

National IPR Policy and Innovation^{*}

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Introduction

The Government of India announced its first National Intellectual Property Rights Policy (IPR Policy) on 12 May 2016. The IPR Policy is the outcome of the process that the Government had initiated by setting up the 'IPR Think Tank' (the 'Think Tank') in 2014. The policy was finalised after intense debates, discussions and consultations on the draft National IPR Policy which the Think Tank had prepared in December 2014.

Major Features of the IPR Policy

The main objective of the IPR Policy, as reflected in the Vision and Mission statements, is to create a dynamic, vibrant and balanced IPR system in India. It aims to use the IPR system as a means for stimulating creativity and innovation and for promoting advancement in science and technology, arts and culture, traditional knowledge and biological resources. The Policy visualises an India where knowledge is the main driver of development. It proposes various measures to realise these goals - generation of more IPs in India, strengthening of IPR enforcement and adjudication mechanisms, improving the administration of IPR laws and encouraging commercialisation of IPs.

Commercialisation of IPs is an important aspect of the IPR Policy. Through conversion of IPs into marketable products, IPs would acquire economic value which would help the IPR holder to raise funds for further generation of knowledge. Innovation, the process which converts an idea or invention into a commercial product, is thus implied in the Policy. However, it does not specify how IPRs would be used as a means of stimulating innovation. This is particularly important because the relationship between IPRs and innovation is a highly contested one. This policy brief seeks to analyse critically the relationship between innovation and IPRs with a view to understand the implications of the IPR Policy for India.

Innovation and IPRs

The IPR Policy assumes that ideas protected by IPRs get invariably converted into marketable products and services and thus IPs acquire financial values. However, mere assigning of IPRs to new ideas need not result in new products or services. If this strength of the IPR regime was so critical for promoting innovation, India should have been flooded with innovative drugs in the pre-1970 period when the country allowed product patents in pharmaceuticals. But India had to wait till the introduction of the *Patents Act, 1970* which allowed only process patents in pharmaceuticals and that too with a reduced period of protection to make modern life saving drugs available in the country. While the *Patents Act, 1970* played a significant role in the

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emergence of a strong generic pharmaceutical industry in India, it was the innovation ecosystem created in India by the Government, public sector pharma industry and universities that actually helped innovations to happen in the field of pharmaceuticals.

The Indian Drugs and Pharmaceuticals Ltd. (IDPL) and Hindustan Antibiotics Ltd. (HAL), two public sector pharma companies in India, obtained medical technologies from foreign countries, international organisations such as WHO and foreign companies. Government encouraged and facilitated the transfer of technologies between these two companies. When the technology collaboration agreements these two firms had with their foreign collaborators prohibited transfer of technologies between them, the Government found solution by transferring technologists from one company to the other. When Merck & Co. of US which provided the technology for *streptomycin* to HAL objected to the sharing of the technology with IDPL and the Soviet Union (USSR) strongly objected to the application of technology of Merck & Co. in IDPL, the Government appointed a senior technologist of HAL to work in IDPL's antibiotics plant (Parthasarathy 2007). The technologies developed in these public sector firms got transferred not only between them but also to the private sector through movement of people. Dr. Anji Reddy, the founder of Indian's leading pharma firm Dr. Reddy's Laboratories, had worked in IDPL. Contribution of public sector companies in the development of human capital and business development is noteworthy. They engaged with universities for development of syllabus to provide specialised training required for pharma sector. They created demand not only for skilled labour but also for specialised capital and other services for the development of upstream and downstream businesses (Smith 2000). It was this dynamism that led to the creation of a bulk drug manufacturing industry in Hyderabad where the synthetic drug plant of IDPL was located (Chaudhuri 2005). Innovation is an outcome of the harmonious interplay between a gamut of agencies and the role of IPR regime in it is still not very clear.

Studies conducted in the United States (US) in the 1980s showed that patents were effective as a means of protecting innovations only in selected sectors such as pharmaceuticals and chemicals¹. However, the evidence coming out of late, from advanced countries such as the US, shows that proliferation of patents is in fact hampering innovation. The Science, Technology, and Economic Policy Board of the National Research Council of the US noted that "proliferation of upstream patents on scientific discoveries, especially in biomedical science, could impede research"². The US, which probably has the most expansive patent system in the world, is now facing the threat of lack of innovations in critical areas of medical care—antibiotics. The US Food and Drug Administration had approved 16 new antibiotics during 1983-87, but it could approve only two new antibiotics during 2008-2012. The pipeline of new antibiotics steadily declined over the period of last three decades due to a variety of reasons such as scientific challenges in discovering and developing new drugs and low economic returns that antibiotics fetch compared to drugs in other therapeutic areas such as cancer. It is striking to note that the US President's Council of Advisors on Science and Technology which dwelt on possible mechanisms to encourage innovations in the antibiotics area, recommended 'prizes' as an incentivising

¹ See, Levin, R. C., A. K. Klevorick, R. R. Nelson, and Winter, S.G. (1987), 'Appropriating the Returns from Industrial R&D', *Brooking Papers in Economic Activity*, 3: 783–820 and Mansfield, Edwin (1986), 'Patents and Innovation: An Empirical Study', *Management Science*, 32(2): 173–81.

² Quoted in the National Science Board, *Science and Engineering Indicators 2006*, <http://www.nsf.gov/statistics/seind06/pdf/volume1.pdf>

mechanism and not further expansion of patent rights³. Thus, as the relationship between IPRs and innovation is not clear, it is not advisable for India to emphasise on IPRs as a means of promoting innovation in the country.

When it comes to the specifics, the IPR policy focuses heavily on protection and enforcement of IPRs. Overemphasis on this dimension of IPRs can adversely affect innovation by curtailing the flow of knowledge. Publications are the most important channel for the dissemination of knowledge. The Policy proposition which links career advancement and funding opportunities available to researchers with acquisition of IPRs will result in the diversion of their energies into the acquisition of IPRs rather than using them for disseminating their knowledge through publications. Strong IPR protection and enforcement could indeed become a liability, if the ecosystem is not conducive for innovation. A conducive innovation ecosystem is critical for innovations to happen, as we have seen in the case of the pharmaceutical sector of India. In the absence of such an ecosystem, the IPs will remain as such and the protection and enforcement of IPRs will become a financial liability.

Need to Identify the Missing Links in the Innovation Ecosystem in India

Investment in R&D is an important indicator for assessing the quality of the innovation ecosystem of a country. In a country where the innovation ecosystem is good, the R&D investment will be higher. The R&D expenditure in India was 0.9 per cent of GDP in the mid-1980s. Even after the introduction of economic reforms and modification of intellectual property rights regimes in the country, the share has not increased. China which had the same level of R&D investment in the 1980s and which had a poor record in IP protection increased it to more than 2 per cent of GDP by 2013. Brazil also spends 1.21 per cent of GDP on R&D. Lack of growth in R&D investment in India could be a pointer to the critical missing link in the innovation ecosystem in India.

Gross Expenditure (Domestic) on R&D as Percentage of GDP of Selected Countries

<i>Country</i>	<i>Ratio (%)</i>
Israel	4.21
South Korea	4.15
Japan	3.47
Sweden	3.30
Taiwan	2.99
Germany	2.85
United States	2.73
China	2.08
Singapore	2.00
Brazil	1.21
Malaysia	1.07
India	0.81

Source: National Science Board, *Science and Engineering Indicators 2016*, United States.

³ Report to The President on Combating Antibiotic Resistance, President's Council of Advisors on Science and Technology, September 2014, https://www.whitehouse.gov/sites/default/files/microsites/ostp/PCAST/pcast_carb_report_sept2014.pdf

It is not that India does not have any capability in conducting R&D. If it was so, foreign investors would not have preferred India as a destination for outsourcing R&D in engineering services as compared to countries like China and Japan which fare much better in terms of overall R&D environment. The Science and Engineering Indicators 2016 report⁴ shows that out of the \$11.3 billion invested abroad by majority-owned affiliates of US firms in R&D in ‘professional, scientific and technical services’ and ‘information and communication’ (non-manufacturing), 12.9 per cent was invested in India as compared to 6.4 per cent in China and 2.9 per cent in Japan in 2012. The Global R&D Service Provider Ratings 2015⁵ also shows that India attracted much more global R&D in engineering services as compared to China—India \$7.8 billion and China \$1.6 billion. If India did not have reasonably good capabilities, foreign investors would not have preferred India as a destination for doing R&D. This shows that India has some advantages which foreign companies are able to make use in their R&D network. What then prevents Indian firms from taking advantage of whatever capabilities we have; definitely not the lack of awareness about IPRs or lack of protection for IPRs. To find the answer, one may have to delve deep into the innovation ecosystem in the country to identify the missing links. Identification of the missing links and fixing them should, therefore, be the topmost priority.

R&D Abroad by Affiliates of US MNEs (as in 2012, US\$Mn.)

Country	Gross Total	Mfg	Servic es	Within Services		
				Wholes ale trade	Informa tion (non- mfg)	Profess ional, scientific & technic al
Canada	2.86	1.70	1.16	d	d	0.62
Germany	8.03	6.63	1.40	0.52	0.07	0.71
UK	5.21	3.17	2.04	0.20	0.22	1.39
China	2.01	0.95	1.06	d	d	0.72
India	2.29	0.66	1.63	d	0.25	1.21
Japan	2.31	1.93	0.38	0.05	0.12	0.20
Total incl. other countries	44.98	30.49	14.49	2.51	3.21	8.06
Share of India in Total (%)	5.1	2.1	11.3		7.7	15.0

Note: ‘d’ means suppressed to avoid disclosure of confidential information.

Source: National Science Board, *Science and Engineering Indicators 2016*, United States.

⁴ National Science Board, *Science and Engineering Indicators 2016*, <http://www.nsf.gov/statistics/2016/nsb20161/#/report>

⁵ *Global R&D Service Provider Ratings 2015*, <http://zinnov.com/global-rd-service-provider-ratings-2015-2/>

Concluding Remarks

While the major thrust of the IPR policy is on IP education and enforcement of IPRs, it also makes a case for strengthening India's innovation system, both in the formal and informal sectors. However, the strong relationship between acquisition, protection and enforcement of IPRs and promotion of innovations that the architects of the IPR Policy assume, has increasingly been challenged.⁶ Importantly, the IPR Policy does not propose a road map to fix the missing links in the innovation ecosystem, especially the low spending on R&D. This task is best left to the relevant ministries and departments dealing with different sectors. Unless the missing links are identified and fixed, Indian innovators will not be able to build on the capabilities the country has acquired, and will continue to cede ground to their counterparts in competing countries. The need of the time is a coordinated strategic intervention by the relevant ministries and departments in creating a conducive innovation ecosystem rather than giving precedence to protection and promotion of IPRs.

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⁶ The Economist provided one of the most stringent critiques of the patent system and its ability to reward the inventors. See, The Economist, 'Time to fix patents', 8 August, 2015.