

Farmers' Rights in Conserving Plant Biodiversity with Special Reference to North-East India

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Traditional plant varieties and wild species are disappearing irreversibly and this process has resulted in the disappearance of farming know-how and the genetic information is entailed. North Eastern states of India are also no exception in regards to genetic erosion. This is because the rights of communities, food producers and herbalists to these genetic resources are not recognized. Only with adequate recognition, protection and reward will these resources be conserved and appropriate compensation is granted to the communities. Central to this is the right to 'Prior Informed Consent', ensuring communities to know what they are agreeing to. A means must be found to reconcile conservation and development by involving local populations more closely in the decision-making process and by taking the interactions between 'societies' and biodiversity more fully into account. The Protection of Plant Varieties and Farmers' Rights (PVPFR) Act rightfully takes this into account. The Indian legislation is the first in the world to grant formal rights to farmers in a way that their control over genetic resources and their self-reliance in agriculture is not jeopardized. The innovative Indian legislation has opened up interesting possibilities for developing a platform for regulating breeders' and farmers' rights so that both are acknowledged and protected. The Indian law now recognizes the farmer not just as a cultivator but also as a conservator of gene pool and a breeder who has bred several successful varieties. Moreover, the recognition of tribal laws as tribal rights *vis-à-vis* farmers' rights will address the conflicts between customary and statutory laws and regulations related to forest ownership and natural resource use while ensuring conservation of genetic resources by the local communities of the North East.

Keywords: Farmers' right, plant biodiversity conservation, North East India

Rural areas are the habitat of the world's three quarter poorest people who are dependent for their livelihoods in one way or another on agriculture and access to natural resources¹. Still the rural populations are denied of their rights to land or property, water, labour and access to markets, education, information and new technologies. Agricultural and Natural Resources (ANR) of developing countries not only provide vital food supplies, employment, health care and raw materials for billions of their own population but valuable raw materials, cash crops and timber for the developed world population as well. Unfortunately, the producers of this wealth remain the poorest of the poor and their lot is not getting any better despite considerable interest and intervention from outside agencies. The primary reason for this malady is the flaw in the ownership and management of ANR.

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process has resulted in the disappearance of farming know-how and the genetic information is entailed. India as a whole like most of the developing world, indigenous genetic resources of poor communities are being lost, because of the spread of industrial agriculture and the consequent marginalization of small-scale food production and they are being stolen by corporate-sponsored scientists and other plant collectors – the biopirates – without adequate compensation. This is because the rights of communities, food producers and herbalists to these genetic resources are not recognized.

These varieties have been replaced by modern ones which are economically more efficient but which have only a low degree of genetic diversity. What will happen if, for example, these modern varieties turn out to be ill-adapted, or if pathogens appear? Given the reduction of biodiversity and the risks involved, it is necessary to preserve: preservations for the present generations in private banks where the preserved material is or will be used in plant breeding

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programme and preservation for future generations by developing an analysis in social terms of the intergenerational models and of sustainable development.

The Case of North East India

North Eastern states consisting of eight sister states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura are also no exception in regards to genetic erosion. As a policy issue, the Central and State governments of India have been making massive efforts to modernize agriculture by laying much emphasis on the cultivation of improved varieties that are responsive to inputs. These high-yielding varieties have replaced the land races of wheat, rice, maize and other crops at an alarming rate. The land races today can be found only in remote, landlocked, inaccessible areas which have difficult means of communication.

Today, some of the crop species have become rare or completely lost from the cultivation. For example, in Meghalaya, a local cereal *Digitaria cruciata* var. *esculenta* has become rare and in Tripura, land races of rice have been reduced to 32 from 105 in 1975. The millets and pseudo-cereals in the Himalayas have become victims of new cash crops like peas, potatoes and fruit crops. The crop plant species under cultivation across the Himalayas include over 139 crop species. In North eastern states, the varietal or genetic diversity has been narrowed down to a few improved varieties from 60 land races in rice, 29 land races in wheat and 13 land races in maize.² Till recently, the situation of genetic erosion, however, is not as bad in the North East when compared to other parts of the country due to its long years of isolation and its remote, landlocked and inaccessible areas as the area has still been able to retain its significant proportion of its biodiversity. But this isolation scenario is changing very fast and the entire North East is now under increasing pressure to unleash its resources for economic development and thus also susceptible to patenting techniques of the legally skilled northern developed nations and non challant Indian approach to its natural wealth.

The agricultural prosperity of the local communities of the North East solely depends on wider base of agro-biodiversity. This biodiversity may be at the crop species or at varietal (genetic) level. The available bio-resources are utilized in an optimum way to ensure the supply of food in spite of

weather odds, epidemics of diseases and insect-pests. It is, therefore, pertinent to maintain the wide base of agro-biodiversity (species diversity) in order to ensure the livelihood of the people living in the north eastern India. This is only possible by recognizing the role of local communities of the north eastern states in conserving the biodiversity and also engaging them in the management decisions in conservation along with the resource sharing benefits so that the development achieved is sustainable.

What to Conserve in North East

At the confluence of the Indo-Malayan, Indo-Chinese and Indian biogeographical realms, the North East region is unique in providing a profusion of habitats which features diverse biota with a high level of endemism. The region is also the abode of approximately 225 tribes in India, out of 450 in the country, the culture and customs of which have an important role in understanding biodiversity conservation and management issues.³ The north eastern region has been in focus for its high biodiversity and this region has been a priority for leading conservation agencies in the world. WWF has identified the entire Eastern Himalayas as a priority Global 200 Ecoregion while Conservation International has included the entire eight sister states of North East in its Eastern Himalaya Hotspot.⁴

The region has been identified by the Indian Council of Agricultural Research (ICAR) as a centre of rice germplasm while the National Bureau of Plant Genetic Resources (NBPGR), India has highlighted the region as being rich in wild relatives of crop plants. It is the centre of origin of citrus fruits. Two primitive varieties of maize, Sikkim Primitive 1 and 2 have also been reported from Sikkim.⁵ Although Jhum cultivation, a traditional system of agriculture is often cited as a reason for loss of forest cover of the region, this primary agricultural economic activity practiced by local tribes reflects the usage of 35 varieties of crops. The region is rich in medicinal plants and many other rare and endangered taxa. Its high endemism in higher plants, vertebrates and avian diversity has made it qualified to a biodiversity 'hotspot'. IUCN in 1995 identified Namdapha in Arunachal Pradesh as a centre of plant diversity.⁴ The following figures highlight the biodiversity significance⁶ and what to conserve in North East:

1 51 Forest types are found in the region broadly classified into six major forest types, viz., tropical

moist deciduous, tropical semi evergreen, tropical wet evergreen, subtropical temperate and alpine forests.

- 2 Out of 9 important vegetation types of India, 6 are found in this region.
- 3 These forests harbour some of the following species of flowering plants:
 - 40 out of 54 species of gymnosperms
 - 500 out of 1012 species of pteridophytes
 - 825 out of 1145 species of orchids
 - 80 out of 90 species of rhododendrons
 - 60 out of 110 species of bamboo
 - 25 out of 56 species of canes
- 4 In terms of floral species richness the highest diversity is reported from the states of Arunachal Pradesh and Sikkim amongst the north eastern states as shown in the following table

State	Species richness
Arunachal Pradesh	5000
Sikkim	± 4500
Meghalaya	± 3500
Assam	± 3010
Manipur	± 2500
Nagaland	± 2250
Mizoram	± 2200
Tripura	± 1600

- 5 These species belong to about 200 plant families out of 315 recorded from North East India. Some of the families, such as, Nepanthaceae, Illiciaceae and Clethraceae are unique in the world. These families are reported from the South East Asian countries and are represented by a limited number of species like *Clethra* sp. and *Nepenthus khasiana* in North East India.
- 6 According to the Indian red data book published by the Botanical Survey of India, 10% of the total flowering plants in the country are endangered. Of the 1500 endangered floral species, 800 are reported from North East India.
- 7 High biological diversity is often related to the forest cover of a region. Most of the north eastern states have more than 60% of their geographical area under forest cover, a minimum suggested coverage for the hill states in the country.
- 8 The faunal diversity is relatively better documented than its floral counterparts for the north eastern region. However, the discoveries of newer species like the Tawang Macaque (*Macaca* sp.) and range extensions of the Chinese goral (*Nemorhaedatus caudatus*) and leaf deer (*Mentiacus putaoensis*)

highlights the dire need for more extensive research and systematic documentation of biodiversity of the North East.

Rights-Based Approach

Sustainable development is the key to poverty alleviation as human rights and sustainable human development is interdependent⁷ because with them a holistic approach of political, economic, social, cultural and environmental development is achieved. This will promote the fundamental commitment of freedom, wellbeing and dignity of individuals of all societies having a common goal of promotion of human development and fulfillment of human rights. In turn such a common goal mutually reinforces four pillars of economic opportunity, social equality, sound natural resource management and above all political empowerment of individuals and communities. Overemphasis on any one over the others or weakness in any of the four pillars will jeopardize the sustainability especially when individual's or community's plural rights are ignored.

A rights-based approach to programming recognizes local populations as the primary stake holders in their own development and ones who must live with the long term outcome of development activities. In this approach, ANR related interventions must focus on the ability of the rural poor to exercise their rights to participate in policy decisions and to have access to productive assets such as natural resources, credit and open markets. At the same time, it expands the capacity of people and local institutions to exercise their rights and responsibilities through training, education and advocacy.⁷ Thus in this direction the innovative Plant Variety Protection and Farmers' Rights (PVPFR) Act, 2001 is the first in the world to grant formal rights to farmers, growers and the local communities to retain control over their genetic resources and self-reliance in agriculture and natural resources which has opened up interesting possibilities for developing a developing country platform for regulating sustainable use of these resources and at the same time also preventing over exploitation by the developed world.

Why Farmers' Rights?

In what way these rights be recognized, what controls access to these resources, should communities have and what monetary gain should they expect from allowing access to corporations

which depend on these resources as raw material for their biotechnological and agricultural industries? Only with adequate recognition, protection and reward will these resources be conserved and appropriate compensation is granted to the communities. Central to this is the right to 'Prior Informed Consent', ensuring communities know what they are agreeing to.

In India, specifically and elsewhere, who should benefit from these rights? Should the state receive any benefits – what knowledge does the state have about the community's genetic resources? Should the state have sovereignty over the resources (as agreed to in the Convention on Biological Diversity) or should it only be to the communities – and to which communities?

Would any benefits be distributed equitably from government within the community and within the household? Recognizing the rights to the knowledge embodied in genetic material for food and agriculture – the biodiversity of food species – is an issue of fundamental importance to the people who developed this diversity – the smallholder farmers, pastoralists and artisanal fisher folk of the world. Recognition of these rights means being prepared to negotiate access to these resources and the knowledge that is contained within them. It also means recognizing that any financial reward gained from further commercial development of these resources should be shared with the originators – the communities who conserve, manage and continue to develop this biodiversity.

Preservation efforts can only be carried out in the countries of the South where biodiversity is a reality. In general, it is the same countries that are dependent on Northern technology for their plant improvement programmes. Conservation has a cost which is borne by local population but rarely taken into account in the evaluation of indicators for conservation choices. The reduction of conservation costs for local populations is one of the key challenges for the preservation of biodiversity. On scientific level, the aim is thus to define, evaluate and incorporate the interactions between populations and biodiversity in the estimation of biodiversity

Without adequate recognition for their 'intellectual' contribution – their knowledge and skills – to the development and management of these resources, small-scale food producers will not be able to continue this service to their peoples, the nation and the international community. They will cease to

conserve the genetic resources which are the first link in the food chain and will no longer be able to safeguard this agricultural biodiversity which is so essential for food security. This is why the discussion of these rights is an important subject of debate- local, national and international. Much is at stake – communities could gain significant recompense for their past and present efforts, as they regain control of their resources: Industrial food production and biotechnological industry would have to pay much more for their genetic raw materials. The debate is more prominent with regard to plant genetic resources for food and agriculture – the issue of 'Farmers' Rights' – though there are emerging debates over the genetic resources of domestic livestock and fish.

Since there is a demand for agricultural land conversion in developing countries especially, the Convention on Biological Diversity (CBD) aims to establish conservation incentives but also to promote biodiversity and to implement mechanisms for sharing the benefits of conservation in parallel with the definition of sustainability criteria. This approach to biodiversity may give rise to strong economic and social tensions. Biodiversity is rarely considered as a social subject. A means must be found to reconcile conservation and development by involving local populations more closely in the decision-making process and by taking the interaction between 'societies' and biodiversity more fully into account. The Act rightfully takes this into account.

The Development of Farmers' Rights

The GATT, the predecessor to the WTO was started to restore world trade after the end of the Second World War in 1945. Several GATT rounds starting from 1948 dealt with the quotas and duties of tradable commodities between nations. The 1986 GATT Round popularly known as Uruguay Round brought in new elements into the trade discussion, specially relating to agriculture. One of the most controversial agreements of the Uruguay Round is that relating to the granting of intellectual property rights on biological materials embodied in the TRIPS chapter. TRIPS specifically requires member nations to grant patents on biological resources like microorganisms, non-biological and microbiological processes as well as an effective IPR protection for plant varieties.

These developments were prompted by the biotechnology industry in developed countries,

primarily the USA. Whereas the industrial nations had a slew of biotechnologies, the raw material needed by the industry, the biological resources were not located in their territories but in the countries of the south. The intellectual property regime was the instrument devised to gain guaranteed access to the resources of the south without which the technologies could not produce the products. By compelling all members to accept an IPR regime over biological resources, the legally skilled Americans were hopeful of getting access to genetic resources through patents and other forms of IPR.

TRIPS provided a choice for protecting plant varieties. Members can choose from patents, a *sui generis* system or a combination of the two. Most developing countries including India have decided not to have patents for plant varieties but have chosen the *sui generis* option instead. The *sui generis* system means any system a country decides on, provided it grants effective Plant Breeders' Rights (PBR). TRIPS does not specify the kind of breeders' rights and does not say what else a member state can put in its law, apart from breeders' rights. In short, TRIPS is a flexible system which leaves a lot to the discretion of members.

NGOs introduced Farmers' Rights in 1985 as a first response to the North's pressure to recognize PBR as an 'agreed interpretation' to the FAO International Undertaking on Plant Genetic Resources (IU). After intense opposition from the North and passionate support from the South, Farmers' Rights were entrenched in the IU in 1991. Farmers' Rights were inserted as well into Agenda 21 and also in the CBD. FAO's Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture which was prepared by the FAO as a result of Agenda 21's commitment to the implementation of Farmers' Rights, although in 'lower case'. Via Campesina, the international network of 40 farmers' organizations has made an impassioned plea to the Commission on Genetic Resources for Food and Agriculture for the recognition of Farmers' Rights.

The Conference to the Parties to the Convention (COPs) is however discussing the agricultural biodiversity and they have invited FAO to develop the IU into what the COPs could recommend as protocol to the convention. The revised IU may become a legally-binding Protocol to the CBD. Unfortunately, the traditional resource rights respected by

communities throughout the world, many of which are the originators of these genetic resources are either being overlooked or undervalued. This is because PBR— the 1991 version of the International Convention for the Protection of New Varieties of Plants (UPOV 91) and TRIPS Agreement of the WTO are becoming more important internationally supported mainly by the Northern governments and industries. The UPOV is at present the only platform for regulating Plant Breeders Rights in the developed countries modulated to protect the interests of agriculture for the industry. It does not even have the notion of Farmers' Rights.

What are Farmers' Rights?

The UPOV which was set up to give crop plant breeder's exclusive rights over the varieties they develop in the absence of legislation to allow patenting of plant material is also moving towards patent-like regime. The UPOV 91 revision prevents farmers from saving seed from one harvest to the next unless they pay royalties to the plant breeder. Both patents and the UPOV 91 agreement disregard the traditional rights of indigenous and farming communities to their genetic resources and associated knowledge. In contrast, both the CBD and the IU call for strengthening of these rights. But these rights will have to be fought for against the interests of the Northern government delegations which are susceptible to powerful industrial interests.

The final version of the much fought over clause on what constitutes a Farmers' Right now reads like this...

'The farmer shall be deemed to be entitled to save use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act in the same manner as he was entitled before the coming into force of this Act:

Provided that the farmer shall not be entitled to sell branded seed of a variety protected under this Act.

Explanation: for the purpose of clause (iii) branded seeds mean any seed put in a package or any other container and labeled in a manner indicating that such seed is of a variety protected under this Act.'

This formulation allows the farmer to sell seed in a way he has always done with the restriction that this seed can not be branded with the breeders' registered name. In this way, both farmers and breeders rights are protected. The breeder is rewarded for his innovation by having control of the commercial

market place but without being able to threaten the farmer's ability to independently engage in his livelihood and supporting the livelihood of other farmers.

What Farmers' Rights Include?

It is appropriate now to describe the principles on which the international community must recognize Farmer' Rights, among which are:

- 1 Farmers' rights have a deep historic character; have existed since humans created agriculture to serve their necessities, have remained vital through community's conservation of biodiversity and the communities have endorsed them with their constant generation of new resources and their improvement. The farmers, growers or the cultivators are the guardians of these genetic resources which support the evolution of species. They are the inheritors of the skills and knowledge of the generations that have created this biological wealth and for this they should be rightfully recognized of their rights.
- 2 Farmers' rights include the right over resources and associated knowledge, united indivisibly and mean the acceptance of traditional knowledge, respect for cultures and recognition that these are the basis of the creation of knowledge.
- 3 The right to control, the right to decide the future of genetic resources, the rights to define the legal framework of property rights of these resources.
- 4 Farmers' rights are of an eminently collective nature and for this reason should be recognized in a different framework from that of private property.
- 5 These rights should have a national application and the Undertaking should promote legislation to this effect, respecting the sovereignty of each country to establish local laws based on these principles.
- 6 Rights to the means to conserve biodiversity and achieve food security such as territorial rights, right to land, right to water and air.
- 7 The right to participate in the definition, elaboration and execution of policies and programmes linked to genetic resources.
- 8 The right to appropriate technology as well as participation in the design and management of research programmes.
- 9 The right to define the control and handling of benefits derived from the use, conservation and management of these resources.

10 The right to use, choose, store and freely exchange genetic resources.

11 The right to develop models of sustainable agriculture that protect biodiversity and to influence the policies that support it.

Via Campesina while advocating the above rights had rightfully rejected the intellectual property rights and patenting of any form of life or of knowledge associated with these genetic resources because it is a threat to biodiversity and will result in the legalization of the expropriation of knowledge and resources by industrial companies and transnational corporations. This farmer's organization has also alerted the government to the danger of the monopolization of knowledge by a few transnational will threaten the future of the humanity. The fact that 95% of food-related patents are concentrated in only 7 countries and a few companies serve as sufficient example to support the fear of Via Campesina. Besides this food security is now one of the great concerns of humanity and this is only possible if there is sufficient support for agricultural biodiversity whose conservation and sustainable use was achieved by the farmers, growers and cultivators through generations of implementing the farmers' rights.

Farmers' Rights in India

The government inclined to accept patents described patenting of seeds as great good fortune for farmers and prosperity for rural India. But aggressive and sustained campaign initiated by the Gene Campaign and other NGO communities forced the government to change its stand and opt for the TRIPS *sui generis* system instead.

Once the *sui generis* path was decided, came the question of what kind of legislation should be adopted to accord plant breeders' rights in India for the first time. Gene Campaign's position right from the start has been that if the status quo has to be changed and PBR is to be granted then our legislation should also grant a strong farmers' right simultaneously. Gene Campaign's demand has been for farmers' right that would allow the farming community to retain the same control over seed and seed production and use that they have always had. At the same time, it was also insisted by the Gene Campaign that Indian law has to grant well defined rights to its farmers. These rights have to be recognized because of the past and present contributions made by the farming community to the conservation of agro biodiversity and their role

as dynamic breeders of new varieties which anchor the food security of the world. The demands made by this campaign for farmers' rights were comprehensive and included several other features that would protect the farming community. This includes payment for the use of farming varieties and their informed consent along with a compensation for the farmer if poor quality spurious seeds led to crop failure. It was also demanded to protect the right of the farmer as a seed producer while making certain new companies and also as a seller to other farmers even if a breeders' right protected the variety. This right of the farmer to sell seed was crucial to maintaining his control over it and moreover it is also central to the nation's self reliance in agriculture. This clause, the right to sell seed was the most fiercely resisted and was till the end, the major bone of contention.

As a result of the Gene Campaign and efforts of NGOs, the Indian government in response to TRIPS Agreement relented and started enacting a series of domestic laws to implement the commitments it has made. The PVPFR Act, 2001, is the Indian *sui generis* legislation. The Indian legislation is the first in the world to grant formal rights to farmers in a way that their control over genetic resources and their self-reliance in agriculture is not jeopardized. What is significant about this legislation is that it charts its own course, deviating from the norms set by UPOV. The innovative Indian legislation has opened up interesting possibilities for developing a developing country platform for regulating breeders' and farmers' rights so that both are acknowledged and protected.

The Indian law now recognizes the farmer not just as a cultivator but also as a conserver of gene pool and a breeder who has bred several successful varieties. The Bill makes provisions for such farmer's varieties to be registered with the help of NGOs so that they are protected against being scavenged by formal sector breeders. The rights of rural communities are acknowledged as well.

Importance of Farmers' Right to Sell Seed

The pivotal importance of the farmer having the right to sell (not save, not exchange but to sell) seed has to be seen in the context of seed production in India. In India, the farming community is the largest seed producer providing about 87% of the country's annual requirement of over 60 lakh tonnes.⁸ Denying the farmers of their right to sell seed, will not only result substantial loss of income by the farmers but

also destroy the farming community as a major seed provider. Thus a strong farmers' right allowing the farmer to continue as a significant supplier of seed will make the farming community a viable competitor and an effective deterrent to the take over of the seed market by the corporate sector. Control over seed production is the key to self-reliance in food because food security is in the forefront of national security. A nation that does not produce its own seed and its own food can not be a secure nation.

Other Kinds of Farmers' Rights

Contribution of Rural/Local Communities

Apart from the right to sell non-branded seed of protected varieties, there are provisions for acknowledging the role of rural communities as contributors of land races and farmer's varieties in breeding of new plant varieties. Breeders when using such varieties for creating Essentially Derived Varieties (EDV) have to take prior express permission of the farmers involved in the conservation of such varieties.

Community's claim of such varieties can be registered duly at a notified centre by the farmer(s) himself/themselves or by anyone when the farmer(s) himself/themselves cannot do this due to illiteracy or lack of awareness. After the confirmation of genuinity of the claim made by a community, a procedure of benefit sharing is initiated so that a share of profits made from the new variety which was developed from a farmer variety, goes into a National Gene Fund.

The modalities of implementing benefit-sharing is still a complex and bureaucratic process which needs to be made simpler and less bureaucratic so that the revenues earned can really be made fully available not partly (as part of this revenue goes to maintain the National Gene Bank in Delhi) for the use of farming communities in a way they wish as it is money earned by the farming community not to be frittered away to maintain national facilities which are the nation's responsibility.⁸

Exemption from Fees

Farmer(s) who wish to examine documents and papers or receive copies of rules and decisions made by the various authorities is exempted from paying any fees.

Disclosure

Detailed passport data about the parentage of the new variety should be disclosed explicitly. Violation

in this will lead to cancellation of breeder's certificate.

GURT or Terminator Technology Forbidden

Breeder shall have to submit an affidavit that their variety does not contain a Gene Use Restricting Technology (GURT) or terminator technology.

Protection against Innocent Infringement

The farmers may unknowingly infringe Breeder's Rights since they will be ignorant to the new situation; the law rightly provides protection from prosecution for innocent infringement.

Protection against Bad Seed

The farmer in principle is protected against the supply of spurious and/or bad quality seed in which he is adequately compensated in the event of crop failure resulting from sowing of bad seeds.

However, the clause is weakly framed, leaving too much to the discretion of the Plant Variety Authority which will fix the compensation. This could lead to arbitrary decisions and should be amended. Compensation should be large enough to be a deterrent. In addition, a jail term should be provided if the breeder repeats the offence.^{9,10}

Tribals' Rights vis-à-vis Farmers' Rights in North East India

There is a great potential for developing and enhancing forest-based livelihoods in many parts of North East India. However, this requires, in addition to the appropriate policy instruments, a strong scientific basis for determining harvesting and extraction levels, value addition, marketing and benefit sharing. Specific options need to be studied throughout the life cycle from harvesting to benefit sharing in order to develop mechanisms that can enable forest based livelihoods to play a role in economic development as well as an incentive for conservation. This is only possible with recognition of District Council or Tribal Councils in the region which already have their own traditional laws for agriculture/natural resource management. This recognition of tribal laws as tribal rights' vis-à-vis farmers' rights will address the conflicts between customary and statutory laws and regulations related to forest ownership and natural resource use while ensuring conservation of genetic resources by the local communities of the North East.

Till now, comparing elsewhere other than north eastern states of India, the implementation of policies

of farmer's right in North East does not significantly arise firstly because of its long year of isolation and difficult terrain for which it's significant proportion of biodiversity has still been retained and secondly because of its stringent traditional or ethnic and tribal laws for agricultural and natural resource management which efficiently has restrained the outer world from using these natural resources but the North East is now under increasing pressure to unleash its resources for economic development. Any development process without taking into cognizance the environmental safeguards in general and tribal rights in particular may cause irreversible damage to the region. Globally three and nationally five priority setting exercises have been carried out to highlight the biodiversity significance of the region (3). This priority setting processes can help identify key sites and species which are ecologically unique or important from a social, cultural and environmental perspective.

Such an exercise will help the local communities of the north eastern states of India to strongly gain control over natural resources, effectively understand their responsibility as stewards of these resources and realize their fair share of benefit for this role. In turn this simultaneously will identify and address the underlying causes of poverty rampant in these states as well as environmental degradation and eventually make these communities aware to address the power relationships that bereft the poor communities for their just and lawful rights. In a situation where the north eastern states of India till recently have been alienated from the outer world due to one or more reason and now prone to globalization will have to learn the ways of incorporating new technologies into their traditional lifestyles so that they can till generate income for their livelihood and commercially maintaining their environmentally sustainable ways of generating income and also effectively begin to interact with the global commercial economy. Education and advocacy will thus play a key role in north east in this process of community empowerment that will make these local communities self sufficient and knowledgeable about their needs and sources of inputs required to meet the same.

In this pursuit of self empowerment, the communities of north east India will need to both better develop local markets and seek to participate in global markets for goods and services for which their own natural resources give them a comparative

advantage. These may include but not be limited to such items as local varieties of crops and breeds of animals, carbon credit trading, renewable energy, non-timber forest products, sustainably managed timber and tourism. Obviously also the farmers and local communities of north east India currently lack the negotiating skills necessary to successfully bargain with buyers and provide goods and services in sufficient quantity and consistent quality to compete in global markets, it is thus necessary to train the farmers and community leaders to become smart business people with access to computers and other sophisticated tools.

Recognizing communities of north east India of their tribal or other rights *vis-à-vis* farmers' rights by improving governance and empowerment, there needs to be systematic collaboration between a range of organizations including government, international institutions, NGOs and the private sector to:

promote policies and approaches that respond effectively and efficiently to community demand for services including reorienting and building the capacity of local government;

promote management by the user community, local government and private sector to ensure efficient and reliable services;

support and facilitate decision-making processes for resources management with particular emphasis on the inclusion of women in decision making.

Conclusion

The challenge is to ensure that any extension of IPR systems of Plant Breeder's Rights or of Patents do not further infringe the rights of the Indian small-scale food producers to the genetic resources needed for food production and health. An effective *sui generis* system already exists in India now. However, the challenge is to ensure that India in toto enforces the farmers' rights. This will require full and continuing consultation with farmers or local communities and their organizations. Only by doing so will the IPR and

protection of community knowledge which are fundamental to the conservation of agricultural biodiversity or biodiversity as a whole be assured.

Humankind and nature have always been interdependent. The technology that has made it possible to consolidate power over nature and other humans in the hands of developed countries has also endowed those countries with the tremendous responsibility to protect them. Nevertheless it is the poor countries that have been handed the burden of doing it. The fact remains that all humans are as dependent on nature and on each other as ever. But with these rights in force in true sense will require us all to respect the rights of others, accepting our responsibilities and more deferent to nature. Humankind cannot afford to make irreversible change to planet Earth and continue to deny a dignified life to the billions of under-privileged and exploited.

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