CURRENT SCIENCE

Volume 73 Number 10 25 November 1997

Protection of intellectual property rights

The news item 'Bioresource and biotechnology policy for the Asian region: Recommendations from an international seminar' by Suman Sahai (*Curr. Sci.*, 1997, **73**, 490–491) covers all the important issues concerning bioresources and biotechnology. The initiative of the Gene Campaign – an NGO in organizing the meeting and creating awareness of the issues among the scientists and public is commendable. However, one of the recommendations of the seminar regarding the IPR issues reflects only the wishful thinking of people who still do not accept the realities of the post-GATT (General Agreement on Tariffs and Trade) era, and the general misconceptions about the patents. This recommendation states that 'patent laws should be revised, where necessary, to prohibit patenting of any living form (micro-organisms, plants or animals) or any product made directly by or from living form. This provision would thus prohibit the patenting of any genetically engineered life-form, or a product such as azadirachtin derived from neem'. As is well known, India, along with over 100 nations, signed the GATT on 15 April 1994 at Marrakesh. Trade-Related Intellectual Property Rights (TRIPS) is a part of the overall agreement. As a signatory to the GATT, the country has to accept the TRIPS. In this context, Article 27 of the TRIPS which deals with Patentable Subject Matter is reproduced in Box 1 from the original document[1] for information.

A transitional period of ten years has been provided to implement the necessary changes in the national patent laws. Certain minimal changes in the patent rules were to be implemented before 31 December 1994. The Government issued a Presidential Ordinance on 31 December 1994 amending the patent rules to satisfy the World Trade Organization (WTO) requirements. However, the Parliament referred it to a Select Committee. The latter also could not find an acceptable solution. There is also a Parliamentary Forum on IPR issues. Subsequently, an Expert Committee headed by C. N. R. Rao has been constituted to evolve a national consensus. The act for the protection of crop varieties has also been extensively discussed at different levels but it is yet to be brought before the Parliament. Meanwhile, the US has moved the Dispute Settlement Panel of the WTO over the patents rules in India. Hopefully, amicable solutions to the problems will be found.

A strong IPR protection by means of patents is essential for ethical and healthy development of biotechnology, particularly the applications of recombinant-DNA techniques (genetic engineering) in areas of health, agriculture and environment. In agriculture, the genetic improvement of crop plants is extremely important as a very large number of farmers and consumers benefit from new crop varieties. It would encourage inventiveness, development of useful products and attract private investment in R&D. Similarly, protection of Plant Breeder's Rights under the Crop Variety Protection System would permit import and development of more productive crop varieties. Opportunities for the seed industry as well as the publicly-funded research organizations would expand both in the domestic and international market. In the short term, farmers can have immediate gains through the import, multiplication and sale of protected varieties of self-pollinated species by the seed industry. In absence of any legal protection, so far, private seed industry has restricted its business activities mainly to the hybrids of cross-pollinated species, vegetables and ornamentals. Parental stocks used for producing the hybrid seed remain with the company. Many multi-national companies are interested, as a business, to sell agronomically useful gene constructs, genetically engineered crops, developed abroad, or to transfer their transgenic traits into the local improved cultivars, provided they can be assured of returns on their investment. Some Indian seed companies are also investing in transgenic research. In the 1960s, semi-dwarf rice and wheat seeds that ushered the green revolution were made available without paying any royalties. That was thirty years back, and the world has changed. At present, useful breeding materials are available free only from the research institutes of the Consultative Group of International Agricultural Research. In the changed world scenario, the development of seeds and other planting material in advanced countries has moved from public to private domain. In private sector, research funds are strictly

Box 1. Section 5: Patents
Article 27
Patentable subject matter

1. Subject to the provisions of paragraph 2 and 3 below, patents shall be available for any inventions, whether products or processes, in all field of technology, provided that they are new, involve an inventive step and are capable of industrial application[2]. Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.
2. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordere public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by domestic law.
3. Members may also exclude from patentability:
   (a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;
   (b) plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. The provision of this sub-paragraph shall be reviewed four years after the entry into force of the Agreement Establishing the MTO.

looked as an investment, with expectations of monetary returns. Internationally, very few new technologies would be available free of cost, in future. The scientific community in the country should accept this as an opportunity to create wealth from innovative R&D for the nation, their employers and for themselves. However, this would need radical changes in the mind set of the researchers, management and funding of R&D and promotion norms.

The rich genetic resources are useful only if they can be exploited to create wealth. Their exploitation also needs other resources – trained man/woman power, adequate infrastructure, managerial skills, ability to innovate, take risks and market the new products. If we ourselves cannot exploit the genetic resources fully, we should share them with those who have the technologies on mutually beneficial terms, safeguarding our interests.

Prohibiting patents in biotechnology would kill all the initiatives of a small number of innovative scientists, willing to spend their time towards developing 'marketable' products. It would also deprive the country from the benefits of the new products and processes developed elsewhere, at least, for the period till the expiry of their patents which could be 15–20 years. Innovations in biotechnology should be rewarded as in other disciplines.

1. From Agreement on TRIPS. Final act embodying the results of the Uruguay round of multilateral trade negotiations, GATT Secretariat (UR-93-0246).
2. For the purpose of this Article, the terms 'inventive step' and 'capable of industrial application' may be deemed by a Member to be synonymous with the terms 'non-obvious' and 'useful' respectively.

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Agriculture in Loktak Lake, Manipur – What fate Sangai?

In 'Agriculture in floating fields on Loktak Lake, Manipur' (O. K. Singh, *Curr. Sci.*, 1997, **72**, 902–903), the author has not mentioned anything about its likely impact on the single, small, wild population of around 70 Sangai (Manipur brow-antlered deer, *Cervus eldi eldi*), one of the most endangered mammals in the world, inhabiting a part of Loktak Lake (Zoo Outreach Organization, Coimbatore).

The author seems appreciative of such cultivation and calls for technology and efforts to cultivate inundated places and water surfaces further. That will destory wild areas, wildlife and biodiversity further (as happened in Terai grasslands and mangroves). While there are only around 170 Sangai (including a total zoo population of around 90–100) in the entire world, should we still pamper humans numbering more than 500 crores globally? While 96–97% of India's land and resources are being used by people, the meagre 3–4% kept for wildlife are also under pressure. A nation and a people who cannot live with 96–97% of land and resources, what more will they gain by usurping the additional 3–4% (H. S. Panwar, pers. commun.)? Why such war of 'no victors but definite losers (wildlife and biodiversity)'?

Rice was being cultivated in parts of Loktak Lake even around 1960 (*J. Bombay Nat. Hist. Soc.*, 1960, **57**, 597–617). It is not mentioned whether more area was cultivated subsequently. Perhaps due to several deterrents to human use, Sangai could get a habitat there.