Onkar Domaji Wanjari	250118
Central Plantation Crop Research Institute, Kasaragod, Kerala					
23.	Design and Development of a Coconut De-Shelling Machine	12/04/2006	02/04/2009	Tapeswar Vidhan Singh	233742
24.	Development of A Manually Operated Tender Coconut Punch and Cutter	12/04/2006	02/04/2009	Kodiwally Goolappa Narayana Swami, M. Krishnan, Tapeswar Vidhan Singh	233744

25.	Development of Telescopic Sprayer	12/04/2006	15/03/2011	Tapeswar Vidhan Singh	246751
Central Potato Research Institute, Shimla, Himachal Pradesh (Reg.Stn. Modipuram)					
26.	Biofertilizer Cum Biofungicide/Bio bactericide Composition B5	23/12/2005	16/01/2009	Veerapaneni Kishore, Veerapaneni Sunaina	227691
Central Soil and Water Conservation Research and Training Institute, Dehradun, Uttarakhand					
27.	A Process for Eradication of Polluting Gas	12/11/2002	19/01/2010	Ram Charan Yadav	238046
Indian Agricultural Research Institute, New Delhi					
28.	Pusa Fruit Coring Device (Hand Operated)	27/04/2000	08/11/2010	Hari Shankar Sharma, Amar Singh	243803
29.	A Multi/Hyper-Spectral Data Analyzing Process for Complete Quantification, Characterization and Compression of Natural Resource Specific Information	02/08/2001	14/02/2008	Ravinder Kaur	214697
30.	A Process for the Preparation of Mosquito Larvicidal Formulations based on Rabdosia melissoides Ingredients	04/04/2001	31/03/2008	Lalit Kumar, Balraj Singh Parmar	218311
31.	Additives for Improved Photostability of Azadirachtin-A	04/04/2001	13/01/2009	Sapna Johnson, Prem Dureja, Swaran Dhingra	227536
32.	Improved Process for the Preparation of Mancozeb	07/03/2001	12/12/2008	N. K. Roy, R. L. Gupta, A. K. Panda	226219

33.	Process for the Preparation of Pesticidal Oxime Esters	27/06/2003	28/03/2008	Suresh Walia, Balraj Singh Parmar	217763
34.	Process for the Preparation of Mono/Di/Polyol Ester Pesticides	27/06/2003	31/03/2008	Paraj Shukla, Balraj Singh Parmar, Suresh Walia	218031
35.	Efficient Process for the Preparation of Neem Based Reduced Azadirachtin(S) Pesticides	09/09/2003	11/12/2009	Suresh Walia, Vandana Sharma, Jitendra Kumar, Balraj Singh Parmar	226204
36.	Novel Superabsorbent Hydrogel/S and the Method of Obtaining the Same	23/12/2005	26/12/2011	Rajesh Kumar, Anupama, Balraj Singh Parmar	250349
37.	Biopesticidal Formulation with Improved Shelf Life and the Process of Preparation	14/02/2006	29/05/2009	Prem Dureja, Balraj Singh Parmar	234480
38.	Polymeric Seed Coats based on Bioactive Botanicals	31/07/2006	10/12/2010	Jitendra Kumar, Nisar Keyath, Suresh Walia, Balraj Singh Parmar, Arun Kumar Madurai Basappa	244542
39.	An Insect Handling Device	05/02/2007	10/05/2012	Pradyumn Kumar, Javaji Chandra Sekhar	252363
40.	Seed-Cum-Fertilizer Grain Drilling Machine (IARI Reg.Stn. Karnal)	20/08/2002	28/02/2009	Bijan Kumar Dutt	231054

Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh

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|-----|--|------------|------------|---|--------|
| 41. | A Process for Preparing a Novel Herbal Formulation for the Treatment of Mange in Animals | 17/09/2002 | 05/10/2007 | Suresh Chandra, Jawahar Lal, Surendra Kumar Tandan | 210526 |
| 42. | Cold Process Technology for the Preparation of Urea Molasses Mineral Block | 17/09/2002 | 05/10/2007 | U. R. Mehra, R. S. Dass, N. N. Pathak | 210528 |
| 43. | The Synergistic Mineral Mixture for Increasing Milk Yield in Cattle | 12/11/2003 | 17/03/2009 | Mahesh Chandra Sharma, Nitya Nand Pathak, Chinmay Joshi | 232467 |

National Bureau of Plant Genetic Resources, New Delhi

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|-----|---|------------|------------|---|--------|
| 44. | An Improved Process for Enrichment of Babachi Drug from the Seeds Of Babachi (Psoralea Corylifolia L.L.) | 05/08/2003 | 15/11/2010 | Mohamad Asim Kidwai, Chitrangad Singh Raghav, Brij Mohan Singh, Prem Lal Gautam | 244028 |
| 45. | Process Enabling Simultaneous Detection of Transgene Cp4epsps and Camv 35s Promoter in Maize Utilizing Novel Primers in Multiplex PCR | 23/12/2005 | 31/01/2011 | Gurinder Jit Randhawa, Prashant Kashinath Firke, Jawahir Lal Karihaloo | 245749 |
| 46. | Process Enabling Simultaneous Detection of Transgenes Namely Human Serum Albumin (Has) and Bar Genes in Transgenic Wheat | 30/12/2005 | 26/10/2012 | Gurimer Jit Randhawa, Prashant Kashinath Firke, Jawahir Lal Karihaloo | 254341 |
| 47. | Diagnostic Kit based on Polymerase Chain Reaction for Detection of Cry1 AC Gene in Bt Cotton Bollgard-I | 20/09/2006 | 11/12/2011 | Gurimer Jit Randhawa, Prashant Kashinath Firke | 258165 |

National Centre for Integrated Pest Management - Indian Agricultural Research Institute Campus, New Delhi

48. Egg Cleaning Device 20/01/1999 11/01/2008 Surender Kumar, S. N. Puri, Pradyumn Kumar 213744

49. Aerial-Insect Trap 02/11/2001 15/12/2008 Pradyumn Kumar, Bhushan Lal Jalali, Surender Kumar, Amerika Singh 226238

National Dairy Research Institute, Karnal

50. Process for the Manufacture of Shelf-Stable Whey-Mango Beverage 31/12/2001 19/08/2008 Sudhir Singh, G. R. Patil 222587

51. A Simple and Efficient Microdialysis Assembly for Dialysis of Samples in Microliter Volumes 18/03/2002 24/11/2006 Y.S. Rajput, Reena Sodhi 195230

52. Process for Manufacture of Spray Dried Cheddar Flavour Base/Concentrate 01/06/2007 30/08/2013 D.K. Sharma, B.D. Tiwari 257068

53. A PCR based Method for Differentiating Cow and Buffalo Milk 28/06/2007 22/11/2013 Sachinandan De, Rameshwar Singh, Karan Pratap Singh, Tirtha Kumar Datta, Surender Lal Goswami 257958

54. A Process for the Preparation of Low Cholesterol Ghee 27/04/2006 01/11/2013 Darshan Lal, Manoj Kumar, Vivek Sharma, Amit Kumar, Raman Seth 257783

National Institute of Research on Jute and Allied Fibre Technology, Kolkata, West Bengal

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|-----|--|------------|------------|---|--------|
| 55. | Method of Degumming of Decorticated Ramie Fibre by Recycling of Degumming Liquor | 11/01/2002 | 05/06/2008 | Swapan Kumar Bhaduri, Prasanta Kumar Ganguly | 220787 |
| 56. | An Electrically Operated Portable Device for In-Field Testing of Jute Fibre Bundle Strength | 29/03/2006 | 09/02/2011 | Bhattacharya, Govinda Kripa, Roy, Gautam, Mukhopadhyay Mukul | 246007 |
| 57. | A Particle Board from Date Palm Leaves and Method of Preparing the Same | 05/04/2006 | 09/10/2013 | Sujit Kumar Ghosh, Laxmikanta Nayak, Abhintra Dey | 257501 |
| 58. | Union Fabric of Glass Yarns and Jute Yarns or Yarns of Fibres Allied to Jute and Method of Preparing Composite from the Same | 05/06/2006 | 20/11/2009 | Prasanta Kumar Ganguly | 236761 |
| 59. | A Multiplant Manual Ribboning Device for Extraction of Green Ribbon from a Bundle of Jute or Mesta Plant Operable in One Cycle | 06/06/2006 | 11/04/2012 | Swapan Kumar Bhaduri, Mukul Kumar Mukhopadhyay, Debabrata Paul, Binoy Krishna Das | 251836 |
| 60. | A Closed-Loop Measurement System Regulating Flyer's Speed of a Spinning Machine | 23/06/2006 | 13/04/2011 | Gautam Roy, Sujit Kr. Bhattacharya, Gobindo Kripa Bhattacharya | 247513 |

National Research Centre on Plant Biotechnology, IARI Campus, New Delhi

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|-----|--|------------|------------|------------------------|--------|
| 61. | Synthetic Gene Encoding a Chimeric Delta-Endotoxin of Bacillus Thuringiensis | 18/09/2006 | 12/01/2010 | Polumetla Ananda Kumar | 237912 |
|-----|--|------------|------------|------------------------|--------|

62. Synthetic gene encoding a cry1Fa1 S-endotoxin of Bacillus thuringiensis 18/09/2006 09/09/2010 Polumetta Ananda Kumar 242768

National Institute of Veterinary Epidemiology and Disease Informatics, Bangalore, Karnataka

63. A Kit for Diagnosis of Brucellosis 01/07/2008 20/10/2010 Shome Rajeshwari, Bibek R. Shome, Deivannai M., Prabhudas K. 250709

Patents Shared by more than One ICAR /other Institutes

Central Research Institute For Dryland Agriculture, Hyderabad & Central Tobacco Research Institute, Rajamundry

64. Palmyrah Fibre Separating Machine 04/04/2001 13/01/2009 Indavarapu Srinivas, Rupakula Sudhakar, Kisiviswanathan Nagarajan 227533

CTAE Udaipur, Maharana Pratap University of Agriculture and Technology, Udaipur, Junagarh Agricultural University, Junagarh

65. A Mechanical System for Chopping and Crushing of Water Hyacinth Plants 01/09/2006 13/03/2013 Shailendra Mohan Mathur, Pratap Singh, Pramod Mohnot 255661

Indian Council of Agricultural Research & Council for Scientific and Industrial Research

66. A Process for the Production of Blue Green Algal Biofertilizer 10/04/2002 04/06/2008 Brahma Dutta Kaushik 220746

National Chemical Laboratory, Pune & Directorate of Wheat Research, Karnal

67. A Composition for Hybrid Seed Production 16/09/2002 09/09/2008 Vivek Jagannathrao Bulbule, 223253
Vinay Mahajan, Vishnu Hari
Deshpande, Ramesh Ganesh
Kelkar, Rajgopal Jagannath Lahori,
Sadyandy Ramlingam, Subramanyam
Nagrajan

Marom Dan Mark, Ashwood Court, Howell, New Jersey, USA and Central Institute of Brackishwater Aquaculture, Chennai, Tamil Nadu

68. Product from Lignocellulosic Waste for the 02/03/2006 14/06/2013 Marom Dan Mark, Sakunthala 256424
Remediation of Water Contaminated with
Heavy Metals
Rajmohan, Rizzi Enrico Via Manzoni,
Tarozzo Micro via Piffaretti, Chavakula
Ramdas, Bandari Mohan, Gorantla Seeta
Ramanjaneyulu, Krishnani Kishore Kumar,
Gupta Bajinath Prasad, Ravichandran
Pitchaiyappan, Modam Poornima

Copyright Infringement and Plagiarism

Copyright infringement is a violation of the exclusive rights of the copyright holder and may carry legal consequences. Copyright infringement can take many forms. Examples of copyright infringement may include borrowing significant portions of another's work in the creation of a new work, making and distributing unauthorized copies of a sound recording or video, or publicly performing another's work without permission from the copyright holder, even if the original work is cited. Plagiarism involves using another's work without attribution, as if it were one's own original work. It is considered an ethical offense and can be detrimental to one's academic reputation and integrity. It is possible to plagiarize without violating copyright, and it is possible to infringe on another's copyright without plagiarizing. It is also possible to both plagiarize and violate copyright at the same time (University of Connecticut Libraries, <http://www.lib.uconn.edu>).

Plagiarism is a complex and emotive issue and perhaps because of that complexity, people often seem confused about the difference between plagiarism and copyright infringement. The paleontologist Mike Taylor has put together a short handy explanation of how it works in an academic context as:

1. Plagiarism is a violation of academic norms but not illegal; copyright violation is illegal, but in truth pretty ubiquitous in academia.
2. Plagiarism is an offence against the author, while copyright violation is an offence against the copyright holder. In traditional academic publishing, they are usually not the same person, due to the ubiquity of copyright transfer agreements (CTAs).
3. Plagiarism applies when ideas are copied, whereas copyright violation occurs only when a specific fixed expression (e.g. sequence of words) is copied.
4. Avoiding plagiarism is about properly apportioning intellectual credit, whereas copyright is about maintaining revenue streams.

Proper attribution of an idea is required even if a journal operates with double-blind review. Authors should always cite related work even if that work is their own. There are possibilities of plagiarism when you cite your own work in a research paper. INFORMS (Institute for Operations Research and the Management Sciences) gives the author guidelines about Copyright and Plagiarism while citing own work as;

- ★ If their first paper is under review and the material in the first paper is used as the basis for new research, it should also be cited, but there is no need to inform the journal handling the original submission.
- ★ If the first paper is rejected, authors of the first paper can transfer credit for the contribution to a later paper (even if the first paper is resubmitted elsewhere). The resubmitted first paper should then be modified to reference the later paper that now is credited with the contribution.
- ★ If the original contribution from the first paper is essentially presented again as the main contribution (as opposed to being used as the basis for new research), as might happen in a book chapter or conference proceedings paper, then special care must be taken.
- ★ If the original paper is still under review, the author must notify the editor of the journal reviewing the original submission and follow the policies of that journal. Failure to do so may be construed as parallel publication of a result (www.informs.org).

Reuse of empirical data to support new analysis must clearly identify the original source of the data and the degree to which the data is being reused or analyzed in a new and innovative way. Plagiarism in empirical research includes: copying or using any data without citation (and permission), duplicating analysis (on the same data as an earlier paper) without citation which is essentially the same as the earlier paper, copying, or direct reproduction, of charts and graphs that represent data from a previous publication in effectively the same way as an earlier paper, without citation etc.

United States Naval Academy Official website gives guidelines to avoid plagiarism as:

1. Give credit where credit is due-just as you would like to receive it. Inevitably, you will use other people's discoveries and concepts. Build on them creatively. But do not compromise your honor by failing to clearly acknowledge where your work ends and that of someone else begins.
2. Provide proper citation for everything taken from others. These include interpretations, ideas, wording, insights, factual discoveries, charts, tables, or appendices that are not your own. Citations must clearly and explicitly guide the reader to the sources used, whether published, unpublished, or electronic. Cite a source each time you borrow from it. A single citation, concluding or followed by extended borrowing, is inadequate and misleading.
3. Indicate all use of another's words, even if they constitute only part of a sentence, with quotation marks and specific citation. Citations may be footnotes, endnotes, or parenthetical references.

4. Paraphrase properly. Paraphrasing is a vehicle for conveying or explaining a source's ideas and requires a citation to the original source. It captures the source's meaning and tone in your own words and sentence structure. In a paraphrase, the words are yours but the ideas are not. It cannot be used to create the impression of originality.
5. Facts widely available in reference books, newspapers, magazines, etc., are common knowledge and need no citation. Facts that are not common knowledge but are derived from the work of another must be cited. Interpretations and theories provide an author's assessment of a set of facts and commonly embody that author's opinion. The interpretations and theories of another must be cited in foot-note, endnote, or parenthetical reference.
6. Provide a citation when in doubt. Different venues have different practices; for example, footnotes are not used in memoranda or computer programs. But, regardless of practice, the distinction between what is honorable and not remains recognizable. If in doubt, ask. If still uncertain, err on the side of caution.
7. Stand alone capability. There may be instances when an original, complete document/publication may be organized into manageable components (chapters, parts, cases, annexes, appendices, enclosures, etc.), which lend themselves to being used separate and apart from their parent volume. When using components from their parent publications/sources, the contributor shall make every reasonable attempt to ensure proper citation is maintained within or incorporated on the separated portion so that it can stand alone

Penalty for Plagiarism (National and International)

Violations of copyright law can lead to legal problems and prosecution. The Handbook of Copyright Law of Government of India reads as: Any person who knowingly infringes or abets the infringement of the copyright in any work commits criminal offence under Section 63 of the Copyright Act. The minimum punishment for infringement of copyright is imprisonment for six months with the minimum fine of Rs. 50,000/-. In the case of a second and subsequent conviction the minimum punishment is imprisonment for one year and fine of Rs. one lakh (<http://copyright.gov.in>).

Chapter VII

Patenting of Microorganisms

The first world patent in the field of microbial process granted for the Improvement in the Manufacture of Beer and Yeast to Louis Pasteur in July 22, 1873 (US141072A).

The British Government in 1973 proposed that the World Intellectual Property Organization (WIPO), Geneva, Switzerland should take the initiative to study the feasibility of a single deposit fulfilling the need of depositing culture in other countries where patent applications are filed. A formal body was put up by the recommendations of an expert committee in a conference held in Budapest, Hungary during April 1977 and a treaty was adopted called the 'Budapest Treaty on the international recognition of the deposit of microorganisms for the purpose of patent procedure'. The treaty came into effect in 1980. In India the Microbial Type Culture Collection and Gene Bank (MTCC) was recognized by WIPO, as an International Depository Authority (IDA) on 4 October 2002, thus becoming the first IDA in India, seventh in Asia and thirty-fourth in the world. The deposit of microorganisms under the Budapest Treaty is recognized to fulfill the requirement of patent procedure in 55 member countries. MTCC, a national facility established in 1986, is funded jointly by the Department of Biotechnology and the Council of Scientific and Industrial Research, Government of India (Senan et al, 2011).

The moment process patents are started in India for microbiological inventions, the Indian Patent Office will have to find a way out to accept the accession numbers of microorganisms allotted by foreign depositories. This may not be possible until we become a member of the Budapest Treaty. Otherwise, we may have to insist that samples are also deposited in one of our recognised laboratories such as MTCC in Chandigarh. This may require some understanding with some foreign depositories (Patent Facilitating Centre, Gol).

Article 27(3) (b) of TRIPS Agreement allows member states to deny patents for "plants and animals, other than microorganisms, and essentially biological processes for the production of plants or animals other than nonbiological and microbiological processes." As a result, TRIPS makes it obligatory for all its signatories to extend patents for microorganisms, non-biological, and microbiological processes. Further, animal and plant parts, and altered plants and animals are not explicitly included in the exemption, which means TRIPS may also require patenting of biological organisms.

The Manual of Patent Practices and Procedure of India outline the difference between discovery and invention as: discovery adds to the amount of human knowledge by disclosing something already existent, which has not been seen before, whereas an invention adds to the human knowledge by creating a new product or processes involving a technical advance as compared to the existing knowledge. Accordingly, the Indian Patent Act, 1970 explicitly written that *the mere discovery of a scientific principle or the formulation of an*

abstract theory or discovery of any living thing or non-living substances occurring in nature Section 3 (c)) and plants and animals in whole or any part thereof other than micro-organisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals (Section 3(j)) do not include in the category of invention and so not patentable in India.

However, in agreement with TRIPs the second amendment to the 1970 Act gives the provision for process patent for new micro organisms by stating that *biochemical, biotechnological, and microbiological processes* within the definition of potentially patentable *chemical processes*. Other areas involving microorganisms are also patentable in India. For example, a synergistic composition containing the microorganism, which is either new or known, and a process using microorganisms to produce a substance can both be patented. Also, the process of biosynthesis of a new microorganism is patentable.¹² Microorganisms that are lyophilized as an end product are patentable. The Act does not specify the patentable invention ambit, but it does in specificity limits the non- patentable subject matters (Srivastava, 2010).

A patentee has to disclose the invention completely in the patent document so that a person skilled in the art can repeat the invention and satisfy all the claims with the help of information provided in the patent document. In case of microbial inventions, the repeatability is an issue (Senan et al, 2011). If the invention is using biological material, such a material shall be deposited for the completion of the application when such material is not available to the public and cannot be described adequately as per the provisions of the act. The deposition shall be made with the MTCC located in Chandigarh (<http://ipindia.nic.in>).

The report of the Patent Facilitating Centre, Technology Information Forecasting and Assessment Council, Govt. of India says that there is one clear and important distinction between the legal practices of the developing and developed countries. The former, unlike the latter, do not allow patenting of microorganisms already existing in nature; some do not even consider such a 'discovery' an invention. However, as WTO members many countries have now allowed patenting of genetically modified organisms. It may be noted, at this point, that the R&D and industrial base in this area in the developing countries would be very small and in some cases non-existent. Therefore, their legal practices are based more on the experience of other countries and these may be considered for developing broad principles (www.pcf.org.in).

The Case of First Patented Organism

Pseudomonas putida, a gram-negative rod shaped saprotrophic soil bacterium is the first patented organism in the world. Ananda Mohan Chakrabarty, genetically engineered the bacterium in 1971 while working for the Research & Development Center at General Electric Company in Schenectady, New York. The bacterium is capable of breaking down crude oil, which he proposed to use in treating oil spills. At the time, four known

species of oil-metabolizing bacteria were known to exist, but when introduced into an oil spill, competed with each other, limiting the amount of crude oil that they degraded.

The genes necessary to degrade oil were carried on plasmids, which could be transferred among species. By irradiating the transformed organism with UV light after plasmid transfer, Prof. Chakrabarty discovered a method for genetic cross-linking that fixed all four plasmid genes in place and produced a new, stable, bacteria species (now called *Pseudomonas putida*) capable of consuming oil one or two orders of magnitude faster than the previous four strains of oil-eating microbes. The new microbe, which Chakrabarty called "multi-plasmid hydrocarbon-degrading *Pseudomonas*," could digest about two-thirds of the hydrocarbons that would be found in a typical oil spill.

General Electric filed a patent application for the bacterium in the United States listing Chakrabarty as the inventor, but the application was rejected by Sidney A. Diamond, Commissioner of Patents and Trademarks, because under patent law at that time it was generally understood that living things were not patentable subject matter under Section 101 of Title 35 U.S.C. The Board of Patent Appeals and Interferences agreed with the original decision; however, the United States Court of Customs and Patent Appeals overturned the case in Chakrabarty's favor. In a 5–4 ruling, the court ruled in favor of Chakrabarty, holding that: A live, human-made micro-organism is patentable subject matter under 35 U.S.C. § 101 and finally the patent granted by the USPTO on Mar 31, 1981.

Glossary of Intellectual Property Rights

A

Anticommons: This is a term coined by Heller and Eisenberg (1998) to describe how technologies owned by multiple parties may impose daunting transaction costs and delays in accessing research inputs, which ultimately may lead to an underutilization of proprietary technologies.

Arbitrary Marks: Comprise words that are in common linguistic use but, when used to identify particular goods or services, do not suggest or describe a significant ingredient, quality or characteristic of the goods or services (e.g., "Apple" for computers)

Article 6ter: Article 6ter of the Paris Convention protects the flags and emblems of states that are party to the Paris Convention, as well as the names and emblems of international intergovernmental organizations (IGOs) against unauthorized registration and use as trademarks. Article 6ter applies to all states which are party to the Paris Convention for the Protection of Industrial Property.

Assignment: It is the transfer of ownership of an IP where all rights are granted to another party. For Patents: An assignment involves the sale and transfer of ownership of a patent by the assignor to the assignee. For Trademarks: An assignment is a transfer of ownership of a trademark application or trademark registration from one entity to another.

B

Berne Convention: The Convention for the Protection of Literary and Artistic Works signed on September 9, 1886 in Berne, Switzerland.

Blackout Period: The period between the dates the USPTO's examining attorney approves a trademark for publication and the date of issuance of the Notice of Allowance from the USPTO. The applicant may not file an allegation of use during this period.

C

Certification Mark: Any word, name, symbol, device, or any combination, used, or intended to be used, in commerce by someone other than its owner, to certify regional or other origin, material, mode of manufacture, quality, accuracy, or other characteristics of such person's goods or services, or that the work or labor on the goods or services was performed by members of a union or other organization.

CGPDTM: The acronym of the Controller General of Patents Designs and Trademarks. The Indian Patent Office is administered by the Office of the CGPDTM. This is a subordinate office of the Indian government and administers the Indian law of Patents, Designs and Trade Marks. The CGPDTM reports to the Department of Industrial Policy and Promotion (DIPP) under the Ministry of Commerce and Industry.

Claims: These are written statements that define the invention, what it is and what it does. Claims define the legal scope of a patent and define what can be protected by patent law.

Class/Subclass /Classification: The class or classification is based on what type of invention one is patenting (with patents) and the kind of goods or services offered are being represented by a certain trademark (with trademark). A subclass is as the name suggests a narrower definition (subclass) within a class. Each class has a number assigned to it.

Collective Mark: A trademark or a service mark of a group (as a cooperative association)

Consortium Agreement: A contract in which the rights and responsibilities of each member of a research consortium are established and outlined. A research consortium is a group of institutions or companies acting together to investigate an area of common interest. In a typical research consortium agreement, each outside sponsor will contribute a specific amount of funding annually, or at some other designate time interval, to support a research project or program. Consortia typically conduct research in areas of interest to multiple sponsors that draw together multiple researchers.

Custodian: In the context of traditional knowledge, custodian refers to those communities, peoples, individuals and other entities which, according to customary laws and other practices, maintain, use and develop the traditional knowledge. It expresses a notion that is different from "ownership" as such, since it conveys a sense of responsibility to ensure that traditional knowledge is used in a way that is consistent with community values and customary law.

D

Descriptive Mark: A trademark or service mark that conveys the idea of the qualities, characteristics, or effects of a product or service and that is protectable when it creates an association in the mind of the public between the mark and the producer product or service.

Disclosure: this refers to the first public disclosure of the details of an invention

E

Early Publication: If the applicant makes a request in Form 9 (before the expiry of 18 months from the date of priority if no priority claimed from the date of filing) with the prescribed fee (Rs.2,500/- for natural person(s) – an individual applying for patent is considered as a natural person, and Rs.10,000 for legal entity [other than natural person(s)]), the application will be published within one month from the date of filing of such request.

Eteas: Electronic Trademark Examination Application System- electronic trademark filing system of USPTO. It allows the public to complete various trademark filings and transactions on-line.

Exclusive License: A license granted to one party for their use of the subject of the license. It allows only the licensee to use to the subject matter at the exclusion the owner and all others.

F

Fair Dealing (Fair Use): In certain circumstances, some copyright works may be used if that use is considered to be 'fair dealing'. This includes non-commercial researcher private study, criticism, review and news reporting. These are exceptions and defenses to copyright infringement and an acknowledgement to the source materials must be clearly displayed in the case of criticism, review and news reporting

Fanciful Marks: These comprise terms that have been invented for the sole purpose of functioning as a trademark or service mark. Such marks comprise words that are either unknown in the language (e.g., "Pepsi", "Kodak") or are completely out of common usage (e.g., "Flivver").

Farmers' Rights: Article 9.2 defines "farmers' rights" as "(a) protection of traditional knowledge relevant to plant genetic resources for food and agriculture; (b) the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; and (c) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture".

G

Grant: A temporary right given by a patent office for a specified period, to prevent anyone else from using the technology defined in the claims of a patent.

Green Patent: patent on products or designs that provide environmental benefit. It represents one use of the term green, which refers to items or phenomena that accommodate decreased energy consumption or otherwise benefit the environment.

H

Hague System: The International Design System. The Hague System for the International Registration of Industrial Designs provides a practical business solution for registering up to 100 designs in over 60 territories through filing one single international application.

I

Infringement of Patents: Any act which interferes with the owners' rights carried out by a third party without the express permission of the rights holder. This could include reproducing a copyright work without permission, using some ones' business name falsely, copying someone's product.

International Patent Application: Single patent application for up to 104 countries, made under the Patent Cooperation Treaty (PCT) via one of a number of receiving Offices. This can lead to the grant of a patent in each country designated by the applicant. It allows a trademark owner to seek registration in any of the countries that have joined the Madrid Protocol by filing a single application.

International Patent Classification: A hierarchical system in which the whole area of technology is divided into a range of sections, classes, subclasses and groups. The classification is a language independent tool indispensable for the retrieval of patent documents in the search for 'prior art'. The IPC was established by the Strasbourg Agreement Concerning the International Patent Classification, 1971.

Inventive Step: If a patent for an invention is to be granted, the invention must contain an inventive step. This means that the invention must not be an obvious development of what has gone before, when considered by someone who is skilled in the area of technology to which the invention relates.

L

Lapse: The date when a patent is no longer valid in a country or system due to failure to pay renewal (maintenance) fees. Often the patent can be reinstated within a limited period.

License: A document which grants a third party permission to perform an infringing act. All forms of intellectual property, other than moral rights, can be licensed. The owner (Licensor) grants permission to the Licensee so the Licensee can carry out acts that would interfere with the owner's rights.

Licence of Right: This is a provision available in some countries to allow any person the use of patents by paying a licence fee. Here, a patent owner may indicate (via the Office) that licenses under his patent are available as of right to anyone who asks for one on reasonable terms. The owner is then allowed to pay half the usual renewal fees on his patent.

Lisbon System: The International System of Appellations of Origin. The Lisbon System for the International Registration of Appellations of Origin offers a means of obtaining protection for an appellation of origin (AO) in the contracting parties to the Lisbon Agreement through a single registration. Registrations are published in the official Bulletin and can be searched through the Lisbon Express database.

M

Madrid Protocol/ Madrid System: The "Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks" (Madrid Protocol) is an international treaty that allows a trademark owner to seek registration in any of the countries that have joined the Madrid Protocol by filing a single application, called an "international application."

Markush Claim: A Markush claim refers to a chemical structure by means of symbols indicating substituent groups. In such a claim, one or more parts of the claimed compound comprise multiple functionally equivalent chemical entities. Markush type claims allow important innovations to be patented. For example, when a new organic compound, that has a novel structure never obtained before, is invented and can have many possible substituents that could be used, one can effectively group these possible substituents in a Markush type of claims. So, one can claim the basic structure along with substituents like halogens, alcohols, hydrocarbons, etc. However, such groups of compounds are allowable when supported by a single and definitive process.

Material Transfer Agreement (MTA): An agreement used for incoming and outgoing materials at the University describing the terms under which University researchers and outside researchers can share materials, typically for research or evaluation purposes.

N

Non-disclosure Agreements (NDAs): These agreements are often used to protect the confidentiality of an invention as it is being evaluated by potential licensees. NDAs also protect proprietary information of third parties that University researchers need to review in order to conduct research or evaluate research opportunities. Usually, are used prior to disclosing information to a company considering funding research and/or licensing technology.

O

Option Agreements: An option agreement typically gives a company the exclusive right to evaluate a technology for a short period of time prior to executing a full license agreement. In most cases, the option agreement provides for the company to reimburse UPR's patent expenses. Options may also include research funding and nominal fees.

P

Paris Convention: An agreement concluded in 1883 for the Protection of Industrial Property and updated several times since. It provides common rules between the member states for designs and other forms of intellectual property. A member state is often referred to as a Convention country.

Patent Agent/Patent Attorney: A registered person with Indian Patent Office whose name is entered in the patent agent register after being declared qualified the patent agent examination conducted by the patent office and who is entitled - (a) to practice before the Controller; and (b) to prepare all documents, transact all business and discharge such other functions as may be prescribed in connection with any proceeding before the Controller under this Act.

Patent Examiner: A federal employee who examines patent applications to determine whether a patent can be granted or not for various new inventions.

Patent Family: It includes all the equivalent patent applications corresponding to a single invention, covering different geographical regions Patent Law Treaty.

Patent Search: It is a search of all existing or publicly available information to determine whether an invention is new (novel) and whether persons with ordinary skill in the field could have deduced it (nonobvious). A patent search usually begins with a review of previously issued patents, and progresses to other types of documents, such as journal articles and scientific papers describing unpatented inventions. In other words it is part of your search for the Prior Art.

Preliminary Examination: The initial study of an application by an official in the patent office to check that the specification is properly arranged and for preparing search reports.

Preliminary Hearing: A hearing appointed to decide a point of procedure, usually in with notice (inter parties) proceedings.

Prior Art: It is any piece of information related to your invention that has been disclosed to the public in any form about before a given date. Prior Art can include patents within and outside the country, publications (documents, written articles), any public presentations, devices known, on sale, or used by the public, etc., related to or about the subject matter of your claimed invention.

Priority Date: A patent application may claim as a priority date the filing date of an earlier patent application provided that the earlier application was (i) filed in the previous 12 months, (ii) filed by the same applicant as the later application and (iii) filed in a Convention country. Thus the later application need not be made in the same country as the earlier one. In practice, this means that all patent applications filed in Convention countries in a single year by the same applicant and relating to the same subject matter can be given the same effective date

of filing. This effective date of filing is important when considering if the invention in the patent application is novel and inventive.

Provisional Patent Applications: Provisional filings enable Inventors to establish an early effective filing date in a non-provisional patent application, and allow Inventors to attach the term "Patent Pending" to their Inventions.

PTDL (Patent and Trademark Depository Library): A library designated by the United States Patent and Trademark Office (USPTO) to receive and house copies of United States patent and trademark materials, to make them available to the public, and to disseminate both patent and trademark information.

Publication: A patent application which is successfully granted will be published twice. The first time (A-publication) occurs around 18 months after the filing date of the application (or the priority date, if it has one). The application will generally be published "as filed". The second time (B-publication) occurs when the patent is granted, and publishes the application in its final form.

R

Renewal Fees: Once a patent is granted, annual renewal fees are payable to the Office to keep the patent in force. Under USPTO, it is known as maintenance fees.

Research Disclosure: Defensive-type publications which are published, often anonymously, to give companies and inventors "freedom of use" rather than legal protection. Once research disclosures are published the invention described cannot be patented.

Restorations: The proceedings by which a patent which has lapsed through failure to pay renewal fees may be restored.

Revocation: A process by which a granted patent can be annulled. This can happen because it is demonstrated that the patent does not satisfy one of the patentability criteria - but it can also occur for other reasons.

ROMARIN: It is the abbreviation of the International Trademark Information Database Read-Only-Memory of Madrid Active Registry Information. The database contains information regarding all international marks recorded under the Madrid system that are currently in force in the International Register or have expired within the past six months. It also includes data relating to international applications and subsequent designations that are still under the examination process within the International Bureau

S

Service Mark: This is same as a trademark except that it identifies and distinguishes the source of service rather than a product. It is a mark (as a name) used esp. in advertising to identify and distinguish services (as transportation) of one person from another and to indicate the source of the services.

Sole License: Only one license will be granted for the subject matter, but the owner (licensor) retains the ability to use the subject matters well.

Specification: In a patent application, the specification is where the inventor specifies, describes, illustrates, and discloses the invention in so much detail that one skilled in the art (experienced person) could understand and use that invention, without further experimentation.

Statement of Use: A sworn statement signed by a trademark applicant or a person authorized to sign on behalf of the applicant attesting to use of the mark in commerce.

Suggestive Mark: A mark that, when applied to the goods or services at issue, requires imagination, thought or perception to reach a conclusion as to the nature of those goods or services.

T

Trade Dress: Is the overall image of a product used in its marketing or sales, that is composed of the nonfunctional elements of its design, packaging, or labeling (as colors, package shape, or symbols). Trade dress is protected by the Trademark (Lanham) Act of 1946 if it is not a functional part of the product, has acquired secondary meaning, and there is likelihood of confusion as to the source of the product on the part of the consumer if a competing product has a similar trade dress.

Trademark Trial and Appeal Board: An administrative tribunal at the USPTO. It has jurisdiction over appeals from decisions of the Trademark Office, as well as opposition proceedings and cancellation proceedings.

U

Unregistered Community Design (UCD): It provides protection only against direct copying, and it is in force only for three years. It can be difficult to prove the right to an unregistered Community design.

Union pour la Protection des Obtentions Vegetals (UPOV): This stands for International Union for the protection of new varieties of plant, an international convention which provides a common basis for the examination of plant varieties in different member States of UPOV for determining whether a plant variety merits protection under UPOV or not.

Use-Based Application: There are four filing bases on which a trademark application may be based. One filing basis is use of the mark in commerce (the other three are filing based on an intent-to-use the mark in commerce, filing based on a pending foreign application, and filing based on a foreign registration). Applicants who file based on use in commerce must be using the mark they wish to register with the goods or services in the application prior to or at the time of filing the application.

United States Patent and Trademark Office (USPTO): It is the federal agency for granting U.S. patents and registering trademarks. The agency advises the president of the United States, the secretary of commerce, and U.S. government agencies on intellectual property (IP) policy, protection, and enforcement; and promotes the stronger and more effective IP protection around the world. The USPTO furthers effective IP protection for U.S. innovators and entrepreneurs worldwide by working with other agencies to secure strong IP provisions in free trade and other international agreements. It also provides training, education, and capacity building programs designed to foster respect for IP and encourage the development of strong IP enforcement regimes by U.S. trading partners.

Utility Patents: most patents fall into the utility patent category. Utility patents are subdivided into mechanical, electrical and chemical categories. In general, a utility patent protects the way an invention is used and works. Utility patents may be granted to anyone who invents or discovers a new and useful method, process, machine, device, article of manufacture, or composition of matter, or any new and useful improvement thereof.

V

The Vienna Agreement: the agreement establishes a classification of figurative trademarks. Images are classified according to 1-29 categories and their divisions and sections. For example, an image of a lion in a trademark belongs to an image class 3.1.1., category 3. animals, 1. quadrupeds, 1. lions.

W

WIPO (World Intellectual Property Organization): a specialized agency of the United Nations responsible for the promotion of the protection of intellectual property throughout the world and for the administration of various multilateral treaties dealing with the legal and administrative aspects of intellectual property: patents, copyrights, and trademarks.

Withdrawal of Application: An International Application can be withdrawn before technical preparations for international publication have been completed (that is, not later than 15 days before the date of publication, which is 18 months from the priority date).

Word Mark: a type of trademark comprised of text

Registered GI (Geographical Indications) under Agricultural Goods from Various Indian States

- * Andhra Pradesh : Guntur Sannam Chilli
- * Assam : Assam (Orthodox) Logo
- * Gujarat : Gir Kesar Mango, Bhalia Wheat
- * Himachal Pradesh : Kangra Tea
- * Karnataka : Coorg Orange, Mysore Betel Leaf, Nanjangud Banana, Mysore Jasmine, Udupi Jasmine, Hadagali Jasmine, Monsooned Malabar Arabica Coffee, Monsooned Malabar Robusta Coffee, Coorg Green Cardamom, Devanahalli Pomello, Appemidi Mango, Kamalapur Red Banana, Byadagi Chilli, Udupi Mattu Gulla Brinjal, Bangalore Blue Grapes
- * Kerala : Navara Rice, Palakkadan Matta Rice, Malabar Pepper, Alleppey Green Cardamom, Pokkali Rice, Vazhakulam Pineapple, Central Travancore Jaggery, Wayanad Jeerakasala Rice, Wayanad Gandhakasala Rice
- * Maharashtra : Mahabaleshwar Strawberry, Nashik Grapes
- * Nagaland : Naga Mircha
- * Orissa : Ganjam Kewda Rooh, Ganjam Kewda Flower
- * Rajasthan : Bikaneri Bhujia
- * Tamil Nadu : Virupakshi Hill Banana, Sirumalai Hill Banana, Madurai Malli
- * Uttar Pradesh : Allahabad Surkha, Mango Malihabadi Dusseheri, Kalanamak Rice
- * West Bengal : Darjeeling Tea (word & logo), Laxman Bhog Mango, Khirsapati (Himasagar) Mango, Fazli Mango grown in the district of Malda

Nodal Agencies Supporting IPR Facilitation, Technology Incubation and Funding

1. CII – Andhra Pradesh Technology Development & Promotion Center
1-11-252/9, Plot #7, Regal House, Motilal Nehru Nagar, Begumpet, Hyderabad-500016
Ph: 91-40- 27765837; Fax: 91-40- 27765836; Website: www.aptdc.com
2. Council of Scientific & Industrial Research
Anusandhan Bhavan 2, Rafi Marg, New Delhi - 110 001
Fax: (91 11) 3710618; E-mail: dgcsir@csirhq.ren.nic.in
3. Department of Industrial Policy & Promotion
Section Officer (DBA.II), Department of Industrial Policy & Promotion
Room No.457, Udyog Bhavan, New Delhi-110011
4. Department of Science & Technology
Technology Bhavan, New Mehrauli Road, New Delhi
Ph: 110+91-11-2656737; Fax: +91-11-6864570, 268624183, 26962819016;
Website: dstinfo@alpha.nic.in
5. Department of Science & Technology
Secretary, Technology Development Board, Technology Bhawan, New Mehrauli Road, New Delhi
Telephone No. 6516037, 6961583; Fax No. 6857643
6. National Research Development Corporation
20-22, Zamroodpur, Community Center, Kailash Colony Extension, New Delhi 110 048
Ph: +91-11-26419904, 26417821, 26480767, 26432627
Fax: 011-26460506, 26478010, 26231877
Website: www.nrdcindia.com; Email: write2@nrdcindia.com
7. Technology Information, Forecasting and Assessment Council (TIFAC)
Department of Science & Technology (DST), Technology Bhavan, New Mehrauli Road, New Delhi
Ph: +91-11- 26515420/26865475; Fax: +91-11-26515420/26863866
E-mail: tifacinfo@tifac.org.in
8. Technology Export Development Organization
C/o Confederation of Indian Industry, 249F, Udyog Vihar Phase IV, Sector 18, Gurgaon (Haryana)
Ph: 91-0124-8914060-67; Fax: 91-0124-8914080; Website: www.ciionline.org

Important Websites Related to IPR

Organization/ Agency	Website
Automated Recordation & Targeting for IPR Protection	ipr.icegate.gov.in
Copyright Office, India	http://copyright.gov.in
Department of Information Technology, India	www.mit.gov.in
E- Commerce portal of Central Board of Excise and Customs	http://www.icegate.gov.in
Intellectual Property Appellate Board, India	www.ipab.tn.nic.in
Intellectual Property Office, India	www.ipindia.nic.in
National Biodiversity Authority	http://nbaindia.org
Patent office, India	www.patentoffice.nic.in
Plant Varieties and Farmers' Rights Authority, India	www.plantauthority.gov.in
Semiconductor Integrated Circuits Layout-Design Registry (SICLDR)	http://www.mit.gov.in/content/office-semiconductor-integrated-circuits-layout-designregistry
The Indian IPR Foundation	www.nipo.in
World Intellectual Property Organisation	www.wipo.int
World Trade Organisation	http://www.wto.org

Bibliography

Ackerman, P. and Allaway, S. (2007). Introduction IP diligence is a constant, *Building and Enforcing IP Value*, Innovation Asset Group Inc., United States

Aggarwal, V. (2006). Jagadish chandra bose: the real inventor of marconi's wireless detector. *The Ancient Wireless Association Journal*, 47(3) pp. 50-54.

Andhra Pradesh Technology Development and Promotion Centre. (n.d). A Ready Reckoner: Fundamentals of IPR in India. Andhra Pradesh Technology Development and Promotion Centre Hyderabad. Available In: www.ibef.org/download/ready_reckoner_for_ipr_in_india.pdf

Barbara Kemp. Avoiding Plagiarism. In: *United States Naval Academy Official website* <http://libguides.usna.edu/content.php?pid=344689&sid=2846799> (1 January 2014).

Booth, W. C., Colomb G. G. and Williams, J. M. (1995). *The Craft of Research*. University of Chicago. p. 255

Davis, P. (2004). Can 'open science' be protectd from the evolving Regime of IPR protection. *J. Institutional and Theoretical Econ.*

Find Law Legal Dictionary. Available In: <http://dictionary.findlaw.com/legal-glossary/intellectual-property-law.html>

Joseph M. Williams and Gregopry G Colombo. *The Craft of Argument* (New York: Addison Wesley Longman, 2001), p. 164.

Manual of Patent Practice & Procedure, The Patent Office, India.

Muraguri, L. (2012). A balancing act: IPRs and public agriculture research. *Int. J. Technology Transfer and Commercialisation*, 11(1/2):88-109.

Senan, S. Haridas, M. G. and. Prajapati, J. B. (2011). Patenting of microorganisms in India: a point to ponder. *Current Science*, 100(2).

Srivastava, S. P. (2010). Patenting of Micro-Organisms in India: An Overview. Available In: www.legalserviceindia.com. Accessed on 31/12/2012



Institute Technology Management Unit (ITMU)
Indian Institute of Soil Science
Indian Council of Agricultural Research
Nabibagh, Berasia Road, Bhopal - 462038