

Chapter 4

Issues of Ethics and Guidelines for Ethnobotanical Research

The research on local uses of plant products and other associated aspects of indigenous knowledge of communities residing in or in close proximity to the forests is becoming increasingly popular. The evolution and practice of participatory research methods have made a big contribution in bringing the rural communities closer to science and the practice of management of natural resources. At the same time, it has led to greater recognition of the wisdom of people and brought their old methods and techniques to the limelight. There is a kind of information explosion on indigenous knowledge of traditional communities and its relevance to society at large. While it is true that many aspects of indigenous knowledge are of great value to all of us; many of us in the modern world tend to regard it as free. Not only this, there are commercial corporations and business ventures flourishing on the knowledge base and indigenous resources of people with the help of modern technology and sharing almost no profits with them. So, though there remains a humane justification for collecting and sharing ethnobiological information, the cause of safeguarding the interests of the community that creates and parts with the knowledge has to be supported. There are many international commitments that are being promoted in order to justifiably generate and share knowledge. At the same time there are counterproductive commercial agreements that are putting the whole effort in jeopardy by promoting the interests of private corporations and heavily industrialised countries. They are promoting a system of intellectual property rights (IPRs) over bio-cultural resources that serve not only as a means of economic domination but also as a means of discouraging recognition of local innovations in knowledge generation. Therefore, this section is devoted to discussion on major developments that relate to this complex issue and conduct of a responsible ethnobotanist.

4.1 Introduction to Intellectual Property Rights

The world's present intellectual property system has its roots in 19th century European efforts to promote the interests of private industry in scientific and industrial growth. There are five principal forms of intellectual property rights: patents, plant breeders' rights, copyright, trademarks, and trade secrets. These are explained briefly in Box 4.1. These laws give inventors monopolies and discourage competitors. Legally, in order to get a patent in most countries, three basic criteria have to be met, namely, a product or process must be:

- new (or can claim 'absolute world novelty'),
- non-obvious (that is, includes a real inventive step), and
- useful (has commercial application).

In return for depositing a sample of the patented product or process and describing it so that others skilled in the art can replicate it, inventors get the right to:-

- exclusive monopoly over the invention for 17 - 25 years,
- royalties (a surcharge above the normal sale price) on the use of their invention, and
- control of access and the right to set the conditions for sale of the invention, meaning the right to deny or vary costs depending on the customer and market conditions.

Box 4.1. The Five Principal Forms of Intellectual Property Rights

1. *Patent*: A legal monopoly that covers a wide a range of products and processes, including life forms. To receive a patent, inventions must meet three basic criteria. They must be novel, useful, and non-obvious.
2. *Plant Breeders' Rights*: A law that grants a plant breeders' certificate to those who breed new plant varieties. PBR are governed by two international agreements under the Union for the Protection of New Varieties of Plants (UPOV).
3. *Copyright*: This is a legal framework intended to protect artistic and cultural works such as books, illustrations, photographs, and television programmes from being duplicated and/or transmitted without the author's permission.
4. *Trademarks*: A legal monopoly over a name or a linguistic or visual symbol.
5. *Trade Secret*: An intellectual property right used when inventors do not wish to patent in order to protect themselves from competitors. Unlike patents, trade secrets do not require inventors to publish and have no time limit.

It was not so long ago that plants and life forms could be patented. One of the first international agreements, the Union for the Protection of New Varieties of Plants (UPOV), was signed in 1961 to protect plant breeders' rights (PBR). This was the time when public and private seed corporations were beginning to expand business across the globe as part of the Green Revolution technological package. There are two operative UPOV conventions dated 1978 and 1991. The 1978 convention allows farmers to save and replant PBR-protected seed from their harvests, whereas the 1991 version restricts the rights of farmers to save seeds and makes PBRs more like patents, extending the scope of the monopoly granted to the certificate holder. The first patent on a genetically engineered micro-organism was granted in the United States in 1980. In 1987, The US Patent and Trade Mark Office ruled that animals can receive patents too.

The late 20th century has seen the further development of patent systems around the patenting of life forms that are products of biotechnology and industrial manipulation of genetic materials. This is based on the idea that genes are inventions and products because the process of isolation, extraction, and *ex vivo* replication of biological material requires techniques that human beings alone are capable of putting into practice and which Nature is incapable of accomplishing by itself.

4.2 Implications of IPR Mechanisms for Mountain Communities

The above-mentioned concepts of intellectual property differ radically from most rural and indigenous systems of knowledge and innovation prevalent in mountain communities. Here, society perceives knowledge and innovation as collective creations and not as commodities.

This creation of knowledge by the community is held in trust for future generations, and it is unheard of for farming communities to grant unlimited rights to land and resources or to permit ownership of the process of life. Concepts such as stewardship or custodianship come much closer to rural realities than exclusive monopoly or intellectual property. For example, it is widely recognised that traditional farming practices have contributed immensely to the promotion and management of agricultural biodiversity and to the development of modern varieties. However, genetic material from a land race, patented by a breeder, gives him/her all claims to the material, whereas the farmer from whose farm the material was taken has no rights to it. The logic is that, even when a land race is used in a commercial plant variety, breeders almost always extract and adapt a gene or gene complex to make one of several hundred components in a new plant variety. Considering the alternative option of a farmer trying to obtain PBR to be eligible for protection, he/she would have to prove that the variety is:

- distinct: distinguishable by one or more characteristics from any other variety that is commonly recognised;
- stable: remains true to its description after repeated production or propagation;
- uniform: homogeneous with regard to the particular feature of its sexual reproduction or propagation; and
- novel: that it has not been offered for sale or marketed in the source country, or for longer than four years in any other country.

The farmer or his community would have to prove that they were the only ones to use the land race or breed the cultivar in addition to all the above legal requirements. Moreover, some of the prerequisites are actually in conflict with the farmers' breeding priorities, as they prefer varieties that possess variability and adaptability—and thus try to create cultivars with intra-varietal genetic diversity. This is just one example of how the different forms of patents are biased towards industrial society. A balanced picture of the advantages and disadvantages of the various forms of IPRs for local communities is presented in Box 4.2.

Four member countries of the HKH region have already accepted membership of the World Trade Organization (WTO) and are thus required to reform their patent laws in accordance with the provisions of the General Agreement on Trade and Tariffs (GATT) and Trade Related Intellectual Property Rights (TRIPS). Many things would change as a result of these measures. For example, farmers would have to pay expensive patenting fees to be able to buy genetically engineered seeds. These seeds would not only be more expensive than the conventionally bred seeds, but they also cannot be saved for the next crop as the patented variety belongs to the patent holder. Higher prices than at present for practically all other inputs, particularly agrochemicals, would be baneful to small farmers. Only a small section of farmers with a relatively large land holding would enjoy the economies of scale and would be able to sustain themselves. Small and marginal farmers, a majority in the HKH, would be particularly disadvantaged on account of their limited working capital and high vulnerability to risks.

Lifting the existing regime of subsidies being advocated under the GATT provisions would deprive farmers. At the same time, the capability of national and state agricultural research agencies to provide new varieties would diminish as scientists and breeders would be denied access to patented varieties for further breeding. Progress and innovation in breeding

Box 4.2: Advantages and Disadvantages of Various IPR Mechanisms for Local Communities

Mechanism	Advantages	Disadvantages
Patents	Can safeguard knowledge legally Available in most countries	Limited term of protection Applications expensive and require legal advice Protect knowledge of individual inventors, not collective knowledge of communities Difficult and expensive to defend
Petty patents	Can safeguard knowledge legally More traditional knowledge may be more protected than under patents Compared with patents, less expensive application procedure and shorter and less stringent examination	Available only in a few countries No international agreements to facilitate application in different countries Shorter period of protection than patents
Copyright	Easy to obtain Long period of protection	Protects expression of ideas but not knowledge itself Protection period not indefinite Subject matter must be in a physical form
Trademarks	Inexpensive Indefinite protection period, although may have to be renewed periodically May attract more customers to products of indigenous traders and trading organizations	Does not protect knowledge per se
Trade Secrets	Can protect traditional knowledge with commercial application Can protect more knowledge than the other IPR types Can be traded for economic benefits by contract Inexpensive to protect	Available in fewer countries than patents and copyrights

Source: Possey and Dutfield 1996.

will depend on the affordability of patent fees. Live resources, such as genes and living cells as well as characteristics such as 'high protein' and 'dwarfedness', would become the private property of biotechnology companies. Research and extension will suffer because of restrictions on the free exchange of information, and increased privatisation of research would lead to further internalisation (secrecy) of research results. As a consequence, the

current problem with global food supply would be aggravated and would influence those communities most who are not self-sufficient in food production such as the population of the HKH region.

This scenario poses tremendous challenges to ethnobotanists and all those who work with local communities. Therefore, many international efforts are currently taking place to counter the threats of the IPR mechanisms mentioned above.

Box 4.3: The Role of Community Knowledge in Global Development

Health and Medicine	Food and Agriculture	Environment and Diversity
Local: 80% of the South's medical needs are met by community healers using local medicine systems.	Almost 90% of the South's food requirements are met through local production. Two-thirds are based on community farming systems.	Almost 100% of the biodiversity 'hot spots' are in areas nurtured by indigenous communities and/or bordering the South's farming communities.
Global: 25% (and growing) of western patented medicines are derived from medicinal plants and indigenous preparations.	90% of the world's food crops are derived from the South's farming communities and continue to depend on farmers' varieties in breeding programmes.	The wild relatives of almost every cultivated crop are found in biologically-diverse regions of the South and are nurtured by indigenous communities.
Market: The current value of the South's medicinal plants to the North is estimated conservatively at US\$32 billion annually.	The direct commercial value derived from farmers' seeds and livestock breeds is considerably more than US\$5 billion a year.	90% of the world's most biologically-diverse lands and waters have no government protection and are nurtured exclusively by rural communities.

Source: Rural Advancement Foundation International, Canada.

International Obligations to Safeguard Community Interests

Several International Environmental and Human Rights' instruments, some legally binding, such as International or Global Treaties, Regional Conventions, and Bilateral Agreements, and others non-binding, such as declarations, etc, reaffirm the obligation of nations to recognise and respect the rights of traditional communities in the management of natural resources and the involvement of people and communities in conservation of natural resources.

One significant development along these lines is the concept of Farmers' Rights. As described in the FAO's international undertaking on Plant Genetic Resources, farmers' rights mean rights arising from the past, present, and future contributions of farmers in conserving,

improving, and making available plant genetic resources. These rights aim to achieve the following.

- Assist farmers and farming communities, in all regions of the world, especially in the areas of origin/diversity of plant genetic resources (useful for HKH farmers) in the protection and conservation of plant genetic resources and of the natural biosphere
- Allow farmers, their communities, and countries in all regions to participate fully in the benefits derived, at present and in future, from the improved use of plant genetic resources through plant breeding and other scientific methods

While the directives and principles mentioned above are soft laws, there are more legally binding treaties such as the Convention on Biological Diversity (CBD). All the eight HKH countries have either signed and/or ratified the CBD. Its Article 8 (j) states that Parties are obliged to:

- ensure that a fair share of the benefits go to indigenous and local communities when others use their knowledge or the resources that they have conserved;
- ensure that people of indigenous and local communities receive recognition and acknowledgement for their contributions to universal knowledge and welfare;
- help indigenous and local communities to develop their own economic uses of their traditional knowledge and associated biological resources which are consistent with traditions of sustainable use; and
- ensure protection of the rights of indigenous and local communities over their knowledge, innovations, and practices as a part of the broader goal of achieving protection of their cultural heritage.

Advocates of these clauses are arguing (Downes 1997) that the term 'equitable sharing of benefits' should be defined by reference to the costs incurred by indigenous and local communities in conserving their knowledge and associated biodiversity, rather than by reference to the value patents or an 'effective *sui generis* system' or both.

Heritage rights, such as those provided by the World Heritage Convention, which all the HKH countries, except Bhutan, have signed, provide another important instrument in favour of indigenous and local communities. In a special report of the UN Economic and Social Council (ECOSOC) on cultural and intellectual property rights, heritage is defined as:

"everything that belongs to the distinct identity of a people and which is theirs to share, if they wish, with other people. It includes all things which international law regards as the creative production of human thought and craftsmanship, such as songs, stories, scientific knowledge and artworks. It also includes inheritances from the past and from nature, such as human remains, and naturally occurring species of plants and animals with which a people has long been connected."

This concept of heritage is applicable to both the CBD and the FAO international undertaking on Plant Genetic Resources. It brings us to one of the greatest drawbacks of the property rights' system currently being promoted. It assumes that property rights are individually or privately held. It is easy to challenge this under the ECOSOC provisions that 'the protection of cultural and intellectual property is connected fundamentally with the realisation of the territorial rights' and tenorial rights are recognised by the 1989 ILO Convention 169: 'the

right of ownership, collective or individual, of the members of the population concerned over the lands which these people traditionally occupy shall be recognised.' Both heritage rights and rights over territory are inalienable, non-individual rights. They are elements of communal rights that have been recognised for indigenous communities by international law. The HKH region is one of great diversity. It has many indigenous communities and respective national governments should translate the provisions of these directives and principles into policy and action while negotiating other international agreements. These elements of communal rights must also be extended to other local farming communities in the HKH. The experience generated in the region clearly demonstrates that increased community control over resources is critical to the improvement and widening of development options. The fight for greater intellectual, biological, and cultural property rights is central to the wider struggle for people's rights to gain control over their livelihoods; and this is basic to the sustainable development paradigm.

International Networks

Many innovative measures are being discussed in institutions and networks that work with the indigenous people. The Working Group on Traditional Resource Rights affiliated to the Oxford Centre for the Environment, Ethics and Society is carrying out pioneering work. It is promoting the concept of a Community Intellectuals' Rights' Act which provides for the establishment of a *sui generis* system for plant varieties. The Centre has also attempted to include the local community as the 'innovator' and defined plant variety in a more practical sense. 'Plant Variety' shall include a plant species or category of a lower level (such as land race) or any part thereof or germplasm therein, whether domesticated or not, used in accordance with established customs, practices, and laws by local communities for a particular purpose that requires prior knowledge of a particular property of the plant such as food, medicine, or dye. In addition to such holistic definitions, the proposed act covers aspects of custodianship, free exchange amongst communities, use for commercial purposes, registration of invention, proof of invention, etc. What is more important, the act provides for co-ownership amongst communities that share the same knowledge so that they can carry the same rights, duties, and obligations.

International Conferences and Symposia in the related fields have also been making efforts to safeguard the interests of the community. The Manila declaration concerning the ethical use of biological resources was made at the Seventh Asian Symposium on Medicinal Plants, Species, and other Natural Products (ASOMPS VII) held from 2 to 7 February 1992. It made strong recommendations, some of them have been listed below.

- For all collections, the authorising agreement (s) should include provision for any subsequent commercial development that may eventually arise.
- Internationally recognised professional societies should develop a code of ethics that facilitates the formation of equitable partnerships in the development of new products from biological material.
- Mandatory royalty or license agreements should be established to ensure fair and equitable distribution of benefits.

The International Society of Ethnobiology (ISE) has also been very active in releasing guidelines and standards of practice. It mainly recognises and emphasises support to the efforts of

indigenous peoples, traditional societies, and local communities to undertake their own research, collections, databases, and publications. The code of conduct and standards of practice were agreed upon at the first ISE meeting in Belem in 1998. The purpose of this code of ethics, as specified in the draft put out at the 4th ISE held in Kenya in September 1996 is stated as follows.

- i) To protect and/or mitigate the adverse effects of research and related activities of ethnobiologists that can disrupt or disenfranchise indigenous peoples, traditional societies, and local communities from their customary and chosen lifestyles
- ii) To provide a set of guidelines, principles, standards, and policies to govern the conduct of ethnobiologists and all members of the ISE engaged in or proposing to be engaged in the research, collection, and use of traditional knowledge or collections of flora, fauna, or any other element found on community lands or territories

The Principles of this Code are intended to embrace, support, and embody the established principles and practices of international law and customary practice as expressed in the United Nations Declaration of Universal Human Rights and the Draft Declaration of Rights of Indigenous Peoples. The following principles are the fundamental assumptions that form the Code.

1. Principle of self-determination
2. Principle of inalienability
3. Principle of minimum impact
4. Principle of full disclosure
5. Principle of prior informed consent and veto
6. Principle of confidentiality
7. Principle of active participation
8. Principle of respect
9. Principle of active protection
10. Principle of good faith
11. Principle of compensation
12. Principle of restitution
13. Principle of reciprocity
14. Principle of equitable sharing

There are several scientists and institutions that have laid down very strict ethical guidelines for accessing and exploring biodiversity. The Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) based in Ahmedabad, India, follows a very strict process of initial disclosure of information. As detailed by Professor Anil Gupta of SRISTI, in the initial contact with the community the researcher:

- should carry out all communications in the local language;
- must explain the nature and purpose of the proposed research, including its duration, the geographic area in which research will take place, and the research and the collecting methods;
- must explain the foreseeable consequences of the research for resources, people, and accessors, including potential commercial value;

- should explain the potential non-commercial values such as academic recognition and advancement for the researcher;
- should explain any social and/or cultural risks;
- must notify the community at large by some means, e.g., public meeting;
- should consider explaining the guidelines that the researcher is following, as well as his/her practice in previous similar research projects;
- should be willing to provide copies of relevant project documents, or summaries thereof, preferably including the project budget in the local language (in the case of commercial prospecting researchers must share such documents);
- must agree on a protocol of acknowledgements, citation, authorship, and inventorship as applicable, either citing local innovators or conservators, or respecting requests for anonymity;
- must share findings at different stages with the providers; and
- must not engage in bribery or in making false promises.

An innovative approach adopted by *Sristi Jigyasa Parivar*, another Indian organization based in Bangalore, is that of the People's Biodiversity Register (PBR). The general approach followed in PBR has been briefly outlined in Section 2.1. The process includes working with the existing local village-level institutions. In the initial contact, the issues related to the importance of documenting the resources of the village are discussed. Depending on the interest in the village, the process for compilation of the Biodiversity Register is initiated and, after completion, the database is left with the village authorities. In this way people in the village have the required information as well as control over it.

The field of ethnobotanical research is more vibrant and complex now than ever before in history. The interest in indigenous knowledge and natural products is phenomenal, and there is more awareness about non-extractive and participatory research that benefits local communities. UNESCO, WWF, and the Royal Botanical Gardens, Kew – initiative on People and Plants – consider these times of crisis for any professional concerned with biological or cultural diversity since *'both are disappearing at an alarming rate. For economists and ethnobotanists, as well as natural product chemists, there is an urgent need to publish a broadly accepted, practical set of guidelines for creation or research partnerships that not only benefit people but other forms of life'* (Cunningham 1996).

Acknowledgements for Section III

This paper is based on the information available in many public interest publications brought out by Rural Advancement Foundation International, Canada; Genetic Resources Action International, Spain; Gene Campaign, India; Southeast Asia Regional Institute for Community Education, Philippines; and Programme for Traditional Resource Rights of the Oxford Centre for the Environment, Ethics and Society, UK.