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POLICY BRIEF

ISID

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Who will Gain from the National IPRs Policy?

The National Intellectual Property Rights policy, approved by the cabinet on 12th May 2016, is 'first of its kind' as it encompasses all forms of intellectual property. The policy proposes a framework of strong intellectual property rights (IPRs) with a view to incentivize research and development (R&D), creativity and innovation. A stronger regime implies extending the term of protection, expanding the scope of protectable subject matter, increased penalties for violation, facilitating enforcement and expediting litigation. The purpose is to strengthen enforcement and adjudicatory mechanisms for combating IPR infringements through specialized commercial courts. Furthermore, the policy aims to tap the talent and knowledge of national research laboratories, universities, technology institutions and other researchers by encouraging researchers to work for the acquisition of intellectual property rights. It plans to commercialize their research by deploying their IPRs through IP exchange to be set up by the government.

Regulatory Tool or Financial Asset?

The administration and management of intellectual property (IP) need to focus on the quality of patents to narrow the scope, reduce breadth and maximize disclosures and access to upstream technology. IPRs are a regulatory tool

From the Director's Desk

The Institute for Studies in Industrial Development (ISID) is a national-level policy research organization in the public domain and is affiliated to the Indian Council of Social Science Research (ICSSR). The ISID was set up to meet the felt need for a specialised academic body that undertakes, coordinates and promotes research on India's industrial and corporate sectors. Public policies relating to the sectors being critical to the future development of the Indian economy, the Institute strives to maintain its independence from influences of sectoral interests. ISID places premium on empirical research and is open to supporting inquiries which challenge conventional wisdom. Over the years it has made its mark in studies relating to investment, trade, employment, regulations and corporate governance.

This Policy Brief series has been initiated to disseminate, in capsule form, the research and analysis undertaken at the institute. While the contents are addressed primarily to specialists, the format is kept simple in order to meet the information needs of wider section of interested readers. Occasionally, the series will carry invited comments and analysis from external experts. Suggestions for improving the series can be addressed to director.isid@gmail.com.

This issue contains commentaries on the recently announced National Intellectual Property Rights Policy. Prof. Dinesh K. Abrol addresses multiple issues relating to India's IP regime. Dr. Reji K. Joseph complements it by underlining the need to give precedence to innovation rather than focusing on IPRs.

Stated Objectives of the National Intellectual Property Rights Policy

IPR Awareness: Outreach and Promotion - To create public awareness about the economic, social and cultural benefits of IPRs among all sections of society

Generation of IPRs - To stimulate the generation of IPRs

Legal and Legislative Framework - To have strong and effective IPR laws, which balance the interests of rights owners with larger public interest

Administration and Management - To modernize and strengthen service-oriented IPR administration

Commercialization of IPR - Get value for IPRs through commercialization

Enforcement and Adjudication - To strengthen the enforcement and adjudicatory mechanisms for combating IPR infringements

Human Capital Development - To strengthen and expand human resources, institutions and capacities for teaching, training, research and skill building in IPRs

using which the policymakers can calibrate the balance between exclusive rights and public interest. Policy instruments in that case should help in designing the quality of IP such that it balances the interests of producers and users of IP, between first movers and second generation inventors, between property rights and free competition, between invention and integration, and between lawyers, users and innovators. Real action in intellectual property however takes place out of the public gaze. Decision making in patent offices and courts will go by the principles enshrined in this new policy. Many a time courts and patent offices are maneuvered to establish monopolies and compromise public interest by way of curbing competition.

This proposed policy assumes IPRs as private rights and marketable financial assets instead of considering intellectual property as a regulatory tool for the government. The policy adopts an IP maximalist agenda of maximum possible incentive for IP owners which may cause a rise in the cost of technology acquisition for firms and industries. Surprisingly, this approach is adopted in spite of the fact that the size of Indian IP is small and foreign corporations actually gained from the changes made to India's IP laws after joining the WTO.

Is More and Stronger IPR Better?

Patents hardly acted as incentives for industries in India. Mechanisms such as first mover advantage, promoting capabilities through incentives, R&D grants and direct protection of innovation are proven to be more effective in this regard. Patents on the contrary can create barriers to innovation. In the case of science-based technologies, extension of the scope of patentability to research tools and upstream platform technologies would thwart the progress of knowledge. A stronger IP system in fact treats unlike things alike. Adverse impacts can create barriers to indigenous innovation in sectors as diverse as pharmaceuticals, software, electronics, seeds, environmental goods, renewable energy, agricultural and health biotechnology, and information and communications wherein technological progress has become cumulative and systemic.

Most of the applicants in India actually seek recognition of corporate identities in products and services by way of filing for trademarks and very few apply for patents that are meant to protect exclusive rights on new inventions. The number of new drug applications filed by the Indian companies with USFDA has never crossed the single digit figure. However, in the sphere of trademarks, out of the 1,79,317 applications filed in 2010-11, "medicinal, pharmaceuticals, veterinary and sanitary substances" alone accounted for 31,634 trademarks. The number of Indian design patent assignees, as provided by the USPTO, was as small as 271 and 33 per cent of design patents catered to jewellery and ornaments. Therefore, introducing a stronger IP regime by itself is not going to encourage creativity.

The Vision Statement and the Mission Statement of the policy proclaim that creativity and innovation are stimulated by Intellectual Property for the benefit of all. Evidence however suggests that in cases of new and emerging science-based technologies such as software, semiconductors, microprocessors, mobile telephony, recombinant DNA technology,

monoclonal antibodies and many other such biotechnological tools the creation of foundational elements did not need strong IP. This is also true for 3D printing and other generic technologies. Ascertaining intellectual property rights in that case may actually reduce the access to knowledge and its cumulative growth.

In India, the miracle of Green Revolution took place without any kind of IP protection for the breeders of new varieties of seeds. The Indian pharmaceutical industry became the pharmacy of the Third World because of the rejection of strong intellectual property rights (IPRs) system in the 1970s. The Patent Act of 1970 laid the basis for the creative imitation and the reverse engineering approach of pharmaceutical sector by introducing a balanced approach to innovation protection. The Indian R&D institutions responded by creating over fifty pharmaceutical processes. Domestic firms got the benefit in more than one hundred essential drugs of indigenous innovation due to the practice of non-exclusive licensing by the CSIR labs. This experience indicates that innovation can be better promoted through a balanced system of IP. In fact product patent adversely affected domestic producers. A study on the impact of the patents granted on new chemical entities (NCEs) by the author for two hundred sixty two drugs introduced in India since 1995 indicates that the market power of foreign firms is on the rise due to the adoption of product patent in various therapeutic groups such as anti-cancer, cardiovascular, central nervous system, diabetes, urology and other such non-communicable diseases.

Should R&D be Subjected to a Strong IP System?

The policy encourages and facilitates the approach of acquisition of IPRs to embed publicly funded researchers in IP driven by non-exclusive licensing of technologies. It proposes to link research funding and career progression for the researchers with the creation of IPR. IPRs will be included as a key performance metric for research institutions. Publicly funded laboratories will have to patent their research contributions and seek exclusionary rights to earn higher revenue from the private sector. In that case tax payers will bear the double burden of paying twice for the same research because the private sector will include the total R&D expenses incurred in the cost of product after adding huge mark-up.

Moreover, analysis of the patents filed with the Indian Patent Office (IPO) by the Indian patentees suggests that a large majority (75%) of them were filed and obtained by individual assignees. Both R&D institutions and industry have been acting separately in their pursuits of technology development related investments. The same can be said of the collaboration between academic institutions, universities and research institutions that have been granted patents—the trend is to "go-alone". Technology development needs national and international R&D collaborations. Evidence however indicates that collaboration between industry and universities or R&D laboratories is negligible in case of India. There have been no more than 10 patents in any given year. Analysis of the patent assignment database of the USPTO indicates that only 173 out of the total 2,420 patents obtained during the period resulted in licensing to other entities. Further examination reveals that 32 of the 173 patents were instances of internal trading. Therefore, 141 or just 5.83 per cent of the total, involved transfers to unrelated entities.[1]

Since the mid-1990s, CSIR researchers were directed to file patents but the policy failed to yield patents that could earn CSIR revenue. A vast majority of patents obtained by CSIR (2001–2010) lie idle and have not been able to generate licensing revenue to the extent of covering even four to five percent of the cost incurred on the filing of patents by the CSIR. The policy on patenting has cost the CSIR not just money to maintain these patents in India and abroad, it also directed CSIR away from more important technological directions. In order to generate IP that can be commercialized and enforced in the market, CSIR laboratories needed enforceable IP.

Indian industry and R&D organizations in fact do not need patents for technology transfer. Evidence of the performance of Science and

[1] See India, *Science & Technology*, CSIR-NISTADS, Volume 3, 2015 for the details of the co-evolving scenario in respect of generation and use of IP in India.

Technology (S&T) parks and incubators is hardly encouraging for the IP based entrepreneurship. There is significant gap between scientists and industry with regards to important factors in the process of technology transfer from publicly funded R&D sector to private sector industry. Scientists consider the lack of motivation and demand from industry for investment in indigenous technology development to be a key barrier to sustainable collaboration. In such a milieu stronger IP will discourage collaboration and create new barriers to technology development.

Open Source

Although the policy speaks of encouraging open source drug discovery (OSDD), it is well known that the OSDD programme of CSIR is dead. The policy could have given a genuine boost to the idea of open source. It is the need of the hour in the areas of software, seeds, education and creative publishing. The new policy could have announced the enactment of a law favouring open source licensing and special licenses for non-exclusive dissemination of intellectual property. It also refers to open innovation as part of the promotion of corporate social responsibility (CSR). Open innovation is practiced by large companies as a programme of collaborative R&D strategy, and it is not a CSR activity for them. The CSIR has many rural technologies to offer from its own shelf, but we have not seen large companies taking interest in the transfer of these technologies.

International Negotiations

The National IPRs policy wishes to engage 'constructively' in the negotiation of international treaties and agreements. It allows to examine accession to some multilateral treaties and become signatories to those treaties which India has de facto implemented to enable it to participate in their decision making process. It promises unilateral concessions. Although the policy says India remains committed to the Doha Declaration, there are no real provisions in the policy which are dedicated for the use of TRIPS flexibilities. In any case, according to the United States Trade Representative (USTR), the Doha Development Agenda is dead.

Concluding Remarks

The policy framework is characterised by a one-size-fits-all approach. As a regulatory tool, the policy does not address the question of how gains from a stronger IP would be distributed between corporates and Indian people. Incentives should be commensurate with the quality of intellectual property and as per the stage of national development. The policy does not aim to maximize disclosure, diffusion and access to knowledge. Home-grown innovators will face problem in accessing knowledge in science-based industries where cumulative and system innovations are more important compared to discrete innovations. The micro, small and medium scale enterprises will encounter far greater barriers in innovation making.

The policy focuses too much on the aspect of respect for IP. It wants the message to be taken to the schools, colleges and public. It is not a good idea to involve multinational corporations in the IP awareness programmes and in the strengthening of IPR facilitation centres. By opening up traditional knowledge digital library (TKDL) to the corporates, the IPR policy is going to open floodgates to misuse and abuse of TK by the multinationals. What is of greatest concern is also the targeting of the judiciary through "awareness" and "training" on an IP maximalist agenda. This is going to disturb the fine balance between public interest and IP that the courts and laws have struggled to maintain after the adoption of TRIPS Agreement under the influence of the civil society.

This Policy Brief is prepared by Prof. Dinesh Kumar Abrol (dinesh.abrol@gmail.com), Institute for Studies in Industrial Development, New Delhi. The views expressed are solely those of the author's and not necessarily of the ISID.

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National IPR Policy and Innovation

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 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 chemicals[1]. 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 mechanism and not further expansion of patent rights[3]. 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

[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

[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

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.

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 report[4] 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 2015[5] 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

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

Country	*Gross Total*	*Mfg*	*Services*	*Within Services*		
				Wholesale trade	*Information (non-mfg)*	*Professional, scientific & technical*
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.

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

Country	*Ratio (%)*
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.

[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/

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.

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]

[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.

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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This Policy Brief is prepared by Dr. Reji K. Joseph (rejikjoseph@isid.org.in), Associate Professor, ISID. The views expressed are of the author and not necessarily of the ISID. The author acknowledges the comments and suggestions received from Prof. Biswajit Dhar, JNU, and the Policy Brief Advisory Committee of ISID.

ISID

Institute for Studies in Industrial Development
4, Institutional Area Phase II, Vasant Kunj, New Delhi - 110070, India
Phone: +91 11 2689 1111; *Fax*: +91 11 2612 2448
E-mail: info@isid.org.in; *Website*: http://isid.org.in