
Chapter 40

Incorporating the Intellectual Property Rights of Mountain Farmers over Native Crop Resources in the Agenda for Management of Mountain Agrobiodiversity

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The subject of Intellectual Property Rights (IPRs) over biological materials has become important in all kinds of bilateral and multilateral negotiations. The central issue is the fact that biotechnology will be the most dominant technology in the next twenty to thirty years. Bioresources, which are the raw material of biotechnology, are mostly located in developing countries. The industrial countries, which are strong on technology, have few bioresources. Forcing a harmonised IPR regime on developing countries through international negotiations is their way of gaining access to the bioresources they need in order to flourish in the field of biotechnology.

If companies with a stake in biotechnology procure the right to patent their products, whether plant-based medicines, neem-based pesticides, or wound-healing products derived from turmeric, in India, Nepal or Bhutan, then they will actually have acquired guaranteed access to certain medicinal plants, such as neem and turmeric, in these countries for the duration of the patent. In this way, the multinational patent holder will be able to control bioresources in developing countries. This will be facilitated by the requirement that all signatories to conventions such as the General Agreement on Trade and Tariffs (GATT)/World Trade Organization (WTO) and the Convention on Biological Diversity (CBD) must accept the patent/IPR laws determined by the industrial nations as the standard for these conventions.

Countries owning germplasm must be cautious about what kind of IPR regimes they accept. For these nations, genetic resources are not only the raw material of potential biotechnological applications, they are first and foremost the

socioeconomic foundation of tribal and rural populations. Hill populations in countries like Nepal, India, and Bhutan that are the custodians of valuable knowledge about their biological resources must not be hindered in their potential to commercialise this knowledge in the expanding era of biotechnology. The opportunities that tribal and rural people have to engage in self-reliant growth based on their own skills must not be jeopardised by the overwhelming financial capacity of multinational companies.

In this context it is of utmost importance that the Hindu Kush-Himalayan countries – India, Nepal, Myanmar, Bangladesh, Pakistan, Bhutan, and China – work together to formulate a regional policy. This will strengthen the position of the Hindu Kush-Himalayan region as a germplasm rich centre, and no one country will be able to undermine the greater interests of the region. Genetic resources do not recognise political boundaries and the countries of the Hindu Kush-Himalayas have a similar distribution of bioresources. It should not be possible for one country to grant access to a particular germplasm if another country in the region has refused access to the same germplasm.

What needs to be done now is to understand the requirements of the GATT Trade Related Intellectual Property Rights' treaty (TRIPs) and the Convention of Biological Diversity (CBD). These are currently the two most important treaties dealing with the treatment of genetic resources and intellectual property regimes connected to them. Germplasm rich countries should formulate national legislation that will protect their interests to the maximum extent. This will be possible if nations demonstrate political will in taking firm positions on what is their most valuable natural resource. It is possible to draft strong national laws without actually contravening the internationally accepted conditions in the two treaties.

The Requirements of GATT/TRIPS

The Trade Related Intellectual Property Rights' (TRIPs) regime of GATT requires member nations to provide patent protection for micro-organisms and a *sui generis* system for plant varieties.

Our region should refuse to accept patents on micro-organisms. We should offer to accept patents on the products derived from the micro-organisms but not on the organisms themselves. In order to do this, we can call upon the clause of 'ordre public' and morality. GATT/TRIPs has a provision that nations can refuse to bring under the purview of patents any products or processes that offend the sense of morality of their societies or goes against the public order ordained in these societies. We can claim that accepting the ownership of any agency other than God over living organisms offends the religious sensibility and sense of morality of our people (mountain communities in particular). The Europeans

have successfully invoked these ethics clauses in the European Parliament and succeeded in getting the right to patent life forms struck down.

We should agree to the institution of a *sui generis* system for protecting new plant varieties. However, our *sui generis* system should not be modelled on Union for the Protection of New Varieties of Plants (UPOV), which is the European organization whose name, originally in French, translates into Union for the Protection of New Plant Varieties. The UPOV model has been developed for industrial countries, not agricultural nations such as those in our region.

UPOV recognises the rights of the breeder and rewards it with the Plant Breeders' Right (PBR). It does not recognise that the farmer has any rights, and it has no provision for acknowledging or, therefore, rewarding any contribution that the farmer makes to the development of new plant varieties.

UPOV in its 1978 version grants two exemptions to the Breeders' right over a new variety. One is the Farmers' Exemption which allowed farmers to save seed out of the harvest of the PBR protected seed for his next sowing. The second exemption, known as the Breeders' Exemption, allows other breeders the right to use the PBR protected variety as breeding material for the development of other varieties. The revised version of the UPOV treaty, which came into force in 1991, does away with both exemptions so that it is only the breeder who retains almost monopoly rights over a new variety, although other parties have contributed to its development in a major way.

It needs to be remembered that women and men in the mountains have not only created several thousand races of food and cash crops, they have also identified valuable genes and traits in these crops and maintained them over generations through a highly sophisticated system of crossing and selection. Mountain farming communities have not only developed complex systems of pest management and biological control, they have identified and managed a series of genes conferring valuable traits for commercial and domestic needs. So it is that genes for traits as diverse as disease resistance, high salt tolerance, resistance to water logging, and drought tolerance have been maintained in the repertoire of communities. Along with these commercial traits, characteristics such as cooking time, taste, digestibility, milling, and husking characteristics are recognised and maintained. Women, who have been the traditional custodians of seeds and are responsible for seed selection, are the repositories of this knowledge and, in the true sense, the owners of this complex seed technology and knowhow.

The farmers' work of genetic selection, maintenance, and crossbreeding is the result of innovative and creative scientific experimentation in the field. The work is in no way less than the scientific experimentation conducted by scientists on the

experimental plots of agricultural research stations. We need to overcome the bias that most of us suffer from, that of acknowledging the research conducted by scientists in white coats working in laboratories of universities as 'science' and dismissing the complex knowledge systems contained in rustic, rural communities as something infinitely less and not worthy of acknowledgement.

The fact is that there would be no plant breeders in long white coats working on experimental farms if it were not for the prior knowledge gained from rural communities. Indigenous knowledge is not only the foundation of modern science in this and many other fields, it is also what could be described as the reference and referral centre for modern plant breeding. Today, faced with the threat of global warming and climate changes across agricultural zones, scientists are on the look out for crop varieties that are more heat tolerant. The scientists do not acquire information about the location of heat resistant wheat or millet varieties by sitting in their expensively appointed laboratories and meditating for guidance. They acquire this information by going to deserts and hot regions and asking local farming communities about the varieties that grow in that region that can withstand extreme heat. Armed with the benefits of indigenous knowledge, these scientists return to their labs and their experimental farms and engage in a breeding and selection programme that will result in the combination of traits that they seek to achieve in the new variety that is to be designed for post global warming agriculture.

If credit had to be apportioned for the breeding of a new crop variety, then it should be shared perhaps 70:30 or at the least 60:40 between the farming and scientific communities. One can say quite easily that, if the breeding of a crop variety entails 100 steps, then indigenous knowledge will have contributed the first 60 or 70 steps and laboratory science the next 30 or 40. It stands to reason, therefore, that credit, reward, and recognition for a new variety should be similarly shared. That is the reason why the claim to place Farmers' Rights on a par with Breeders' Rights is so natural. Farmers have a greater and more innovative share in the creation of new plant varieties than scientists. Their contributions must be recognised with at least the same degree of enthusiasm as, if not more than, that accorded to scientists.

In Europe and the USA where UPOV operates, farmers constitute no more than two to seven per cent of the population. In our countries, they constitute more than 70 per cent of the population. In UPOV nations, farmers are rich and receive huge subsidies to keep their fields fallow in order to keep down the volume of surplus food produced. In our countries, a large percentage of the farming community has small land holdings and practices subsistence agriculture.

UPOV nations have ensured their food security over time. Our region still has to struggle to achieve food security. In the countries of the west, not only is the

agricultural profile different, the research to develop new varieties and production of seed is also conducted very differently. In India and its neighbouring countries, agricultural research is conducted by scientists in universities and public institutions. This research is financed by taxpayers' money and public grants. Research exists in the public domain. In UPOV nations, on the other hand, most of the research needed to produce new varieties is conducted by private companies. This privately-funded research belongs to the company and is not in the public domain.

Similarly, seed production in UPOV nations is the exclusive domain of the company that has developed the new variety. It is the only agency that can produce and market the seeds of the new variety. That is precisely the right conferred by the Plant Breeders' Rights granted to individual breeders or the company under the UPOV system. In India, seed production and sale are largely in the hands of farmers. Although the National and State Seed Corporations had been envisioned for this task, it is performed much more efficiently by the farmers themselves. Today, farmers provide over 82 per cent of the total annual requirement of more than 6,000,000 tons of seed in India.

Clearly, the compulsions and needs of UPOV nations are vastly different to the needs of the nations in our region. Having established this, we need to specify the components that should go into the *sui generis* system that we give ourselves.

Our system should place Farmers' Rights on a par with Breeders' Rights. Our regional policy should clearly make the grant of Breeders' Rights reciprocal to the grant of Farmers' Rights.

We should affix a fee for the use of germplasm from the region. If disease resistant genes are used for vegetables or drought resistant genes used for cereals, then breeders and seed companies should pay for the use of these genes. No distinction should be made between foreign and local seed companies. Anyone using germplasm that has been maintained by communities (and this includes the germplasm collected from farmers' fields and now banked in the CGIAR system) should pay into a Community Gene Fund. Money obtained from Farmers' Rights, from the fee for gene use, or for the use of indigenous knowledge about certain kinds of germplasm, such as medicinal plants, should be paid into a Regional Gene Fund for the community. This money could be used for the conservation of the region's genetic resources as well as for other needs that the community may have, such as a primary school or health care centre.

It is often said that it is difficult to compute the fee that can be charged for gene use. This is not true. There are several indices that can serve as the baseline from which to compute the values of genes. For instance, the US Department of Agriculture once put out a figure that germplasm import had benefitted American

agriculture to the tune of 70 billion dollars. Since the genes and their countries of origin are documented in such cases, it should not be difficult to calculate what was owed to which country for the use of its genes. Similarly, some years ago, the California musk melon crop was threatened by a fungal rot. Scientists brought in disease resistant genes from India and saved the California musk melon industry worth millions of dollars. Some percentage of the profits made by California from the import of the resistant musk melon genes could be the fee payable for the use of the resistant genes.

Requirements of CBD

The Convention on Biological Diversity rectifies a historical wrong. It reverses the principles of Common Heritage of Mankind according to which the genetic resources of the world belonged to everyone and not particularly to the nations in which they were found. Now CBD has acknowledged the principle of ownership according to which genetic resources are recognised to be the property of those nations in whose sovereign territories they are located. In addition, CBD lays down two other conditions of great importance to germplasm owning countries. These are the ones on Prior Informed Consent and Material and Information Transfer Agreements with respect to the transfer of genetic resources from owner countries to countries/companies/individuals that want to use these resources.

The clause of Prior Informed Consent states that parties wanting to use genetic resources must first take the permission of the relevant authority in the owner country. Material and Information Transfer Agreements are to govern the conditions under which these resources will be transferred to the user party. These conditions could, for instance, lay down such things as the fee that will be levied for bioprospecting whether or not a product is developed, the basis of profit sharing from products developed, whether such products can be brought under the purview of IPRs or not, and the royalties payable to individuals or communities for the use of indigenous knowledge.

Although the Biodiversity Convention was ratified in December 1993, our countries have yet to formulate laws that will allow the conditions of the CBD to come into force. We must pass these laws immediately in the form of domestic legislation that will allow us to protect our biodiversity and indigenous knowledge from marauding corporate giants who, at present, can take advantage of the legal limbo and transfer our genetic material without proper agreements. Today even when foreign nationals are apprehended at airports carrying genetic material such as seeds, oil samples carrying micro-organisms, or butterflies and insects in their suitcases, it is difficult to proceed against them if the samples are not on the endangered or prohibited list. Unless ownership rights are established over genetic

resources, they remain the Common Heritage of Mankind and their transfer cannot be considered illegal.

Three new laws have to be formulated for the CBD. These are (i) to establish ownership rights over the biological resources found in the sovereign territories of each of the countries of the region; (ii) to formulate the guidelines and structures for Prior Informed Consent according to which user parties will have to seek the permission of some kind of National Authority authorised to grant or refuse access to genetic resources; (representatives of the communities that have been responsible for maintaining genetic resources over generations and are the repositories of indigenous knowledge should be members of such a National Authority); and (iii) To lay down the conditions for Material and Information Transfer Agreements so that the use of biological resources is just, equitable, and sustainable. This law would seek to ensure that indigenous communities are not denied their share of the profits that accrue from the commercial exploitation of the genetic resources that they have conserved.

The question of Intellectual Property Rights will have to be addressed in the CBD, although indirectly. Our position should be that India will not grant IPR protection over products and processes derived from indigenous knowledge. The rationale for this is that knowledge that belongs to communities should not be privatised. Whereas this knowledge can and should be used for commercial exploitation and the betterment of communities, it should not be monopolised.