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## **Summary of the workshop on “IPRs in nanotechnology: issues, trends and challenges for India”**

*28 January 2010 at TERI, New Delhi*

The objective of the workshop was to explore key questions, which emerge in the context of intellectual property rights (IPRs) in the emergent field of nanotechnology for India. The workshop discussed the features and requirements in the Indian IPR regime, which helps reconcile the dual objectives of incentivising invention and ensuring the public good, which is ideally the goal of the IP system.

The key questions it sought to address are –

- (a) What are the broad issues and challenges in adapting the intellectual property rights regime to nanotechnology?
- (b) Are these challenges compounded for developing countries, which are obliged under TRIPS to provide IPRs in nanotechnology, irrespective of their level of development and the capacity of the domestic IPR regime to handle nanotechnology? Do developing countries face certain unique challenges?
- (c) Is the Indian IPR regime equipped to handle nanotechnology, in terms of both law and infrastructure to implement the law? Does the Indian legislation offer the flexibility to reconcile the need to offer protection to nanotechnology inventions with the imperative to ensure benefits arising out of these inventions to the larger society?

Following are some of the important lessons that emerged from the discussion

### **Reconciling innovation with the public good: challenges for the Indian IP regime**

The workshop brought to light the various problems and challenges which IPRs in nanotechnology pose in terms of fulfilling patentability criteria, broad claims and overpatenting, patents spanning multiple industries and disciplines and its rapidly developing nature which renders nano-inventions obsolete in a short period of time. Speakers were in agreement that the Indian patent regime is constrained in its ability to handle prior art search, examination of patents, and grant of patents in nanotechnology, made worse by the lack of trained patent examiners with the appropriate background. Among the solutions suggested for handling the problem, there was some consensus on the need for a policy decision for a separate classification for nano patents, on the lines of the USPTO and the EPO. For Indian industry to emerge as a leading player in nanotechnology, the Indian patent regime would need to overcome weaknesses in terms of patent prosecution, lack of incentives to individual inventors to file, rampant counterfeiting and piracy and put in place speedy administrative measures for IP infringement. The suggestion was also mooted that there is a need to develop a separate

legislative framework for nano-patents, distinguishing these from traditional patents. Also, considering the difficulties in patenting nanotechnology, other forms of IP protection especially an IP strategy combining patents judiciously with trade secrets, copyright, designs, licenses as well as contractual obligations could offer enhanced protection for nano- inventions. The session also highlighted that though it is crucial to revamp the Indian patent regime for leveraging IP for competitiveness, it has to be amenable to provide public knowledge and clauses facilitating this should be strengthened.

### **Nano- patent landscape and key players**

With respect to the global nano patent landscape, it has emerged from the workshop that the United States dominates in both nano-patents and publications, followed by Europe and Japan. A key attribute of the nano-patent landscape globally is the role of universities as the 'locus of innovation'. Vis-à-vis the global patent landscape, Indian nano- patents

(at both the USPTO and the Indian Patent Office) constitute a very small share, though there has an increase in both publications and patents over the period 2000-2009. A comparison between India and China indicates that in India, government S&T institutes own higher number of patents than domestic firms or academia, while in China, domestic academic institutes and firms own higher number of patents than government institutes.

Chinese academic institutions own a large number of patents jointly with foreign firms, there being no such collaboration in India. The lesson for India, according to one speaker, is to build endogenous capacity and enhance inter-agency collaborations between domestic academia, firms and government S&T institutions.

### **IPRs in public funded nano research: incentivising public funded research or privatisation of 'public goods'?**

It emerged from the workshop that nanotechnology is developing globally in a 'Bayh-Dole' environment, characterised by increased patenting activity by universities and public scientific research organisations (PSRO), and also facing novel challenges with respect to overlapping patents, unpatentable subject matter being patented, patenting of research tools etc. One of the arguments advanced is that a 'Bayh-Dole' like legislation for protection of IPRs in public funded research is based on the outdated and flawed premise that more patents translate into more innovation. Some studies indicate that while the 'Bayh-Dole' environment leads to higher levels of licensing for university owned patents, there is no evidence to support higher levels of use or commercialization of the patents. Apprehensions have been expressed that the proposed Indian Bill for the protection of public funded intellectual property would not be able to address the issue of commercialization of these patents and would drastically alter the 'need driven' nature of public funded research to make it more 'greed driven'. Given the realities of the present day, it is not feasible for academia to concentrate only on 'pure' research. In such a situation, government intervention to make upstream research unpatentable and a shift to the utility requirement, encouraging non-exclusive licensing of foundational patents,

retaining a royalty free license to any patent technology coming out of publicly funded research, cross-licensing, patent pooling, open source hold out some hope.

### **Facilitating public access to nanotechnology innovations: beyond IP**

Speakers accepted the fact that compared to other technologies, nanotechnology by its very nature, is more amenable to patent thickets and hence, the question of access becomes very important here. This is even more pertinent considering the fact that access to patented knowledge even after the expiry of the period of protection of 20 years is impeded by poor disclosure and practices of 'ever greening'. The discussion dwelt on the need to treat access to technology as a public policy issue and whether government should intervene in this regard and if so, what is the optimum intervention. However, there is need for caution in estimating the impact of barriers to access in nanotechnology innovations and there should not be blind encouragement of access without assessing impacts. There is a necessity for a realistic assessment of barriers and impact of solution, creating a right mix of market and non-market measures and the need for a policy flexibility and wider framework on development, regulation. Speakers were also in agreement that there should be policy support for technology sharing through patent pools, open innovation, use of proprietary ownerships on humanitarian licensing models etc.