Commentary

India's Biological Diversity Act 2002: An act for the new millenium

The Biological Diversity Act 2002, recently enacted by the Indian parliament, is a significant, indeed, a pioneering piece of legislation. It responds to a number of new, emerging concerns: firstly, the result of new developments in technology, in particular, biotechnology and information technology, and, secondly, the ongoing degradation of the environment, inevitably accompanied by an erosion of biological diversity. These developments imply that all organisms, even seemingly insignificant ones like microbes, worms, weeds and mice, are potentially resources of considerable economic value, worthy of efforts at conservation, scientific investigation, and of securing rights over the associated intellectual property. This has prompted the development of two often conflicting international agreements, the Trade Related Intellectual Property Rights provisions (TRIPS) of GATT and the Convention on Biological Diversity (CBD). The latter has two notable stipulations. One is the sovereign right of countries of origin over their genetic and biological diversity resources. The other is the acceptance of the need to share benefits flowing from commercial utilization of biological diversity resources with holders of traditional knowledge and practices of conservation and sustainable utilization of these resources. There is as yet no proper resolution at the international level of how these will be implemented in view of the fact that the normal Intellectual Property Rights and TRIPS provisions do not stipulate any sharing of benefits for holders of knowledge in public domain, nor the sovereign right of countries of origin over their genetic and biological diversity resources. TRIPS even includes intellectual property rights over microorganisms and plant varieties. The Biological Diversity Act 2002 is a part of the Indian attempt to make some progress and to operationalize the two important provisions of the Convention on Biological Diversity.

This ambitious act aims to promote conservation, sustainable use and equitable sharing of benefits of India's biodiversity resources, including habitats, cultivars, domesticated stocks and breeds of animals and micro-organisms. With this in view it provides for the establishment of a National Biodiversity Authority, State Biodiversity Boards and Biodiversity Management Committees at the level of Panchayats (village committees) and Municipalities. It was initially designed as an umbrella act, and as a herald of a new age it would have overridden many of the earlier acts such as the Forest Act designed in the colonial era. As passed, however, it only has the status of a complementary act and will have to be operated side by side with a whole range of other acts, including, in particular, those pertaining to forest, wild life, panchayati raj (village governance) institutions, plant varieties and farmers' rights, and patents. There are a number of potential conflicts in the working of these various acts that need to be resolved carefully to ensure that the Biological Diversity Act 2002 can effectively address the many new and significant challenges resulting from scientific and technological developments and from the growing strength of India's panchayati raj institutions. In particular, one needs to guard against the many entrenched interests ensuring that the National Biodiversity Authority and the various State Biodiversity Boards end up being ineffectual because of the provision in the Act that they must accept all directives of the Central and State Governments. There are other possibilities, too, of loopholes that may render the act toothless. For example, any biological resource that is considered a commodity, or biological material that is blended and mixed, may be exempted from the provisions of the act. Finally, there is always a danger that the regulations may merely breed harassment and corruption, rather than effective action. It is to be hoped that public awareness and pressure will overcome these hurdles.

This Act is an important step in the attempts to assert the sovereign rights of the people of India over their genetic and biological diversity resources, and to claim a share of benefits flowing from

commercial utilization of biological diversity resources including the use of any associated knowledge of Indian origin, even if it be in the public domain or held as a part of an oral tradition. There could be several difficulties in carrying out these intentions. No international agreement has as yet been arrived at as to how to put into effect the relevant provisions of the Convention on Biological Diversity. Even if such an agreement is arrived at, the United States of America may not accept it, as it has not signed the CBD. Furthermore, the CBD recognizes sovereign rights of countries over biodiversity resources for which they are the countries of origin, and not over all biodiversity resources occurring within the country as provided in the Biological Diversity Act 2002. India is the exclusive country of origin for only a fraction of biodiversity resources occurring within the country. It is the country of origin for a larger fraction along with a host of neighbouring countries such as Sri Lanka, Pakistan, Nepal, China and so on. So far, there have been no attempts to work out any co-operative agreements on this issue with our neighbours, although Pakistan was notably in sympathy with India in the dispute relating to Basmati rice. The CBD also mentions sharing benefits in the context of knowledge associated with biodiversity resources only for indigenous communities and not all communities, nor does it mention classical knowledge such as contained in Ayurvedic texts. Since the normal Intellectual Property Rights and TRIPS provisions do not accept any sharing of benefits for holders of knowledge in public domain, and since even the CBD makes no mention of sharing of benefits pertaining to knowledge in such classical texts, we might find it difficult to sustain for such knowledge claims in terms of benefit sharing as specified in the Act. We can, of course, use such information as evidence of prior art, as was done successfully in the case of the US patent on use of turmeric lotion. Furthermore, India cannot really lay exclusive claims to knowledge contained in Ayurveda; Sri Lanka and Nepal, for instance, have ancient and still vibrant traditions of Ayurveda, and India needs to arrive at co-operative arrangements with such countries in this context as well. Nevertheless, these difficulties will primarily arise in the case of products by foreign companies manufactured and marketed abroad. It is certainly possible to enforce the provisions of the Act on products being marketed in India, by both Indian and foreign companies, even if manufactured outside of India. It is therefore a reasonable step to stake very broad claims to take advantage, to the extent possible, of whatever provisions are eventually worked out at the international level. Despite the dangers of distortions and difficulties of implementation, this is undoubtedly an Act for the new millennium, for the age of biotechnology and information technology, and deserves to be welcomed, and pursued with vigour by the scientific community.

In order to implement the provisions of this Act, a biodiversity information system of unparalleled size and complexity needs to be set up. This Biodiversity Information System will have to compile information on a variety of issues, namely: (i) Status of the country's ecological habitats, and the natural as well as anthropogenic processes impacting the habitats. (ii) Current status of populations of a whole range of biodiversity elements, focusing on the more notable useful and harmful species and varieties, and the impact of natural processes, as well as human harvests, culturing, control and other practices. (iii) Regimes of legal as well as customary property rights, access rights, and conservation practices as they affect biodiversity. (iv) Harvest, transport, trade, and markets in biodiversity. (v) Processing of biodiversity resources to generate value added products. (vi) Demand for and consumption of biodiversity resources and their products. (vii) Existing technologies and new innovations pertinent to biodiversity, both at grass-roots, and in the more sophisticated industrial sector. (viii) Intellectual property rights, customary as well as through the legal regime, over biodiversity resources.

Such a Biodiversity Information System will have to feed into development planning at all levels, from Panchayats, through districts, states and the country as a whole. Given the increasing role of Panchayati Raj institutions, and others like Village Forest Committees and Pani Panchayats (local water management bodies) in natural resource management, the biodiversity information system will have to support such decentralized institutions of governance come up with natural resource management plans tailored to their own locality specific and society specific contexts. The biodiversity information system will have to help promote sustainable use and economic activities such as local level value addition, as well as serve more sophisticated biotechnology based enterprises. It should help direct proper flows of benefits of commercial uses of biodiversity to holders of traditional know-

ledge, as well as to grass-roots innovators. It will also be relevant to actualizing the provisions pertaining to farmers' rights in the Protection of Plant Varieties and Farmers' Rights Act of 2001.

This poses many challenges. These will include inventorying of elements of biodiversity with hundreds of thousands of entities; species, genes, ecosystems, all exhibiting tremendous variation in space and time. Given the existing paucity of information this would require putting in place a system that will draw on much relevant information on present status, on-going processes, and historical trends that rests with the country's barefoot ecologists, often illiterate, and is largely embodied in oral traditions. Many uses of biodiversity that will need to be documented are also in the informal sector, and are often unrecorded. Much of this informal body of information is largely derived through a trial and error process, and is a mixture of empirically valid knowledge commingled with beliefs that may not stand scrutiny. For instance, a large number of herbs are claimed to contain antidotes against snake venom; it is likely that many of these only help through providing a psychological boost to victims of snake bite. All this information, therefore, needs to be carefully assembled and validated. While organizing this information, we will need to keep in view intellectual property rights concerns and guard the interests of all segments of our population, of the tribals, of the dispensers of herbal medicines, as well as those of modern enterprises such as pharmaceutical industry.

This is a stupendous task. Its execution will not only require cross-disciplinary scientific activities, but more importantly the conduct of a cross-cultural dialogue amongst scientists, scholars in the classical tradition such as Aurvedic or Yunani practitioners, and holders of folk traditions and knowledge. This is a tremendous opportunity for the scientific community to evolve a new, people oriented approach to doing science and managing information. One of our major national failures over the fifty-five years of independence has been in the field of primary education. The Literacy Mission, launched by the Government in late 1980s, and pursued with such vigour by large numbers of volunteers has undoubtedly been one of the most significant achievements over these years. The challenge of working with people to document biodiversity and associated knowledge could develop into a mission that may be a worthy successor to the Literacy Mission.

References

Anonymous 2002 *Biological Diversity Act*, as passed by the Lok Sabha on 2 December 2002 and Rajya Sabha on 11 December 2002, Parliament Secretariat, Government of India. Also available on http://ces.iisc.ernet.in/hpg/cesmg/.

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