

Sambit Mallick
Department of Humanities and Social Sciences
Indian Institute of Technology Guwahati
Guwahati 781039, INDIA

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Abstract

This paper examines the interdisciplinary and inter-institutional collaborative networking in India in the context of the new institutional regime marked by the Intellectual Property Rights (IPR) of the World Trade Organization (WTO). Research in agricultural biotechnology that puts much emphasis on scientific collaboration across disciplines and institutions has potential for acquiring patents. This study is based on in-depth personal interviews with 68 scientists engaged in research in plant molecular biology across central, deemed and state universities; institutes of national importance and mission-oriented organizations; research institutes sponsored by the Council of Scientific and Industrial Research (CSIR) and the Indian Council of Agricultural Research (ICAR) and research foundations in India. A brief profile of the scientists interviewed for this study drawn from research specialties like molecular biology of plant signal transduction, gene regulation, metabolic regulation, microbiology, genomics, genetics, plant breeding, regulation biology of plants, plant genomics, and biotechnology will help us analyse the data. The profile of the scientists includes the intellectual antecedents, age group, papers published in peer-reviewed journals, research projects undertaken, funding agencies that support research, and the number of patents filed during 1996-2000 and 2001-05 that would capture the transformation of scientific practices.

The field study was conducted between October 2005 and April 2007. Content analysis was deployed to analyse the interview material.

The practices of the scientists included in the study vary. The variations can be seen in the nature and extent of patenting, publication of research papers in peer-reviewed journals, research projects undertaken and fund-seeking behaviour. The variations in the practices of the scientists may be attributed to their intellectual antecedents. The scientists who are exposed to the training from top educational institutes in India and abroad are in a better position to carry out their research in the new areas and with novel techniques.

At the first sight, perhaps, motivations to “do” science vary. Of course, motivations are inculcated as a part of training in the formative stage of the professional career of the scientists. As a corollary, motivations enable them to select “new” areas of research and resort to novel techniques. Obviously, research problems very often evolve new and more refined techniques to arrive at solutions. For example, scientists have been (re)orienting their research in understanding the phenomena from phenotypic to genotypic or molecular level. Genetic engineering is an example of this where manipulations are made at the level of genes. And, this has attracted very lucrative funding from both national and international funding agencies. “New” areas and novel techniques aiming at concrete deliverables suit the industry-sponsored research projects, which assume greater significance in the context of the IPR.

The selection of research problems also varies among individual scientists and across different institutional settings. The selection of research problems may be contingent upon curiosity of the individual scientists, mandates of the organizations, prospective collaborating partners (both interdisciplinary and inter-institutional), norms of funding agencies (both

national and international), etc. For example, on the one hand, scientists at the CSIR-sponsored research institutes tend to collaborate more with the industry. On the other, scientists at the ICAR-sponsored research institutes focus on agricultural research keeping the specificities of a particular region or locality in mind. Consequently, the collaboration between the seed industry and the ICAR-sponsored research institutes does not fructify.

The study suggests that scientists at the CSIR-sponsored research institutes have the maximum number of collaborative projects with the other institutional settings in India including the industry. Scientists at the CSIR-sponsored research institutes are engaged in 47 collaborative projects with the other institutions in India out of which they are engaged in nine collaborative projects with the industry. Scientists at the private foundation carry out 35 collaborative projects with the other institutions in India out of which they are engaged in five collaborative projects with the industry. Similarly, scientists at the international institute are engaged in 30 collaborative projects with the other institutions in India out of which they carry out four collaborative projects with the industry. However, scientists at the ICAR-sponsored research institutes are engaged in only 16 collaborative projects with the other institutions in India out of which they carry out only two collaborative projects with the industry. The variation pertaining to scientific collaboration may be attributed to the infrastructure facilities available at the respective institutes, the selection of research problem and the use of novel techniques (for example, genetic engineering).

Inter-organizational networking and collaboration between the government, university and private R&D institutions are required to aim at concrete deliverables. Shared perspectives, interests, meanings and values among different stakeholders would help us evolve inter-organizational networking and collaboration.

As networking becomes institutionalized, the different interests of scientists in different kinds of R&D institutions will continue to be an issue. Perhaps, a critical issue is that an industry's primary interest is to produce a new product as early as possible to establish its monopoly in the market whereas another point of contention lies in the predicament of public R&D institutions. Though the partnership between different stakeholders may result in an improved variety (say, rice) on the basis of the cutting-edge genomics research, they may not be in a position to commercialize the variety as their institutional mandates do not seem to allow their involvement in industrial and commercial activities. In this way, the public R&D institutions are made to depend on private industry to commercialize their products. The R&D efforts of the public institutions have the potential to provide context-specific innovations that are accessible to poor farmers at an affordable cost. Future detailed case studies would help us better understand the nuances involved in democratizing the policymaking process to shape demand-driven innovations in developing countries.

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