

IPR and microorganisms

Suman Sahai

Gene Campaign, the group which has worked actively on the issues of Intellectual Property Rights on biological materials, held a National Seminar on Microorganisms on 13 February 1997 in New Delhi.

The objective of the seminar was to define what kind of IPR position on microorganisms would be in India's interest in the context of the WTO/TRIPs. A need for such a national level discussion became necessary since it was widely felt that the government had accepted patents on microorganisms without either a debate on the issue or any real understanding of the issues and their implications.

The objective of the seminar was also to explore how India could re-define its position within the WTO so as to better protect its national interest.

The seminar chaired by S. K. Sinha, National Professor and former director of the Indian Agricultural Research Institute, was attended by a wide cross section of people. These included representatives of the ministries of Agriculture, Commerce, Industry, Defence and Science & Technology; APEDA; representatives of private and public sector industry; scientists from national institutions like CCMB, Hyderabad; NBRI, Lucknow; IMTECH, Chandigarh; TERI, Delhi; IARI, CSIR and from universities and research institutions. In addition, there were participants from the voluntary sector, trade unions, the Biotechnology Association, patent attorneys, environment officials from some African nations and students.

The participants felt that the issue of microorganisms was little understood. It was apparent that not enough thinking had gone into what India's position should be on microorganism patents. The subject has been discussed for the first time at this meeting and it was felt that many more discussions were needed at various levels before a policy decision could be taken. There was a strong view that India should not act in haste and accept things on which there was so little understanding.

The following are the major recommendations that emerged from the meeting.

The country must immediately establish ownership over its genetic resources in accordance with the Convention on

Biological Diversity. This was urgently needed to stop its plunder by foreign agents which were smuggling out bioresources in the legal limbo that exists in the absence of national legislation. The nodal ministry, the Ministry of Environment was urged to draft a law without losing any more time. Other nations like the Philippines, Indonesia, Australia and Ecuador have already got laws establishing ownership.

National policies to protect the national interest in matters relating to biodiversity and our wealth of national flora must be clearly defined. Our policies should be formulated to protect this national interest. We should retain enough flexibility in our approach to review and change our policies from time to time in response to changes in the national and international situation.

Economic considerations must override scientific and technical arguments in deciding a patent policy for microorganisms. This was essential since the demand for patents has arisen in a trade forum like WTO/TRIPs and is to be seen in the context of defending economic interests primarily. Therefore the economic, not the scientific framework must be used in deciding policy.

There are inbuilt contradictions between the concerns of developing and developed countries. For the former it is food security, for the latter it is commercial interest, hence they cannot have the same patent regimes.

It is imperative that we give priority to social considerations and the public good over the commercial interests of corporations that are the real beneficiaries of patents.

A national level Bioresource Board should be set up to govern and regulate bioresource use and policy. This should consist of scientific and technical experts, representatives of local communities, members of government departments, NGOs, experts in law and foreign trade and members of the media.

Importance of microorganisms

Given the vital importance of biotechnology to the future of the Indian economy, any policy decisions on biological resources,

specially Intellectual Property Rights, must be very carefully thought through.

Microorganisms which play an important role in biotechnology are crucial to modern agriculture, and industry. Given their role in biomining, in resource recycling, bioremediation, in the production of alternate sources of fuel, such as biogas, ethanol and solar energy and in enzyme technology, their unrestricted use is vital to ensure the high level production base needed for national development. Any possible patent regime must be discussed in depth before we take a hasty, uninformed decision.

Current status

Indian institutions and scientists are poorly prepared to function in a microbe patent regime. There is widespread patent illiteracy at all levels in the country. There is a high level of ignorance about drafting and filing for patents among scientists. CSIR and ICAR are not providing any technical assistance. It is, therefore, of vital importance that scientists, attorneys, judges, government functionaries and patent office staff are trained in technical matters relating to patents if we are to meet the challenge posed by the new regime.

Since it is not very clearly understood as to how the new patent regime will affect our agriculture and industry, many more discussions and brain-storming sessions must be held before we take a stand on the matter. Much greater technical understanding is needed, for even simple things like what constitutes a patentable organism.

Action needed

There is an urgent need to document and characterize our micro flora. India is rich in microbes. Not even 1% has been identified so far. We need to characterize our microorganisms to lay claim to our resources and know how to use them.

The government has to invest in this area to boost the fields of biosystematics and taxonomy.

There has to be better coordination between various government departments and universities which are involved in this field, so that technical skills can be maximized effectively.

There is an urgent need to create our own depository for microorganisms. Presently, India does not have such institutions as the American Type Culture Collection (ATCC), and our valuable microbial germplasm continues to be deposited in foreign countries. In addition, we have to develop our own skills for characterization, otherwise our samples will continue to be sent outside for identification and characterization.

Experts suggested that India can reject patents on microorganisms without in any way jeopardizing its position in the WTO. There is sufficient scope within the WTO framework for nations to exercise flexibility in defining patentable subject matter. They can for example, exclude from

patentability those categories which would offend public order or morality. The 'Odre Public' and morality clauses have been successfully used in Europe to oppose patents already granted by the Europe Patent Office. The possibility of invoking this clause to protect our indigenous plants and knowledge must be fully explored. Even today, there is no patent harmonization in western countries, mainly on account of objections from society on various issues, particularly morality.

It was widely felt that India should not accept patents on microorganisms at this stage. Patents favour only the patent-holder, not the common man, not the scientific community, not the larger community. Patents also block the flow of

information and materials. Scientists do not have free access to microorganisms for research purposes. Studies have shown that strong patent regimes slow down the discovery of new drugs. It is wrong to say that patents are the only way of rewarding the scientific community or of providing them with a much-needed infusion of funds for research. In fact, over 80% of patents are held by corporations, not by scientists. Moreover, patents on microbes will lead to patents on plants and animals and all life forms, which is unacceptable.

Suman Sahai is at Gene Campaign, F-31 Green Park (Main), New Delhi 110 016, India.

Sacred groves of India – Vanishing greenery

G. Harikrishnan Nair, K. Gopikumar, Pramod G. Krishnan and K. K. Sunil Kumar

Love and respect towards nature has been an ancient Indian tradition. Affection towards nature was as zoolatry (worshipping of animals), thottam (considering plants and animals sacred), etc., which in turn led to a sort of prudent conservation. Religious beliefs, traditions and customs of Indians bear an allegiance in restricting the exhaustive use of natural resources. An understanding of the conditions under which human societies evolved, effective methods of prudent use of resources and of the circumstances under which these practices broke down is considered very important in our endeavour to steer ourselves in to a course of sustainable utilization of earth's resources¹. There are several examples of such social restraints on resource utilization. In Bhandura district of Maharashtra, the traditional fishing had never disturbed the spawning aggregations of freshwater fishes in the hill streams. Another example for the traditional system of refugia for natural resources is the network of sacred groves seen throughout India².

Sacred groves are patches of vegetation preserved on religious grounds. The area of a sacred grove varies from a few trees to some acres. Each grove has a patron deity and folklore associated with it. Any sort of damage to these vegetational sanctities was considered a sin by villagers or the people of that locality.

Distribution

There are only four regions important for groves in India³. These include the Khasia and Jaintia hills, the Western Ghats of South India, Aravalli hills and Sarguja, Chanda and Bastar areas of central India. In India the maximum number of sacred groves are seen in the states of Kerala, Maharashtra, Madhya Pradesh, etc.

Importance

Sacred groves are ecologically and genetically very important. They are the abodes of rare, endemic and endangered species of flora and fauna. Besides, they serve the function of preserving the genetic diversity of even the common species of trees. Ancient teak (*Tectona grandis*) forests are reported from two sacred groves of Maharashtra, though teak has disappeared from their vicinity. These teak specimens exhibit genetic variation and therefore proved to be of great value in the future tree breeding programmes⁴. Wild cultivars having better pest resistance and productivity are also reported from sacred groves. They may also become useful in future in the genetic improvement programmes⁵.

In Allepey district of Kerala, natural forests are encountered only in sacred groves that remind us of a great past. Certain new plant species have been identified from some sacred groves. Pres-

ence of a new woody climber (*Kunstleria keralensis*) had been reported from a sacred grove in Kerala⁶.

The value of sacred groves is immense. They are good sources of a variety of non-wood products like fruits, fodder, fuel wood, fatty oils, spices like pepper, cinnamon and nutmeg, medicinal plants, etc. A detailed account of the medicinal plants, wild cultivars and endemic species found in a sacred grove (Iringole kavu) of Kerala state has been reported⁷.

The faunal wealth of the sacred groves is also worth mentioning. An ornithological survey in a sacred grove of Kerala (Mukkuthala kavu, Malappuram) could identify seventy species of birds⁸. However, detailed faunal studies are still lacking from sacred groves. Besides these, the amenity value, roles of sacred groves in water conservation and their effect on microclimate of the region, etc. are also important and deserve special attention in future studies.

Present scenario

Our ancestors were fully aware that the natural resources which sustained them must be conserved for the sustenance of future generations. But the inconsiderate and self-centered modern man is exploiting the natural resources without giving heed to the well-being of younger generations. Sacred groves are the victims of this