

Convention on Biological Diversity: A Comparative Analysis

Introduction

Earth is the only planet in the celestial system with a history of origin and evolution of living forms. Living natural resources collectively present "Biological Diversity" and provide vital goods and services towards sustaining human society.

Biodiversity in the present day world has been recorded at 1.4mn species as against an estimated number varying between 10mn to 50mn. Out of 2,50,000 vascular plants known to be found in the world about 100 species provide most of the world's food. Many species and varieties are used locally but remain restricted in use because of culture-specific habitats.

Farmers in the tropical countries played a vital role in the selection of crop/seed varieties, conservation of land races and producing new breeds. The 'Convention on Biological Diversity' (CBD) laid down the basic principles of sovereignty of a nation over such resources and suggested a process of equitable benefit sharing between conservers and providers on one hand and the users in commercial sector on the other.

Contrariwise, the Trade Related Aspects of Intellectual Property Rights (TRIPs) opened up a new regime of patenting of life forms and traditional knowledge-based innovation. But the farmers in the biodiversity-rich 'Himalayan region', as in many other regions, need to document, conserve and use the resources on the principles of CBD to ensure sustenance of livelihood.

2.0 CBD and TRIPs

CBD through its 42 Articles establishes commitments on conservation and sovereign rights of nation on biological resources, suggests a method of access and transfer of genetic resources with prior informed consent. On a principle of benefit sharing (Article 15, 16, 19, 20, 21) CBD establishes the foundation to link conservation and utilisation with sustainable development (Article 6, 10, 14).

The Convention stresses on *in-situ* and *ex-situ* conservation (Article 8, 9) and the need for promoting local, regional and global cooperation (Article 17, 18). It recognises 'the vital role that women play in the conservation and sustainable use of biological diversity'. CBD called upon Developed Country parties to provide "new and additional financial resources to enable Developing Country parties to meet the agreed full incremental costs". Developing Countries' conservation

objectives will also "take fully into account the fact that economic and social development and eradication of poverty are the first and over-riding priorities" (Article 20).

CBD acknowledges the need to 'take all practicable measures to promote and advance priority access (regarding Handling of Biotechnology and Distribution of its benefits, Article 19) on a fair and equitable basis by Contracting Parties, especially developing countries, to the results and benefits arising from biotechnology based upon genetic resources provided by these countries".

The TRIPs Agreement was negotiated through a period of 1984 - 1993 at the World Trade Organisation's (WTO) initial formative years. General Agreement on Tariffs and Trade (GATT) offered the platform to all Contracting Parties for the exercises on TRIPs.

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The major objectives of the TRIPs agreement can first be considered:

- Setting minimum standard of protection in terms of defined intellectual properties.
- Promotion of technological innovation and transfer and dissemination of technology to the mutual advantage of disseminators and users of technological knowledge.
- Exclusion of patentability that threaten human, animal or plant life and health.

However, TRIPs has been a bone of contention between the developed and the developing countries. A number of apparent flaws could be detected from the viewpoint of developing countries.

Developing countries, therefore, feel the need for some specific modifications viz.

- There is no general prohibition of patenting plants and animals. The absence of such a clause led to the demand that the naturally occurring plants, animals, or the parts of plants and animals including the gene sequence, as also the biological processes for production of plants, animals and their parts should be outside the provision of TRIPs.
- Each country should have the right to promulgate and adopt its own *sui generis* system for the protection of plant varieties.
- Consent of the relevant authorities of the country of origin of living materials, e.g., plant from which the product is derived must be obtained before granting patents.

- Patent inconsistent with Article 15 of CBD [Access to Genetic Resources (empowering national government to determine) on mutually agreeable terms and with prior informed consent] must not be granted.
- Patent holder must share economic benefit derived out of biological material transferred from another country, i.e., the country of origin.
- Effective monopoly by granting patent rights over 20 years may prevent access to technologies and should, therefore, be reduced.
- A positive relaxation on the exclusive rights of patent holder on some drugs in pharmaceutical sector is needed to make the same available for the viability of the healthcare system in developing countries.

Some of the major conflicting points between CBD and TRIPs are illustrated in Box - 1.

3.0 CBD in 21st Century

The Convention on Biological Diversity has now crossed 10 years' milestone. During the last decade, the world has witnessed stormy discussions, mass protest and political divide between the highly developed countries and developing countries on the issues of WTO's agenda. CBD provisions did not evoke controversy from majority of the countries, both developed and developing, but for the notable exception of USA. The economic power of USA in a unipolar world being undeniable, its refusal to ratify CBD poses serious question. Many scientists link this with massive investments made by MNCs /TNCs in USA in the field of biotechnology. The debate on the

Box 1: Conflicts between CBD and TRIPs	
CBD	TRIPs
States have sovereign rights over their biological resources.	Biological resources should be subject to private intellectual property rights.
The benefits of the use or exploitation of biological resources (or of indigenous knowledge, innovations and practices) should be equitably shared.	There is no mechanism for sharing benefits between a patent holder in one country and donor of material in another country from which the invention is derived.
Access to biological resources requires the prior consent of the country of origin. It also requires the approval and involvement of local communities.	There is no provision requiring prior consent for access to biological resources, which may subsequently be patented.
States should promote the conservation and sustainable use of biodiversity as a concern of humankind taking into account all rights over biological resources.	The safeguarding of public health, and the public interest in general shall be subject to the private interest of holder of intellectual property rights.
[Source : An Activist's Handbook on Biodiversity, Research Foundation for Science, Technology and Ecology]	

Box 2: Cartagena Protocol on Biosafety

The Cartagena Protocol on Biosafety (CPB) was adopted in Montreal, Canada, on January 30, 2000 by delegates of 128 parties to the CBD. It came into force in the same year. CPB regulates the transboundary movements of some genetically modified organisms (GMOs) and calls for Precautionary Principles (PP) by confirming the rights to take action if there is suspicion of any potential environmental damage. Minimum standard of risk assessment and safety measures for transboundary movement of GMOs can now be set using CPB. It provides right to choose between GM, conventional and organic products. Further according to Article 8 of CPB the 'Party of export shall notify or require the exporter to ensure notification to the competent national authority of Party of import'. This 'Advanced Informed Agreement' (AIA) Procedure follows the same philosophy of 'Prior Informed Consent' laid down in CBD. Also included in CPB is the agreement to support a Special Biosafety Clearing House (BCH) - a central portal with basic information system and provisions of links to other relevant websites. The Cartagena Protocol can only be effectively used with appropriate national regulation. The regulation on import of GM seeds into developing countries like India will expectedly help to protect Farmers' Rights to livelihood.

(Source: <http://www.biodiv.org/biosafe/Protocol/Protocol.html>)

application of biotechnology to monopolise patented live material or to create genetically modified organisms (GMOs) continues unabated. The provision of CBD on the application of biotechnology (Article 19) calls for an equitable benefit sharing with the countries providing biological material for application in biotechnology. This clause apparently created a major hurdle. The apprehensions on the complete safety to human society, wildlife and ecosystem due to use of GM crops has already created further divide. The Cartagena Protocol on Biosafety calling for Precautionary Approach was also not signed by USA. However, CBD remains a most welcome convention proclaiming equity and a process of transparency in international negotiations.

4.0 Impact of CBD on Developing Nations with Special Reference to India

The recognition of the sovereign right of each contracting party offered a basic foundation to all developing countries' future conservation strategy. Developing countries also warmly welcomed the major articles of CBD viz., Access of Genetic Resources (Article 15), Access and Transfer of Technology (Article 16), Handling of Biotechnology

and Distribution of its Benefits (Article 19), Mobilisation of Financial Resources (Article 20), etc. The historical trend of almost one way traffic of biological resources from the developing countries to the developed countries without any benefit in return, was for the first time aimed to undergo a paradigm shift under CBD regime.

The developing countries, however, were given duties and responsibilities to initiate serious studies for taking measures for sustainable use (Article 6), identification and monitoring of resources (Article 7), take action for *In-situ* (Article 8) and *Ex-situ* Conservation (Article 9), provide "Incentives" for conservation (Article 11), initiate Research and Training (Article 12) and Public Education and Awareness (Article 13) programmes; all contracting parties including developing countries were also asked to integrate biodiversity conservation with impact assessment studies of development projects (Article 14).

At the national level, the spirit and objectives of CBD has been followed in several countries including India. During the last 10 years, the Ministry of Environment and Forests, Government of India, initiated a project on the preparation of a "Status of Biodiversity" Report (1998), a report on implementation of Article 6 of CBD (1998), preparation of National Biodiversity Strategy and Action Plan (NBSAP, Draft Report 2002) and enactment of Biodiversity Act 2002, in February 2003.

The Biodiversity Act has acknowledged the necessity of formation of "Biodiversity Management Committee" (BMC) at local level (Panchayat) for documentation of resource and knowledge and empowered the BMC to express its views regarding access and transfer of resource occurring within its territorial jurisdiction. The opinion of BMC is to be communicated to State Biodiversity Board for onward transmission to the National Biodiversity Authority. The BMC may levy charges by way of collecting fees for accessing and garnering any biological resource [u/s 41 (1) (2) (3)].

5.0 CBD and Himalayan Farmers' Livelihood

The mountain ranges of the Himalayas lie within the geographical limits of about 26° 20' and 35° 40' North and 74° 50' and 95° 40' East extending over eight Asian countries, viz., Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. The part of the Himalayas within the Indian territory extends over 2,500 km with a width of 200-300 kms. It covers partly or fully twelve states of India, namely, Jammu and Kashmir, Himachal Pradesh, Uttaranchal,

Uttar Pradesh, Sikkim, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, Assam and West Bengal. Some ranges of the north-eastern region are excluded from the Himalayas due to geographico-historical reasons and are termed as extension ranges; the biological and environmental characteristics between these two segments, however, hardly differs. With 591 thousand square kms., inhabited by more than 51 million people, the Himalayan region is largely characterised by sparse population, undulating terrain, far-flung small villages, scattered land holdings, shallow and gravely soil, agro-pastoral economy, scanty irrigation and lack of technological advancements. (Ramakrishna et al, 1994).

Culturally, numerous tribal groups in the region present a mosaic and ethnic spectra which widely differ between sub-regions. Tribal communities are keen to conserve their traditional practices but impacts of development have increasingly influenced their livelihood.

Agriculture remains the mainstay for these hill-communities. With increasing population, expansion of agriculture on marginal land and declining crop yields have been identified as two of the major problems. (Ives and Massereli, 1999; Jodha, 1990). Lack of adequate data showing agricultural changes cannot however establish a temporal trend pattern. Changes in the food habit, e.g., preference for wheat and rice may be partly responsible for food insecurity since yield of other traditional crops like finger millet, barley and echricola did not show any appreciable changes in yield in a limited study in Kumaun Hills (Whittaker, 1984). A mixed agrarian crop pattern including wheat and rice would perhaps offer a more stable condition rather than intensification of one or two selective crops.

The yields in shifting agriculture fields in forest slopes of the north-east face crisis due to changing land use. Settled agriculture in terraced slopes in mid elevations (upto 1800-2000m) or untterraced gentle slopes in high elevations (above 2000m) in the central and western Himalayas faced a different crisis due to loss of soil fertility related to deforestation. Crop diversity managed by mixed cropping and /or crop rotation also underwent a process of change.

The implication of CBD even after 10 years has not reached the people at the grass root level in the Himalayan region. The vast treasure house of knowledge and traditional practice of preserving and using local farmers' breeding line remain vulnerable to external exploitation. The seeds of agricultural and

horticultural crops and the knowledge based on medicinal and aromatic plants have already been exploited by commercial sectors without accruing any benefit to the provider and conserver of material and knowledge.

The State Agricultural Department's outreach programme failed to sensitise the farming community on the importance of conservation of genetic diversity at the cost of homogenisation of agriculture with the lure for better income.

It is undeniable that the raw material of the plant breeder originally comes from the fields of small farmers. For much of the plant genetic diversity in the Himalayas, which are actively used, maintained and selected, the credit must go to the small farmers. "Their land races may not be productive under optimal conditions as modern homogenous varieties of formal plant breeders, but they are, and will continue to be, the very basis of future productivity gains" (Esquinas-Aleazar, 1996). The CBD reconfirmed that plant genetic resources are sovereign rights and they are under the sovereignty of the government of the state in which they 'developed their distinctive properties'.

CBD, therefore, in a different way confirmed farmers' rights while Intellectual Property Rights regime threatens the very basis with its extension to living natural resources.

Himalayan farmers' rich repository of knowledge and skill in developing local land races can only be protected through strict application of CBD, supported by the National Biodiversity Act, 2002/03. Majority of genes used for agriculture are still found in the developing countries and denial of equitable sharing of benefits could easily result in erection of formidable barriers to accessing genetic resources.

It is to the interest of National Government and International Community to ensure that the share of benefit reach small farmers in the mountains maintaining land races; otherwise, they will have no incentives to continue to maintain the same. A mechanism is to be evolved to internalise the costs of conservation within the costs of production.

Farmers' Rights was identified as an outstanding issue not addressed by CBD but a complementary Resolution No. 3 was adopted at the same conference where the agreed text of CBD was adopted while TRIPs oblige parties to protect only the "rights of commercial breeders and biotechnology and their companies".

India, as part of development of *sui generis* legislation following the TRIPs agreement, had envisaged returning a share of royalties on seed sale to fund for Farmers' Plant Genetic Resource activities. Such a move would be a purposeful one.

The livelihood of farmers in the hills remains largely dependent on the use of their traditional knowledge. A recent study (CUTS, 2002) shows that the farmers in north-eastern part of India largely use indigenously developed seeds, manure, pesticides and implements. While market economy reaching other parts like Garhwal Himalaya changed such a practice to commercial material use, "Beej Bachao Andolan" (Save Seed Movement) in such areas can act as a counter-effective strategy.

Beej Bachao Andolan (BBA) was started in 1990-91 at Hemvalghats Region of Tehri Garhwal. By 1995, as many as 126 varieties of rice, 8 of wheat, 40 of finger millet, 6 of banyard millet, 110 of common beans, 7 of horsegram, 8 of traditional soybeans and 10 of French beans were grown in farmers' field only by organic farming. The characteristics of each crop grown in respect of the growth rate, resistance

against pests and diseases, yield and any special properties have been recorded. Varieties with more desired characteristics are exchanged for propagation, farmers' fields have become living gene banks (Jardhare and Kothari, 1996).

Besides the agricultural crop varieties, horticultural crops provide one of the valuable resources to Himalayan farmers. The varietal richness in horticulture equally needs conservation through a process of incentives to the growers in view of the national objective of preserving genetic diversity in the Himalayas. The third area of concern centres around Medicinal Plants. Himalayan region offers one of the richest diversities of medicinal plants including high percentage of endemic elements. Local communities heavily depend on such resources for health care. Traditional knowledge about the use of medicinal plants have for long been accessed by local corporate manufactures of drugs as well as multinational companies. Medicinal plants growing in the wild, have been overexploited by such prospectors, making it rare and vulnerable. Protection of both knowledge and these resources in the Himalayas need special focus under the sovereign right clause of CBD, for livelihood improvement of local community through a process of benefit sharing.

Box 3: Protection of Plant Varieties and Farmers' Rights

The issue of Protection of Plant Varieties and Farmers' Rights came up in the house of Parliament as a Bill (Bill No. 123 of 1999) and was discussed in Joint Parliamentary Committee in selected cities of India.

It is aimed to provide for the establishment of an Authority to give 'an effective system for protection of plant varieties, the rights of farmers and plant breeders and to encourage the development of new varieties of plants'.

The Bill has since been passed and an Act on the subject is available. It calls for registration of all plant varieties following a prescribed protocol. It prohibits use of "any technology" which is injurious to life and health of human, animal and plants and includes genetic use restriction technology and terminator technology. The Act demands complete passport data of the parent line for the said variety. Registration of all essentially derived varieties will also be subjected to testing to evaluate standards of such seeds.

Such an Act offers a safety clause to all the plant breeders. It ensures farmer's right to save, use, exchange or sell farm produce of a variety. The Act, therefore, helps to support the philosophy of CBD and Farmer's Rights across the country.

6.0 Conclusion

Farmers in the Himalayan region possess rich knowledge on the land races and varieties occurring in the region. Enhancing and maintaining on-farm genetic resources depend on the ability to use diversity. Farmers' skill to decide what to retain or discard are used to develop varieties of several crops that are adapted to local condition. Such a process is being threatened with aggressive market forces. The traditional knowledge and farmers' varieties have been used for commercial benefit by corporate bodies without sharing any benefit to the providers and conservers of knowledge and material. CBD has advocated a logical process of access and transfer of genetic resources on prior informed consent based on a principle of benefit sharing. Farming communities across the Himalayas have not been sensitised about such provisions, now embodied in The Biodiversity Act, 2002 of India. The Government of India have to undertake a massive campaign through civil society organisations to propagate the principles of CBD and provisions of The Biodiversity Act. The farming community in the Himalayas, in their turn, should undertake community-based initiative on seed banking, on-farm testing of varieties and seed multiplication that enlarges livelihood options, particularly for women.

Making farmer-breed varieties from similar agro ecosystem available to wider area may be one of the basic objectives to ensure rights to livelihood. Encouraging genetic improvement of local land races to overcome deficiencies may be another strategic

point. Simultaneously, active participation of farmers in local 'Biodiversity Management Committee' may empower the community to establish rights over their resources.

Recommendations

- ♦ The rights and responsibilities of farmers in the Himalayan region enshrined in CBD and the Biodiversity Act, 2002 need to be widely circulated through a grass root campaign by civil society organisations.
- ♦ Documentation of agrobiodiversity at the Panchayat level in the form of Community Biodiversity Registers or Peoples' Biodiversity Registers should be initiated in local language.
- ♦ Farmers seed bank for exchange of seeds and campaign to save local land races should be encouraged to ensure conservation of agro biological diversity adapted to local condition.
- ♦ Similar initiatives to use horticultural crop diversity and medicinal plants to ensure a better livelihood for the farmers in the region.
- ♦ Efforts like 'Beej Bachao Andolan' (Save Seed Campaign) to make the farmers' own assertion of economic and ecological self reliance viable.
- ♦ Training for using modern techniques and imparting skills with regard to agriculture, horticulture and medicinal plants to enable the farmers in the Himalayas to enhance productivity and income generation.

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