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## Intellectual property rights in India—some suggestions for a new strategy

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The issues around India's stance on Intellectual Property Rights have been written about and debated so extensively that I do not intend to cover old ground. Suffice to say that the Indian Patent Act of 1970 was a landmark in legislation, not only for India but as a model for Third World countries. It paved the way for the manufacture of a range of pharmaceuticals and agrochemicals in the country at affordable prices. It also fostered the growth of small-scale chemical units suited to the domestic demand volumes of the time.

Without listing detail, the salient variance in the Indian Patent Act from the intellectual property protection available in other countries is the inadmissibility of protection for chemical products and the limitation of patents to only methods of manufacture. The period of protection even then is relatively shorter than in other countries. Compulsory licensing in the event of the patent holder not working the patent in the country is practised elsewhere as well as India with different degrees of emphasis.

The seminal relevance of the Indian Patent Act of 1970 derived from its recognition that, for an underdeveloped economy, process innovation aiming at cost competitiveness tends to be relatively more important than product innovation which is more crucial in a developed and competitive market. This legislation has strongly influenced the changing shape of the chemical industry in India particularly in terms of the rapid

growth of its pharmaceutical and agrochemical sectors which today account for about 15% of the estimated Rs 40,000 crores total chemicals market in India.

However, as the country has travelled along the path of development since 1970 and industries such as pharmaceuticals and agrochemicals have come of age, it is now opportune to review the further role of the Indian Patent Act, particularly for the large remainder of the chemical industry other than pharmaceuticals and agrochemicals which tends to be neglected in such debates.

Legislation around protection of intellectual property has to be viewed with pragmatism. The Indian Patent Act 1970 fulfilled a signal requirement in the economic and social development of India in the subsequent two decades. With India's economic policies undergoing dramatic change, the question is whether the same service to the nation from this Act can be expected in the decades to come.

The new industrial policy removes many of the barriers protecting the Indian chemical industry with a promise of further liberalization in the future. The Indian chemical industry will thus be required to be competitive not only in the domestic market but against global competition both at home and abroad. Factors not especially pertinent till now of economies of scale, energy efficiency and waste generation will often play a pivotal role.

In such an environment, the state of the technology in use and knowledge around it will prove to be crucial. In a phase of world trade with barriers removed, no nation will deliver competitive advantage to another except at a price. If India chooses to remain an outlier in its patenting regime, it will find itself isolated from the large range of trading nations of the world. A major aspect of India's integration with the international economy will be in terms of the flow of technology. At present, India's position in the world in this regard is quite minimal as reflected in the relative statistics of patent application (see Tables 1 and 2). With the country increasingly seeking competitive advantage for itself, the flow of technology has to expand manifold and in this context the issue of intellectual property has to be approached with a view to assessing how this technology flow can be best assisted.

The spirit of the current Patent Act has to be appreciated in the context that it was devised. India needed to build its industrial infrastructure. In particular, the healthcare needs of the country required the availability of drugs at affordable prices. As import substitution and reverse engineering were the themes for the engineering industry, so alternative routes to a patented molecule was the direction for the chemical industry. The ends justified the means. India prospered.

Evidently, such an environment stunted creativity because the number of novel chemical products which reached the Indian market were negligible. Yet there is nothing to suggest that the Chemist or Chemical Engineer in India is not comparable to the best in the world. In the market-driven economic environment that we are entering, why should their talents remain

stunted by sheltering them from the breeze of competition?

The task before our scientific leaders is to shed the shibboleths of the past which were relevant in an era of protectionism. Competition will not wait. With the variety and availability of goods, the Indian customer will exercise his choice. Better technology will overwhelm protectionism because a nation of customers is not so gullible to buy second-best when there is something better on offer. And there is nothing exclusive in this respect about chemical products.

Industry's belief in the value of research will emerge only when businessmen experience commercial returns on their investment. Government sponsorship and funding are incentives which will help bias this process. But they alone cannot be sufficient since knowledge of the market is crucial.

This investment in innovation will only take place provided the Indian industrialist can be sure of long-term benefits. In essence, this means protection of the chemical product in the marketplace for a reasonable enough time to recoup his research costs and generate sufficient margins to plough back into further research. Typically in effect chemicals, chemical companies abroad spend 10% to 15% of their sales turnover in research. In contrast, the corresponding figure for the Indian chemical industry would average around 1% of annual sales.

The required attitudinal change in businessmen and scientists can only take place if there are supportive changes in the Indian Patent Act to protect discoveries rather than merely the process to reach them.

The consequences will include the cultural change that is needed. Our scientists and engineers today lack the 'technology' of patenting. Through inexperience, we are relative novices in appreciating how to patent and where, what to protect or not.

For example, we know very little about the value of our discovery, the avenues for global licensing or exchange. Although patenting is commonly understood to enable the inventor to use the product without any constraint, it also gives him the freedom to license the property within and outside the country, and to barter or exchange the property with others thereby achieving

**Table 1.** Patent application in selected industrial countries: 1989

Country	Total in country	Of which from abroad (%)	Application abroad	Domestic and abroad per 100,000 of total population
Japan	345,239	10.6	101,192	334
W. Germany	84,806	63.6	128,026	261
UK	79,916	75.2	54,926	133
USA	146,904	47.8	200,842	112

(Source: OECD, *OECD in Figures*, Paris 1991)

**Table 2.** Patent application in India from persons in India and abroad: 1975-76, 1980-81, 1984-85 to 1987-88

Persons	75-76	80-81	84-85	85-86	86-87	87-88
Indians	1,129	1,159	1,001	999	983	930
Foreigners residents in India	34	19	2	—	—	—
Foreigners residents abroad	833	1,776	2,316	2,537	2,506	2,527
Total	2,996	2,954	3,319	3,526	3,489	3,457

(Source: Government of India, Dept of Science and Technology, *Research and Development Statistics: 1988-89*, New Delhi)



overall economy in research costs. Neither of the latter two are prevalent in India since patent cover abroad is such a cumbersome process whilst India remains outside any common international agreement. Elsewhere, *benefits derived from licensing or exchange can be as much a part of economic activity as exploitation of the product itself.* In worldwide industry which is becoming increasingly focussed in its spread of activities and territorial range, it is now common practice for mutual exchange of intellectual property either globally or in specific territories. In contrast, patenting is so relatively rare in India and successful commercial exploitation even rarer that the scope of benefits is not fully understood. Nor is there much of a history of collaborative research with foreign companies. ICI India was one of the first Indian companies to initiate such a venture, combining the talents of the Indian scientist to the market knowledge of the parent company. Several patents have emerged as a result.

So what are the competencies and resources which India should aim to exploit? In the past, developing nations offered advantages of cheap labour and a base for raw materials. In markets attuned to quality and performance, mechanization and the accuracy it offers is more important than the errors and variability that are a consequence of manual operations. And increasing concerns about conservation and recycling reduce the relevance of cheap materials. So, the traditional advantages are not enough. We have to draw on the skill base where we have been demonstrating potential strength in spite of the lack of competition and weak patent laws. Chemistry is one such area. We are sound in chemical engineering and excellent in computer software. Our light engineering industry has already entered world markets. Segments of industry like leather and textiles sorely need upgradation but could potentially be strong manufacturing bases.

Taking the chemical industry as an illustrative segment, the relatively high cost of capital goods and energy in India would tend to exclude heavy industrial chemicals from any particular advantage. Advances in this sector would, in any case, stem from improvements in process technology rather than the final chemical product.

The focus of our attention needs to be towards segments of the chemical industry where value addition plays a more dominant role than economics of scale, where inputs of science can bring about qualitative changes in product, performance, cost and eventually to business success.

Typical of such a segment are molecules which deliver a particular chemical effect, where scientific understanding of the causal relationship can lead to

unique properties of molecular configurations.

Leaving aside pharmaceuticals and agrochemicals for this discussion, an illustrative list outside these areas could be —

surfactants and their increasing range of applications, mining chemicals aimed towards mineral processing and mineral winning, industrial explosives, oilfield and oil transporting chemicals, rubber chemicals, polymer additives of all types, colours, dyes, pigments and industrial biocides

all of which have specific relevance to India and where, today, research effort in India is quickly nullified by competitors copying the molecule.

Other areas where research costs would be affordable by the Indian chemical industry and where competitive advantage could be delivered to global markets are, for example,

- (a) selected catalysts — heterogeneous, homogeneous and biocatalysis
- (b) polymers for surface coatings, speciality polymers, composites, structural materials, biopolymers
- (c) performance chemicals of all types for different industries
- (d) fermentation chemicals, biochemicals, products obtained through gene manipulation and related techniques
- (e) products from Indian natural products including agricultural products and wastes.

With stronger patent protection for their research products, the Indian industrialists will certainly look for market niches where they can exploit their specific business expertise. Astute assessment of market demand will then translate to more accurate definition to industrial research with greater chance of practical commercialization, something which is singularly lacking today.

The relevance of all these considerations is that there could be no more opportune time for change than now. The new economic climate and India's need to join global trading arrangements is forcing us to discard many of the dogmas that underpinned our industrial development in the first forty years of nationhood. A newer generation deserves the confidence that they can compete in a wider arena and succeed. We owe it to them to give them the tools to make it happen.