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Capacity Building in Management of Intellectual Property Rights- A Case of Publicly Funded Institutions

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The paper primarily focuses on the role of government in capacity building in India. Publicly funded institutions in India are driven by social obligations rather than economic considerations. Though this approach has created a pool of highly educated people at the same time being an insulated system, it breeds complacency leading to very little development in the IP scenario. However, post WTO, several useful changes have taken place and the Indian system has risen to the challenge of TRIPS compliance by enacting new legislations. With the far-reaching effects of IPR, capacity building is a primary activity and the role of the government in capacity building in management of IPR is fundamental and of utmost importance. No exercise at the national level can succeed if all or most players are not engaged in the activity. The Patent Facilitating Cell at Technology Forecasting and Assessment Council (TIFAC) set up by the Department of Science and Technology, India, addresses this very need of awareness creation among scientists and also provides full technical, legal and financial support for inventors from educational institutions and government departments.

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Aims of publicly funded institutions such as universities, colleges, autonomous bodies and public sector undertakings are multifaceted: not purely driven by economic considerations but by considerations of social obligations and political objectives and will of a nation. India has stuck to these aims since independence. On one hand, the above approach has helped in creating a pool of highly educated population and also building an inherent strength in research and development and core competency in basic industries like steel, power, fertilizers, etc. However on the other hand, an insulated system breeds complacency, which blunts the spirit of innovation and fire to be ahead of others. Globalization has taught many new lessons by opening our eyes to the existing and forthcoming ground realities, which cannot be shunned away just because we do not happen to like them. These realities are going to stay. The likely impacts of globalization started becoming a part of our age old thought process and life style when India decided to become a member of the World Trade Organization.

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Since the beginning of 1990s, new approaches started taking roots in respect of such institutions, especially related to their management and source of funding. It has been observed that educational and research and development (R&D) institutions are being asked to generate their own funds and depend less and less on block grants by central or state governments. In respect of public sector units (PSU) the message has been to generate more and more revenue from the available resources. The Central Government was quick to understand the importance of innovations and new ideas for adjusting to new streams of paradigm shifts. The Government also realized that the journey is not going to be smooth, easy or straight forward in the absence of knowledge about new paradigms among scientists, technologists and policy makers. On 1 January 1995, the full impact of WTO along with the Agreement of Trade Related Aspects of Intellectual Property Rights (TRIPS) was felt. The Indian system rose to the new challenge and through its many efforts have taken successful steps towards transition to a new culture by updating its existing laws, enacting new legislations, instituting new mechanisms for enabling creation of new intellectual property and its protection and even evolving novel

methods and schemes to promote innovations at grass roots levels. Managing creativity within the innovation process is not easy. From providing initial impetus for new ideas and a means of collating and evaluating them through to determining the most appropriate exploitation strategy and selecting delivery partners, innovation is a process and can therefore be managed.

Indian S&T Scenario[1]

The national expenditure on R&D in India increased from Rs 8913.61 crores in 1996-97 to Rs 12901.54 crores in 1998-99. The share of the various sectors in the total R&D expenditure in 1998-99 was—Central Government including public sector industry contributed 67.5%, private sector 21.6%, state governments 8.0% and the higher education sector 2.9%.

The R&D expenditure as a percentage of GNP was 0.81% as compared to 0.79% in 1990-91. Though in absolute terms, the R&D expenditure has shown an increasing trend, the R&D expenditure as a percentage of GNP has hovered around 0.8%. The projected R&D expenditure as percentage of GNP in 1999-2000 and 2000-2001 are 0.87% and 0.94% respectively. It may be noted that in the coming years, R&D expenses by the education sector is likely to go up as the academic institutions interact more and more with the industry and are thereby motivated to spend their own resources in R&D. As greater awareness about protecting intellectual property gets generated in industry and academics, contract research would necessarily be driven by the need to generate, protect and manage intellectual property rights (IPR). This trend will leverage more funds in R&D and improve the return from investment in R&D.

The national R&D expenditure by objectives in 1998-99 was in the areas, in order of the share of the expenditure, agriculture forestry and fishing, defence, space, promotion of industrial development, development of health services, energy, general advancement of knowledge, transport and communication and environment. It may be noted that majority of funding for R&D comes from the Government and is carried out in publicly funded institutions. Therefore the role of the government in capacity building in management of IPR is fundamental and of utmost importance.

Capacity Building

Experts who have been involved in capacity building in different areas would agree that the exercise of capacity building is never monolithic in nature but a multidimensional and complex activity. No exercise at a national level can succeed if all or most players are not engaged in the activity. IPR are often considered synonym of patents or at best patents, trademark and copyrights. Sometimes people even use the word 'patent' as a substitute for 'protect'. Lets not forget that India is a big country and the task of spreading literacy is gigantic. Dissemination of new knowledge is difficult and it cannot be disseminated in a day or two; hence one should be prepared to work with low success rates. At the same time, the need to make efforts for spreading correct literacy in a short period of time cannot be overlooked. Awareness still remains an unfulfilled goal in spite of efforts made by so many agencies. There is a need to adopt different means such as contact programmes, print media, bulletins, Internet, videos, etc. Awareness by itself is of little use if the State does not create and provide suitable systems to enable scientists, technologists, industries and even the State itself to protect their rights. These means would be in terms of technical guidance, financial support, legal help and other facilitation steps. If you teach scientists that novelty is one of the key factors for getting a patent and do not supply them with adequate tools to determine if their inventions are novel or not, the awareness will be of little value. Universities in India are very poor and their management systems are very old. Therefore, they need technical, financial and legal help to move ahead.

Capacity building has to be multifaceted at the national level in order to move and remain ahead in the knowledge race. Academic institutions, R&D institutions, industries (goods and services), government departments and ministries (law making, regulating, providing funds and incentives for research etc) and other agencies, attorney firms, courts and NGOs need to be enabled and empowered for playing a constructive role in the process of capacity building. Policy frameworks are essential in the national context to give the right impetus to the activities already started and also provide a broad platform for taking up future activities.

Many of these issues have been addressed quite successfully in the last ten years by different agencies of the government. While departments like Atomic Energy, Space and DRDO and agencies like CSIR have their in house system for looking after their

needs of IPR, there was no agency in the country until 1995, which could cut across departments and agencies and become a national nodal point for information and advice on IPR.

Patent Facilitating Centre (PFC)

The Department of Science and Technology set up the Patent Facilitating Centre at the Technology Information Forecasting and Assessment Council (TIFAC) in 1995 as a small initiative to address the need of awareness creation among scientists, helping them to protect their inventive and original work through IP laws and also act as a watch dog. The PFC came to be known for its capability to raise issues and bringing new information and knowledge about IPR in public domain. Starting with the revelation of the turmeric patent to the whole country, it brought to notice many other patents using some of our well-known plants and traditional knowledge. The days of Dunkel Draft on WTO became history with PFC putting IPR matters in public domain freely through its monthly IPR Bulletin since November 1995. These bulletins cover technical analysis of granted patents, case laws, current global issues, IPR laws of India and other countries, international treaties, analysis of patents tends, domestic and international news and many other items of interest to a wide variety of readers.

The PFC has organized 275 IPR awareness workshops all over the country independently and also in association with Ministry of Small Scale Industries, Department of Atomic Energy, Department of Space and Indian Council of Medical Research. In the process almost 30000 scientists, technologists and policy makers have been sensitized from about 500 universities, colleges and R&D institutions and 800 industries. The PFC has been organizing advanced level of training programmes with the Confederation of Indian Industry and attorney firms and also workshops on topics such as public-private partnership in IPR management. The Ministry of Human Resource Development (MHRD) has also been supporting workshops on IPR. Further, the MHRD has created 11 IPR chairs in various IITs and universities. The Ministry of Commerce and Industry has also been conducting many seminars and workshops on this topic for the last decade or so. As mentioned earlier, these efforts have to be supplemented with some hardcore products and processes to lead to logical conclusions/output. Indian patent data was not available in a searchable digital form. People in the field realize that it is almost impossible to search for patents from the gazette. The PFC brought out Ekaswa A and Ekaswa B databases on the patent applications filed in India and the patent applications accepted by the Patent Office. These are available on the Internet as well and are being used extensively by industries.

Twenty Patent Information Centres (PIC) have been set up by PFC in 20 states in India. These PICs are helping scientists, technologists and policy makers in their respective States by creating awareness and extending help for protecting their inventions. Some States as a result of continuous discussions have filed applications for registration of some products as geographical indication. Two PICs, namely, Punjab and West Bengal, have also succeeded in introducing IPR courses in technical institutions; other PICs are working hard towards this goal.

The PFC is the only window available in the country, which provides full technical, legal and financial support for inventions emanating from educational institutions, including schools and colleges, and government departments. It has so far filed 260 patent applications in India and other countries from about 55 universities/academic institutions and many of them have been granted.

Other Centres/Cells

Many government departments, educational institutions and PSU have started their IPR cells. Prominent among the government departments/ agencies are: Department of Biotechnology, Ministry of Telecommunications and Information Technology, Indian Council of Medical Research, Indian Council of Agricultural Research, Indian Space Research Organisation, Department of Atomic Energy, Defence Research and Development Organization and Indian Council of Forest Research. IITs at Delhi, Mumbai, Kharagpur and Roorkee, have also set up their cells and evolved their IPR policies. Among the PSUs, Indian Oil Corporation and Bharat Heavy Electricals Ltd are worth mentioning. Among private industries, there are many industries, which have started their own IPR cells and it may not be possible to list all of them here. There is no doubt that private industries have responded very well to the new IPR regime in terms of filing patent applications.

First Policy Breakthrough[2]

Ministry of Science and Technology issued the guidelines "Instructions for Technology Transfer and Intellectual Property Rights" in March 2000, which would help in enhancing the motivation of scientists, research institutions and universities in projects funded by the Department of Science and Technology, Department of Biotechnology, Department of Scientific and Industrial Research and Department of Ocean Development. The salient features of the guidelines are

(1) Institutions shall be encouraged to seek protection of IPR in respect of the results of R&D. They may retain the ownership of such IPR. Here `institutions' mean any technical, scientific or academic establishment where research is carried out through funding by the central and/or the state governments.

(2) The institutions shall take necessary steps to commercially exploit patents on exclusive or on non-exclusive basis.

(3) The owner institution is permitted to retain the benefits and earnings generated out of the IPR. The institution may determine the share of inventor(s) and other persons from such actual earnings. However, such share shall be limited to one third of the actual earnings.

(4) IPR generated through joint research by institution(s) and industrial concern(s) through joint efforts can be owned jointly by them or as may be mutually agreed to by them through a written agreement. The institution and industrial concern may transfer the technology to a third party for commercialisation on exclusive/non-exclusive basis. The third party, exclusively licensed to market the innovation in India, must manufacture the product in India. The joint owners may share the benefits and earnings arising out of commercial exploitation of IPR.

(5) The owner institution shall set apart not less than 25% of the revenue generated from IPR to create a Patent Facilitating Fund which shall be utilized by the institution for updating inventions, filing new patent applications and protecting IP rights against infringement, and for building competency in the area of IPR and related issues.

(6) The Government shall have a royalty free license for the use of the intellectual property for the purposes of the Government of India.

This is a major departure in the approach and policy towards managing inventions in India by the Ministry of Science and Technology. In order to have a uniform policy of the government in this respect, it may be useful to have a suitable law in this regard. It is obvious that with more and more autonomy to research institutions in regard to IPR and technology transfer, these institutions, and the scientists working there, would have stronger motivation to invent products and processes, which are required by the market.

Innovations Related Incentives[3]

An innovative industry in India can gain competitive advantage in the market if it develops the necessary expertise and skills in developing and manufacturing new products, which are patented. For example, the advantage of a three year excise duty exemption or exemption from Drugs Price Control Order may translate into reserves/income which may offset the cost towards R&D. In order to promote R&D and innovation in Indian industries, Government of India provides a number of fiscal incentives and support measures to industries. With increasing public-private partnership in technology development through schemes of Technology Development Board, Drug and Pharmaceutical Board and New Millenium Indian Technology Leadership Initiative (NMITLI), the following incentives would be extremely useful in promoting the culture of innovation and intellectual property protection in industries and academic and R&D institutions.

Excise Duty Waiver on Patented Products

All goods falling under the Schedule to the Central Excise Tariff 1985 are exempt from the excise duty for a period of 3 years from the date of commencement of commercial production provided such goods are manufactured by a wholly owned Indian company and such goods are designed and developed by such Indian company and the goods so designed are patented in any two countries outside India, namely, USA, Japan and any country of the European Union. The manufacturer, before commencing commercial production must obtain a certificate from the Department of Scientific and Industrial Research for claiming the benefit.

Exemption from Drug Price Control Order

Bulk drugs produced based on indigenous R&D are exempt from drug price control for a period of 5 years from the date of commencement of commercial production provided that they are produced from the basic stage by a process of manufacture developed by the unit through its own R&D efforts. In case of a drug, which has not been produced elsewhere, if developed and produced indigenously, it would be placed outside the price control order for a period of 10 years from the date of commencement of commercial production. In order to establish that a process or a product has been developed through indigenous R&D, novelty of the process or product would have to be ensured. In other words, a patent would have to be necessarily obtained for claiming the benefit.

Weighted Tax Deduction on R&D Expenditure

Weighted tax deduction @ 150% on R&D expenditure is available to companies engaged in the business of biotechnology, or the business of manufacture or production of drugs, pharmaceuticals, electronic equipment, computers, telecommunication equipment, chemicals and manufacture of aircraft and helicopters. The expenditure on scientific research in relation to drugs and pharmaceuticals, shall include expenditure incurred on clinical trials of drugs, obtaining approval from the regulatory authority under any Central, State or provincial Act and the filing of a patent application in India.

Accelerated Depreciation Allowance

Depreciation allowance at a higher rate is available in respect of plant and machinery installed for manufacturing goods based on indigenous technology developed in recognized in-house R&D units, Government R&D institutions, national laboratories and scientific and industrial organizations (SIRO). The present rate of depreciation for allowance of such plant and machinery is 40% as against 25% for other plants and machinery.

Tax holiday to R&D companies

Tax holiday is available to approved companies engaged in scientific and industrial R&D activities on commercial lines for ten consecutive assessment years. This incentive is applicable to any commercial company that has its main objective and activities in the area of scientific and industrial R&D.

Income Tax Relief on R&D Expenditure

Under Section 35(1)(i) of the Income Tax Act 1961, the revenue expenditure on scientific research, by recognized R&D units, on activities related to the business of the company is allowed full deduction. Under Section 35(1)(iv) expenses of a capital nature could be deducted totally from the income of the year in which the expenses have been incurred.

Tax Deduction for Sponsoring Research

Section 35(2AA) of the IT Act 1961 provides for a weighted tax deduction of 125% for expenses on sponsoring research programmes at national laboratories functioning under ICAR, CSIR, ICMR, DRDO, Department of Biotechnology, Department of Atomic Energy, Department of Electronics; IIT and universities.

The Science and Technology Policy 2003[4]

The Science and Technology Policy, released in 2003, is upbeat on IPR and related issues. It focuses a great deal on the transformation of new ideas into commercial successes, which is considered vitally important to the nation's ability to achieve high economic growth and global competitiveness. Accordingly, special emphasis will be given not only to R&D and the technological factors of innovations but also to the other equally important social, institutional and market factors. Value addition and creation of wealth through reassessment, redistribution and repositioning of our intellectual, capital and material resource will be achieved through effective use of science and technology.

The Policy states that IPR has to be viewed, not as a self contained and distinct domain, but rather as an effective policy instrument that would be relevant to wide ranging socio-economic, technological and political concepts. The generation and protection of competitive intellectual property from Indian R&D programmes will be encouraged and promoted. The process of globalization is leading to situations where collective knowledge of societies normally used for common good is converted to a proprietary knowledge for the commercial profit of a few. Action will be taken to protect our indigenous knowledge systems, primarily through national policies, supplemented by supportive international action. For this purpose, IPR systems, which specially protect scientific discoveries and technological innovations arising out of such traditional knowledge will be designed and implemented. Our legislation with

regard to patents, copyrights and other forms of IPR will ensure that maximum incentives are provided for individual inventors, and to our scientific and technological community, to undertake large scale and rapid commercialization, at home and abroad.

The development of skills and competence to manage IPR and to leverage its influence will be given a major thrust. This area calls for significant technological insights and legal expertise and will be handled differently from the present, and with high priority. Efforts will be made to establish synergy between industry and scientific research by creating Autonomous Technology Transfer Organizations as associate organizations of universities and national laboratories to facilitate the transfer to industry, of the know how generated.

The above action strategy has emerged from the following policy objectives:

> –To encourage research and innovation in areas of relevance for the economy and the society, particularly, by promoting close and productive interaction between private and public institutions in science and technology;
>
> –To establish an IPR regime, which maximizes the incentives for the generation and protection of intellectual property by all types of inventors. The regime would also provide a strong, supportive and comprehensive policy environment for speedy and effective domestic commercialization of such inventions so as to be maximal in the public interest and to promote international science and technology cooperation towards achieving the goals of national development and security, and make it a key element of our international relations.

The Policy objectives in regard to IPR were formulated with the overall perspective that knowledge has become a source of economic might and power. This has led to increased restrictions on sharing of knowledge, to new norms of intellectual property rights, and to global trade and technology control regimes. Scientific and technological developments today also have deep ethical, legal and social implications. There are deep concerns in society about these. The ongoing globalization and the intensely competitive environment have left a significant impact on the production and service sectors.

Experience of Indian Universities[5, 6]

Until 1995, the culture of protecting their inventive work through patents by universities and academic institutions was almost nonexistent. Efforts made by multiple agencies in the country have made some difference in the situation, which is obvious from the data and analysis given in table 1.

It can be seen from the table 2 that out of 132 patent applications filed during 1999-2002 by institutions other than IITs and IISc, 53 applications (40% of the applications) were filed with full technical, legal and financial support of the PFC of TIFAC.

While discussing IPR in the context of universities, one cannot but refer to the US experience, which has now become a role model for many countries. Commercialization of inventions from universities in a perceptible manner took time before becoming a reality to be reckoned by planners. There has been a paradigm shift in policies with regard to licensing of intellectual property generated at universities. Most experts feel that it was the Bayh-Dole Act, which brought about a revolutionary change meaning thereby that it was the economic incentive, provided to universities through this Act, which propelled this growth.

Table 1— Patents filed by academic institutions in India

Year	Number of patent applications filed by academic institutes other than IITs and IISc	Number of patent applications filed by IITs and IISc	Total number of patent applications
1995	4	31	35
1996	11	18	29
1997	23	15	38
1998	16	34	50
1999	30	32	62
2000	36	42	78
2001	33	63	96
2002	33	46	79

Table 2—The growth in filings in two blocks of four years; 1995-1998 and 1999-2002

Block period	Applications filed during 1995-1998	Applications filed during 1999-2002	Percentage increase in number of applications filed
Academic institutes other than IITs and IISc	54	132	244
IITs and IISc	98	183	187
Total	152	207	315

From 1991 to 2003, the US universities spent almost $310 billion on research leading to 139830 disclosures, 61,507 US patent applications (32026 granted), 41597 licenses and 4694 start-ups. A large percentage of licenses and start-ups are still active. It is interesting to note that 68% of the research funding in MIT had come from the Federal Government in 1996 and only 18% had come from the industry. The share of the US Government in research spending at MIT is expected to be about 79% in 2005[7].

Whether a legislative framework would benefit the publicly funded institutions in India in enhancing their creativity cannot be answered with certainty. The data so far available does not permit to draw definite conclusions. At the same time, prima facie, utility of legislation cannot be questioned based on the US experience, because US universities were deep into the innovation process and also more than familiar with protecting their innovations before the Bayh-Dole Act came into force. The Act allowed the universities and non-profit organizations to own intellectual property and transfer/license intellectual property and associated technologies emanating from projects funded by the federal government. These organizations were also allowed to retain the revenue accruing from licensing and transfer of technology. The Indian universities are at a nascent stage in the innovation process and managing their intellectual property. Unlike the US universities, the Indian universities do not even have money to adequately protect their intellectual property. Therefore, a Bayh-Dole type of legislation will show results only after some time in India.

Conclusion

With the advent of the new knowledge economy, the old and some of the existing management constructs and approaches would have to change. The knowledge economy places a tag of urgency on understanding and managing knowledge based assets such as innovations and know-how. The time for grasping knowledge has become an important parameter for determining the success of an institution, enterprise, government and industry; the shorter the time, better are the chances of success. A statement of purpose (SOP) is always helpful in fixing targets and goals because fulfillment of a purpose is satisfying. We have to have an SOP to develop a pool of well informed and trained human resource, deploy sufficient facilities (hardware and software) and, create and promote an enabling environment for generating, protecting and managing intellectual property for progress of science, technology and arts leading to growth of trade and industry and well being of the society.

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