Intellectual Property Rights Management and Its Growing Importance in Diversified Field of Technology in Context of Developing Countries

Our country is rich in genetic resources and traditional knowledge, which are of great value to us and to the world at large. But we have more or less failed to protect and exploit them. The area of management of Intellectual Property Rights (IPRs) has assumed a great significance in the present day world of explosive technological growth and developments. With the rapid growth in diversified fields of technology, and with the advent of new scientific inventions and innovations, the country's technological prospects and perspectives have to be redefined and one such important zone of globalisation and modernisation are IPR exploitation and IPR protection. This article is an attempt to identify the significance of IPR in today's modern and highly competitive world.

The subject of Intellectual Property Rights (IPRs) has assumed increased significance in global trade. The term "intellectual property" as a subject is growing in importance in a developing country like ours.

The IPRs and India

It is a well-known fact that the role of Intellectual Property (IP) protection has expanded at an unprecedented pace during the last two decades. In the process IP rights have been modified or new provisions have been created in order to cover new areas of Science & Technology, such as Information Technology, Biotechnology, and now service sector. It may be observed that World Trade Organization (WTO) agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) has extended minimum standards for IP Protection globally. There are continuing discussions in World Intellectual Property Organization (WIPO) aimed at further harmonisation of the Patent system. Moreover, agreements between Developed and Developing countries also include mutual commitments to implement IP regimes that go beyond TRIPS minimum standards. Hence, India is under pressure to increase the levels of IP protection in our own regime, based on standards in developed countries.

--*Mrs. A. Santosh Kumari and
****Dr. D. Raghunatha Reddy**
*(The authors are *Assistant Professor and **Associate Professor respectively at School of Management Studies, JNT University, Hyderabad. They can be reached at santhuadey1@yahoo.com and drreddy5@yahoo.com respectively)*

In one dimension it is observed that IPRs help stimulate economic growth and reduce poverty in developed countries, but the same concept may not do the same in developing countries. However, IP rights can do little to stimulate inventions in countries like India. The ownership of Intellectual property is a crucial issue that impacts market position and profitability of industries. India is realizing this fact and this is evident from India's number 3 position in Patent Cooperation Treaty (PCT) filings and its highest growth rate of 50% in the segment of developing countries. The changes in the IPR regime have necessitated technological self-reliance, as borrowing of technology from developed countries will no longer be economically viable.

Our country is rich in genetic resources and traditional knowledge, which are of great value to us and to the world at large but we lack desired efforts to protect and exploit them. Historically, developed countries used IP protection as a flexible instrument to help promote their industrialisation. Strong evidence suggests that certain types of companies in developed countries, par-

ticularly the pharmaceutical industry, consider IPR as essential in promoting innovation.

Intellectual Property (IP)

IP as a general term refers to the subject matter of the laws that give rise to proprietary interests in creations of the mind. That is, it refers to intangibles that arise and derive their intrinsic value out of innovative or creative activities. The various tools of IPR that are used to protect innovations are Copyrights, Industrial Designs, Data Protection, Geographical Indications, Patent and Trademark.

Copyright: It is concerned with Protection of creative works that are musical, literary, artistic, lectures, plays, art reproductions, models, photographs, computer software, etc. It is valid for the lifetime of the author and minimum 50 years after the death of the author. Copyright Issues are handled by Department of Book Promotion & Copyrights, Ministry of Human Resource Development. It is an important area of IP because it is one of the means of promoting, enriching and disseminating the national cultural heritage. India has a very strong and comprehensive copyright law. The 1999 amendments have made the Copyright Act fully compatible with Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. 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 copyright conventions i.e. the Berne Convention of 1886 and Universal Copyright Convention of 1952. India is also an active member of World Intellectual Property Organization (WIPO) and United Nations Educational, Scientific and Cultural Organization (UNESCO). Countries like India offer an abundance of cultural heritage to the world. These can be protected, within the framework of copyright legislation. Such protection is called the protection of neighbouring rights.

Patent: It pertains to pragmatic innovations and aims to protect inventions that are novel, non-obvious and useful. Patents are given only for inventions. Inventions are solutions to specific problems in the field of technology. An invention may relate to a product or a process. Patents have a term of 20 years from the date of filing a complete specification. In order to get a patent for an invention, the invention has to be patentable. India is most concerned for product patents, which bring food, drugs, and medicinal inventions into the purview of palatability.

Trademark: It is related to commercial symbols and concern to Protect distinctive marks (see figure: 1), such as words/signs including personal names, letters, numerals, figurative elements (logos); devices; visually perceptible two or three dimensional signs/shapes or their combinations; audible signs (sound marks) e.g. the cry of an animal or laughing sound of a baby; olfactory marks (smell marks), use of certain fragrance.

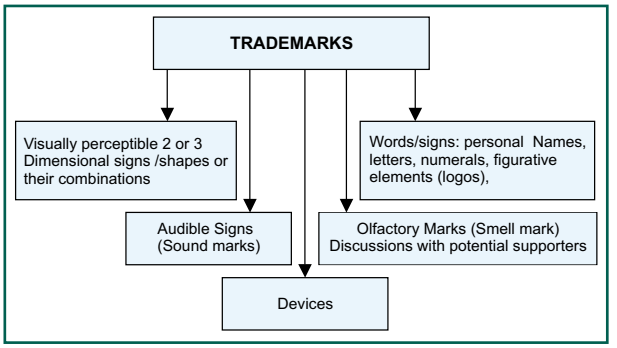


Figure 1: Components of Trademark

Some countries have also registered sounds and distinctive smells as trademarks. It can be perpetually renewed from time to time. Trademarks started to play an important role with the onset of industrialisation, and they have since become a key factor in the modern world of international trade and market-oriented economies.

The latest amendments also include the concept of 'service marks'. Service marks are trademarks used in the services sector like hotels, laundry, education, airlines, and IT enabled services. Interestingly, India has one of the most well advanced trademarks laws. India has

made a step towards fulfilling its international obligations. Consequently, the Indian trademark law has now become fully compatible with the International standards laid down in the TRIPs Agreement. The New Act primarily consolidates and amends the old Trade & Merchandise Marks Act, 1958 and provides for better protection of goods and services.

Industrial Designs: It protects novel non-functional features of shape, configuration, pattern, ornamentation or composition of lines or colours, applied to any article either two or three dimensional or in both forms by any industrial process or means whether manual, mechanical or chemical, separate or combined which in the finished article appeal to and are judged solely by the eye. This registration has a specific term (initially 10 years and renewable for another term of 10 years).

Geographical Indications (GI): Geographical Indications of Goods are defined as that aspect of industrial property, which refers to the country or to a place of origin of that product. Typically, such a name conveys an assurance of quality and distinctiveness of the product, which is essentially attributable to the fact of its origin in that defined geographical locality, region or country. The term is initially for a period of 10 years and can be renewed perpetually.

Before the TRIPs, GI was not protected in India. Since then, the enactment of a separate law 'the Geographical Indication of Goods (Registration & Protection) Act, 1999' addressing GI has given the necessary impetus to the effort of Indian exporters to protect GI attached to the goods.

GI could also be used, in certain instances, for products that incorporated traditional knowledge such as Indian NEEM, Tulsi, Haldi, Jamun, Kesar and so on. Such issues of GI are handled by Department of Industrial Policy & Promotion, Ministry of Commerce & Industry. GI can become a very powerful competitive tool for the communities to collectively get involved in the manufacturing and marketing of agricultural goods, foodstuff, handicrafts, traditional arts, etc. In India this area of IPR is not fully developed and exploited.

Data Protection: Concerning pharmaceutical and agricultural test data, it is related to Protection of undisclosed information such as Strategies and Trade secrets.

Discussion on various components/Tools of IPR that are used to Protect innovations won't be complete without a discussion on the way the ideas have converted into intellectual property and the way they can be efficiently managed—the process flow of Mind to Market.

Conversion of Concepts and Ideas to Intellectual Property

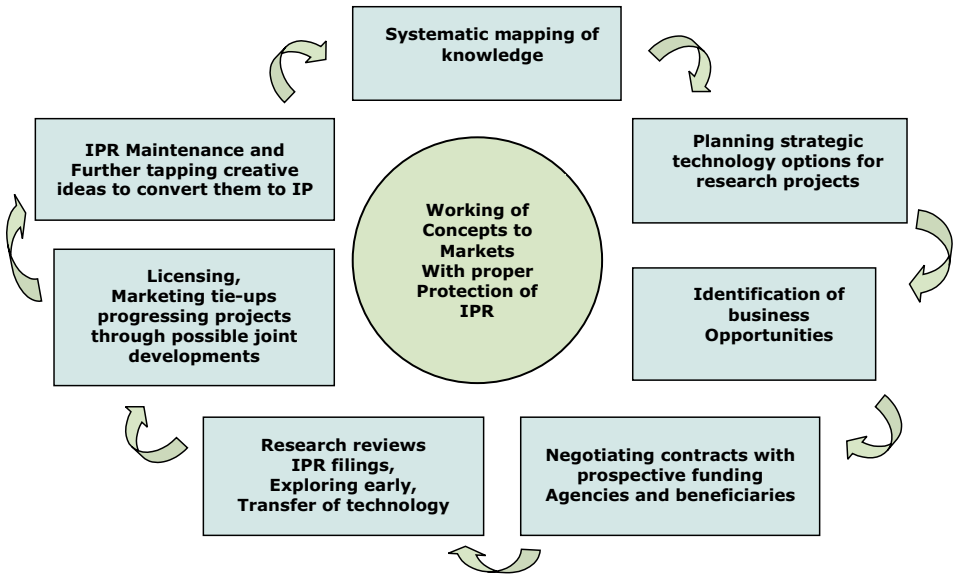


Figure 2: *Representation of the process of flow of mind to market, with proper protection of IPR*

Seven phases in the process of converting innovations/creative activities to intellectual property, thereby effectively converting them to intellectual assets that have a potential and realizable value, is shown in Figure: 2.

Systematic Mapping of Knowledge: This phase normally deals with the mapping of the creative ideas, interests and concepts based on the analyzed historical review of IPR literature.

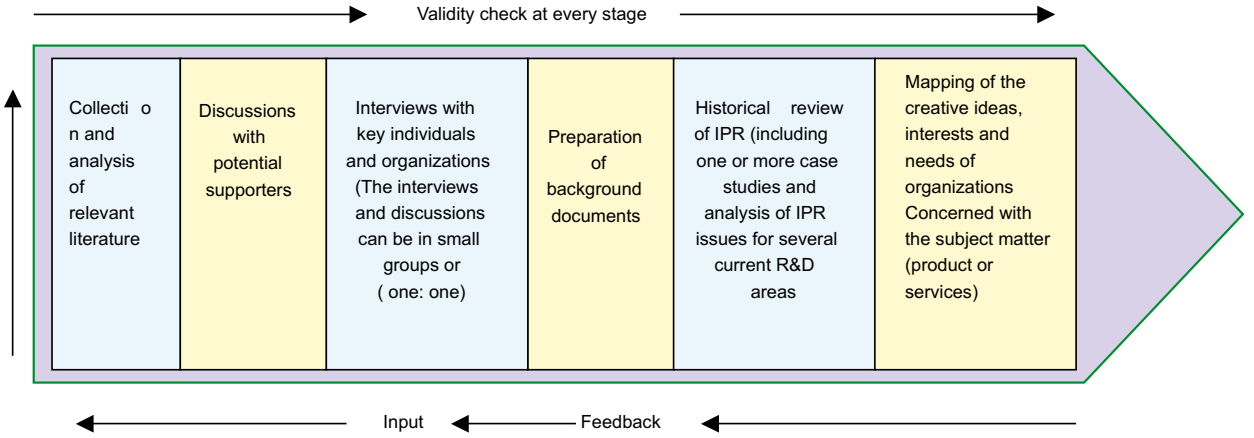


Figure 3: *Prerequisite to Mapping of Knowledge*

Planning strategic technology options for research projects: The changes in the IPR regime have necessitated technological self-reliance, as borrowing of technology from developed countries will no longer be economically viable. A significant amount of Industry-Institute partnership is happening in the country in varied sectors and areas. Partnerships between technology generators/developers, market/ business developers and financiers and government policy makers are emerging in order to translate knowledge into profitable commercial ventures. Hence, strategically one should opt for suitable Technology for selected research projects.

Identification of Business Opportunities: The low R&D costs and a vast pool of scientists/experts, the broad technology base and infrastructure for industrial growth coupled with natural resources give India a unique advantage of generating world-class technologies and IP. As it is widely observed, a nation-wide drive on Innovation is taking place and Indian companies are also embarking on Innovation on top priority. Identifying the right opportunity to engage with is what must be the concern here, at this moment.

Negotiating contracts with prospective funding agencies and beneficiaries: The fundamental tasks of research promoters and funding agencies such as WIPO, UNCTAD, WTO, World Bank are to sponsor advanced and additional research; provide advice, especially to developing countries, in international IP negotiations; and to integrate development objectives into its approach to the promotion of IP protection in developing countries. Therefore, entering into negotiating contracts with such agencies require great efforts and coordination. Funding generally depends on the quality of research and its use to the society.

Research reviews, IPR filings, exploring early transfer of technology: This is the stage where research projects are revived, monitored and evaluated. Activities like establishing technology transfer/liaison offices within the institution to structure knowledge transactions through licences, assignments must be taken up. Establishing links with global IPR Markets must be planned strategically.

Licensing, marketing tie-ups progressing projects through possible joint developments: The ownership of Intellectual property is a crucial issue that impacts market position and profitability of industries. India is realising this fact and this is evident as India is positioned as number 3 in PCT filings among top ten developing countries. IPR filing and licence applying is an important part of this process. After obtaining licence, IPR has to be protected by all means. Interestingly, joint ventures help in achieving international standards and working together ensures most innovative and advanced research.

IPR maintenance and further development: IPR has to be renewed from time to time to ensure the protection of the rights from any infringement. Companies should expand their programmes of IP-related technical assistance and raise the additional finances if required. Also, the system for monitoring and evaluation of IP-related development should be made stronger.

Multi-Pronged-Framework for Effective Creation and Management of IPRs

Coordination of the R&D activities of all units of a company is very important particularly in a manufacturing company. Proper coordination of process is required in the case of service sector. This objective can be achieved to a greater extent by effectively managing Intellectual Property Rights Information System (IPR-IS), because a large part of IP related work is document intensive and involves laborious tasks. Hence, significant amounts of IP work like Patent drafting; search, analysis, prosecution and litigation support can be made easy by proper documentation and maintenance of such documents.

Creation and Management of IP require a customized Internal System Plan based on the following framework.

Planning / Requirement Analysis	
•	Planning for intellectual property
•	Planning or Upgradation of IP Infrastructure
•	Defining internal policies
•	Thorough knowledge of National IP policy, and IP Legislation.
•	Patent Search, and Analysis
•	Developing Strategic framework for IP creation & Management
•	Cost-benefit Analysis
•	Identifying potential Donors and other Sources
•	Schedule of above activities
•	Strategy
Organising	
•	IP Committees for Research, Project Management, and Audit
•	Organising of Information Systems such as Decision Support System, Expert System, and Artificial Intelligence.
•	Technology options, Strategic options
•	Technical Assistance Team or Tie-ups with Expert group.
•	Alert checks
Execution and Coordination of activities related to	
•	Research
•	Formulation
•	Testing and Pre-Implementations
•	Implementation
•	Audit Trail
Controlling IP	
•	Maintenance of IP
•	Protection of IP
•	Development of IP
•	Audit Trail

Figure 4: *Representation of the Phases in Creation and Management of IP*

Management of IPR, therefore, involves innovation and IPR capability development with the creation and implementation of organisational IPR Policies through targeted IPR mind rooms within the organisation (See Figure 4). Planning process is the most important phase of this framework. All that it requires is patience, foresight, and sound ground work. Ultimately the result must be in tune with an innovation with likely demand.

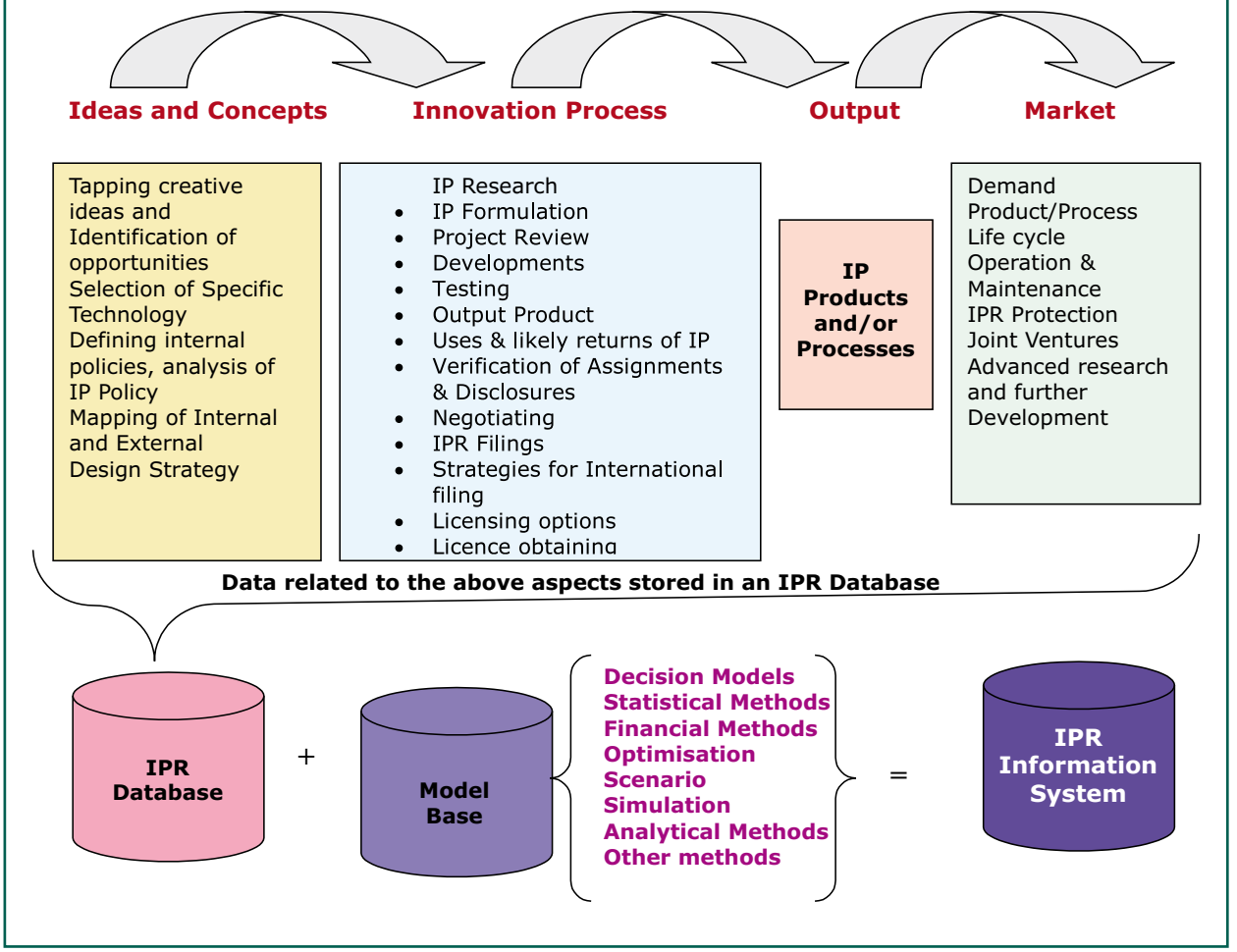
In the process, proper coordination and last but not least, Control of IP and its issues has been described in this Framework. IP Audit is a systematic review of the process of IP creation, owning, protecting, filing, acquiring and maintaining by a company. The goal of an IP audit is to identify all the IP rights owned or used by a corporation and consider appropriate ways to protect it from any form of infringement.

It also provides valuable information regarding possible infringement or breach on the part of the company or third parties in relation to the company's IP assets. From the managers' perspective, such an audit identifies company's core assets and allows the business to focus on them. This assists managers to determine strategy for growth and also to optimise output from the already existing array of IP rights owned and used. Hence, audit trail must be conducted at the end of each phase.

Effective Utilisation of IPR Information

Effective utilisation of IPR information in an organisation is very important. As represented

Figure 5: Intellectual Property Rights Management



in Figure 5, database is created based the facts and events happening in the process of creation and management of IPR. Such created database, when further processed, becomes information. Regular updating of IPR-IS (Intellectual Property Rights Information System) will ensure not only accurate, up-to-date, and valid information but also helps in taking accurate and prompt decisions.

The empirical data on international patent filing scenario with reference to five countries viz., Republic of Korea, China, India, South Africa and Singapore has been depicted in Table 1.

International Patent Applications filed by India

India deposited its instrument of accession to the Patent Cooperation Treaty (PCT) and is bound by Patent Co-operation treaty as 98th contracting State of PCT from December 7th 1998. Four out of the top ten PCT applicants for the year 2002 were from India.

Because of lack of high-end technology assistance, and sophisticated infrastructure, it is obvious that advanced research in India is lagging behind compared to the global scenario. Due to this reason, our country is increasingly going in for collaborative research with advanced countries.

Promotion & Protection of Innovation

As our country presently contributes just one percent to world trade in goods, for it to assume a greater role in the world economy, it will certainly need to demonstrate openness to trade and join hands with advanced countries to take-up advanced research and to protect and promote innovation.

The U.S. and the Confederation of Indian Industry co-sponsored the first-ever series of Indo-US seminars and workshops during April 26–May 10 in Delhi, Mumbai, Chennai, and Kolkata, which have examined the tangible benefits from improved IPR enforcement.

Table 1: Representation of the trends in (PCT) Filings by Top Five Developing Countries

	1995	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Rep. of Korea	196	306	305	510	870	1,580	2,324	2,250	2,949	3,556	4,422
China	103	123	166	348	277	784	1,731	1,018	1,295	1,704	2,501
India	**0**	**4**	**13**	**14**	**101**	**190**	**295**	**525**	**764**	**723**	**675**
South Africa	42	72	84	114	317	387	419	384	357	411	360
Singapore	26	35	80	125	168	222	288	330	282	431	441

Source: 1) WIPO Statistics, "Report on PTC filing", 2005
2) Manual Of Patent Practice And Procedure - Patent Office, India, 2005

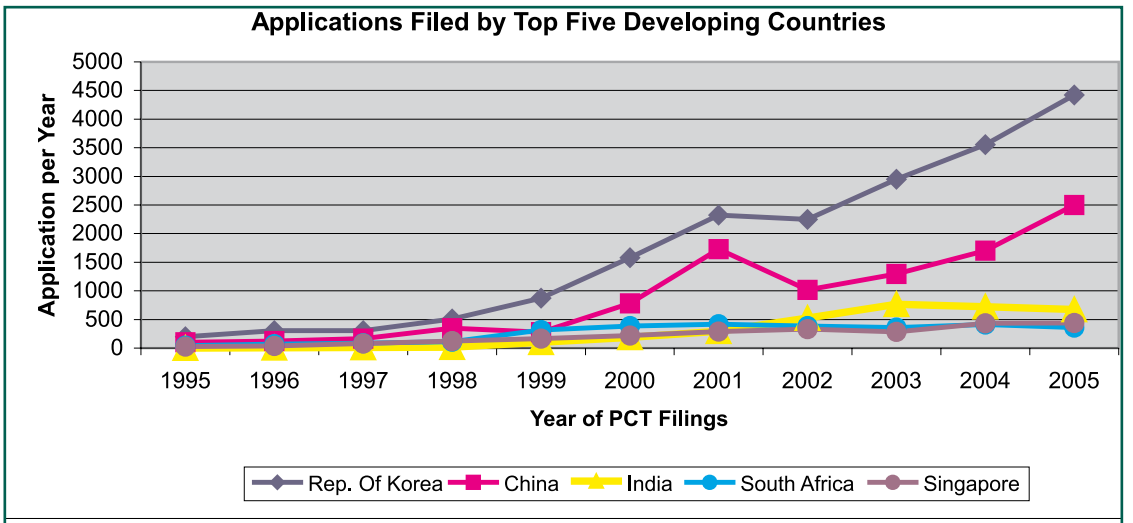
The above Table shows that, the PCT rankings of patents filed in the segment of developing countries. It is observed that Korea ranks 1, China ranks 2, India ranks 3, Singapore ranks 4 and South Africa ranks 5.

It is quite interesting to find that PCT filing from India had the highest growth rate up to 2003. No doubt on a lower base, but the growth rate shows an increase by 50% in 2002 and 45% in 2003. In 2004 and 2005 there was a decline in the growth line as seen in Figure 6. Korea is growing consistently at 10% per annum. China showed a de-growth at 30% in the year 2002 but picked up later in 2005.

The importance of IPR protection in the US-Indian relationship was underscored during US President George Bush's historic visit to India in early March-2006. In their joint statement, President Bush and Prime Minister Dr. Manmohan Singh agreed that the United States and India would work together to promote innovation, creativity and technological advancement by providing a vibrant intellectual property rights regime, and to cooperate in the field of Intellectual Property Rights to include Capacity Building Activities, Human Resource Development, and Public Awareness Programmes.

During the two visits, a number of important agreements were signed, initiating a

Figure 6: *PCT Applications filed by Top Five Developing Countries*



Source: Compiled based on 1) WIPO Statistics, "Report on PCT filing", 2005.
2) Manual Of Patent Practice And Procedure Patent Office, India., 2005

comprehensive program of cooperation between India and US in areas such as Science and Technology, Space Exploration, Development of Clean Fuel Technology, Democracy Building through the Democracy Fund, Health programs with funding of HIV/AIDS programs in India, as well as strategic cooperation in many areas.

Moreover, this is the right time for our country to enter into such joint ventures for advanced research, where India would gain strong technical assistance for creation and protection of IPR.

Conclusion

There is a distinct set of issues that arises in Management, Maintenance and Protection of IPR. Here, it is a challenge to design and operate institutional innovation processes that would preserve intellectual excellence and at the same time amicably fit into a disciplined formal IPR management system.

- Indian industries and R&D institutes have not really excelled in the area of innovation due to various factors. But new IP-Regime sounds really encouraging. Hence, there is a need for institutional innovation to be encouraged and motivated continuously.
- From the intuitional point of view, the major challenge is to develop and train techno legal manpower to manage critical issues in management of IPR.
- There is a need for awareness creation and awareness promotion, which can support entrepreneurs, inventors, and creators in not only creating the innovation but also protecting what they create and in making appropriate wealth out of what they create.
- Government must think of setting-up required number of advisory body/council in order to render services regarding IPR information, protection, and further development.
- Developing countries, particularly India, require more sophisticated technologies to be competitive in today's global economy. For which we need to give serious consideration to our policies for encouraging technology transfer. In addition to this, effective competitive policies must be established.
- With growing pharmaceutical, software and entertainment industries, India has much to gain from implementing a more robust IPR regime. Increased intellectual property protection would boost bilateral trade and investment with the United States. Hi-tech trade and collaborative research and development are growing, but there is a need to do it faster. ❐