

# Intellectual property rights: the threat to farmers and biodiversity

This paper traces the historical route by which Northern countries have step by step imposed intellectual property rights regimes on biological materials and how they are now attempting to make these uniform and universal. It analyses the intricacies of the state of play in two major fora – the Uruguay Round and the Biodiversity Convention – and shows the implications of patenting life for farmers and biodiversity.

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## From Common to Private Ownership

THROUGHOUT history, biodiversity has been the commons of local communities with both resources and knowledge being freely exchanged. The concept of sovereign rights or property rights in genetic resources had not yet emerged. These communities also relate to their commons (be these forests or agricultural seeds) in spiritual and cultural terms.

What contributed to the emergence of property rights for commercial benefits in this area was the enactment of an International Convention – the Union for the Protection of New Varieties of Plant (UPOV). It was first negotiated in the early 1960s. It gave property rights to plant breeders for improved varieties which possessed characteristics similar to those required by an invention in order to obtain a patent (i.e. novelty, industrial application and originality). The plant variety had to be improved by human intervention in the breeding process in order to modify its characteristics and quality. This Plant Breeder's Rights (PBR) allowed the owner of the right over a variety to prevent others from selling seeds of that variety. There were two exemptions:

- (a) the Farmer could save seeds for replanting, and,
- (b) the Breeder also could use seeds to develop new varieties.

The source material was obtained freely from the rich biodiverse countries of the South, on the rationale that it formed the common heritage of mankind. This 'globalisation' of the local commons opened free access for corporate interests, predominantly from the North, and started the process of categorising improvements by companies as 'novelty and innovation' without recognising the innovative contributions of local communities to the evolution of the seeds concerned.

In the 1970s developing countries objected to the inherent unfairness in having to give their genetic resource materials freely when these were being used for developing biological materials which were subject to property rights. The 'common heritage of mankind', taken free from the South, was now returned as a commodity at a price.

As a response the 22nd Session of FAO Conference in 1983 adopted an Undertaking. It recognised a free-for-all regime applying to basic source material as well as improved and elite varieties.

Several industrialised countries objected to this undertaking arguing that improved materials were not part of the common heritage of mankind. The double standards emerged strongly. The improved materials evolved by generations of farmers in the South were common heritage to allow Northern corporations free access but the benefits derived from that heritage were considered the fruits of private enterprise. International property rights became the tool to drive this wedge.

## Excluded

In the March 1987 meeting of FAO's Commission on Plant Genetic Resources, Southern delegates argued that Southern farmers' rights were founded on the basis that they had domesticated their important agricultural crops, observed, developed and safeguarded the tremendous biodiversity that breeders and the seed industry use as their source material. Innovation was thus an integral part of farmers' breeding of their seed varieties.

Under pressure from the developed countries an agreed interpretation of the 1983 Undertaking was accepted. By this, plant variety rights were excluded from the common heritage concept. In return farmers' rights were recognised. These were defined in the Undertaking as:

'rights arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources particularly those in the centres of origin/diversity. Those rights are vested in the international community, as trustees for present and future generations of farmers, and supporting the continuation of their contributions as well as the attainment of overall purposes of the International Undertaking'.

The contribution of the traditional farmer in developing the plant was acknowledged. But the right was not vested in

the individual farmer. Instead it accrued to the farmers' Governments to receive assistance in the maintenance of genetic resources. It is essentially a general obligation of the North to help the South, tied into the context of aid and dependency.

An international gene fund, administered by FAO for the conservation and utilisation of plant genetic resources, was set up to concretise these 'farmers' rights'. However, the lack of contributions from Northern corporations and their Governments rendered this fund inoperative.

The debate did not end there. This was because of:

(a) the extension of patent rights to genetic materials, and,

(b) the growing importance of biotechnology.

In addition to the conflicts between agribusiness and farmers' rights, pharmaceutical companies were also enjoying free access to genetic materials from the forest (especially tropical rainforests) and tapping the vast knowledge of forest peoples also for free.

The viability of the 1989 undertaking itself came into question because of several developments in international negotiations. These were:

(a) The revision of the UPOV Convention,

(b) Trade-related Intellectual Property Rights Agreement negotiations in the Uruguay Round of GATT, and,

(c) The Biodiversity Convention.

The first two substantially broadened the gap between source materials and improved varieties in terms of value and ownership rights attached to them. The rights of breeders/inventors over improved varieties are given greater recognition at the expense of rights of local communities over source materials which themselves are the results of innovation and improvements by generations of farmers.

### The Commodisation of Nature

By giving full intellectual property rights protection under current international regimes, Governments will put in place a system which allows ownership of genetic resources. The commoditisation of nature will not stop at plants and animals, but will extend to all life, including human genetic material. This is already happening in the US and threatens to also take place in the European Community with growing pressure from the biotechnology industry. The results are:

- Greater economic disparities between the technology holders and the countries where biodiversity lies through the payment of royalties;

- Threats to the rights of farmers and indigenous communities with rights and knowledge vis-a-vis forests;

- Erosion of the diversity in agriculture (of seeds and livestock) when traditional varieties are replaced by a handful

of patented 'improved' varieties owned by industry;

- Piracy of *ex situ* collections which have been built up from free access to the biological resources of the South;

- Veiling in secrecy the biohazards of genetic engineering; and

- The surrender of ethical and moral values without society as a whole scrutinising the full implications of the powerful new technologies.

### The 1991 UPOV Revision

The 1991 Revision of UPOV further restricted the farmers' rights. The protected variety may still be used as an initial source of variation for the creation of new varieties but such new varieties cannot be marketed or sold without the plant breeder's rights (PBR) holder allowing it. As the PBR holder will want to maximise his sales and profit, his authorisation will almost certainly not be given. Breeders' rights have also

been extended to cover not only production for sale, but also for reproduction, multiplication, conditioning for the purpose of propagation, and exporting/importing and stocking for these purposes.

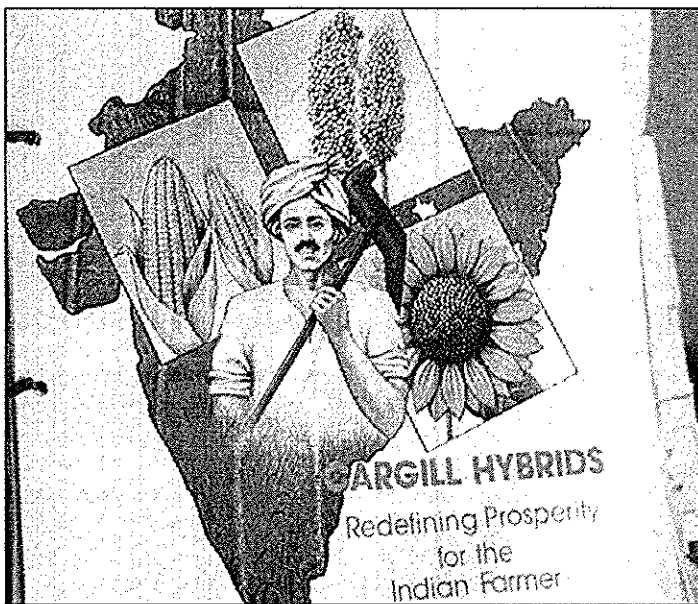
Governments have the freedom to adopt in their national law the right of the farmer to use his seed for replanting. It is unlikely, however, that developing countries will do so. They are under extreme pressure from the Northern countries to harmonise their legislation with the IPRs standards promoted by the North. So if the United States or the European Community do not make use of this option,

the developing countries will also be excluded from authorising their farmers to re-use their own seeds. Yet another restriction is that harvested material cannot be sold or marketed without the breeders' authorisation. If royalties are not paid, the breeder can interpose to prevent the farmer from selling the produce. These changes have made PBRs seem to offer the same kind of iron-clad protection as do patents.

### The Uruguay Round

The Uruguay Round is seeking to harmonise IPRs and bring these in line with the patent legislation of the North, especially that of the US. Once the Round is concluded, countries would have agreed to adopt uniform rules on intellectual property protection, including the patentability of new plant varieties.

Article 27 (3)(b) of the Draft Agreement on TRIPs of the GATT obliges Parties to provide for the protection of plant varieties. This they may do either by patents or an effective *sui generis* system or any combination of these. The only such system available now is that under UPOV which favours plant breeders. Each country is, of course, free to set up its



Seeds patented by the US multinational, Cargill, for sale to Indian farmers.... a threat to biodiversity.

own system. But the text's requirement that it be 'effective' suggests that an external criterion will be applied by countries in control of the GATT, like the US. This term, which appears in US regulations (eg section 301 of the Trade and Competitiveness Act of 1988) has been used to retaliate against countries whose IPR legislation is at variance with US standards.

Parties may exclude from patentability plants and animals which are not considered to be technologically improved varieties. Again a distinction is drawn between genetic material developed in the North by technologists and that which has been developed in the South by farmers or indigenous population. Essentially, this is a clash of definition of knowledge systems. TRIPs recognise only the Northern industrialised model of innovation and has failed to recognise the more informal, communal system of innovation through which Southern farmers produce, select, improve and breed a diversity of crop and livestock varieties. This collective intellectual property of Southern farmers is denied recognition, and hence protection.

For traditional societies, biodiversity is common property, and knowledge related to it is in the intellectual commons. For biotechnology corporations, biodiversity becomes private property through their investments, and TRIPs are the means for such privatisation. Additionally, IPRs are only recognised when knowledge and innovation generate profits, not when they meet social needs. Article 27 (1) makes clear that to qualify for patenting, an innovation must be capable of 'industrial application'. Further in view, the fact that IPRs must be trade-related to be recognised, TRIPs in GATT will finally lend to an extension of the monopoly rights of multinational corporations over production and distribution. At the same time, innovation in the public domain which is mostly for domestic, local and public use will rapidly be undermined and the related institutions dismantled. This will deepen the North-South rift with the ensuing unfair and unequal exchange. Millions of farmers in the South will be forced to buy patented seeds which originate in the South. This will discourage the continuation of seed diversity and create high-priced dependency by farmers. Similarly, consumers will have to pay exorbitant prices for pharmaceutical drugs developed from genetic material and often, from the knowledge of indigenous forest communities, of the South.

It will be recalled that technological advances have been given property rights as part of a bargain to encourage creativity in return for diffusion of the knowledge for the public good. The recent trend grants more protection to proprietary rights in technology and shows little concern for the diffusion of knowledge in the public domain. The *raison d'être* for the public bargain has been undermined, resulting in the establishing of a new form of technological protectionism by the North and denying the South the right to build indigenous technological capacity. The South will continue to be net importers of technology, and even then, with IPR protection, these countries will not be able to have full access to information in order to assess the new technologies for their adverse environmental, social and economic impact. Biodiversity conservation in this scenario will be reduced to the protection of private corporate interests, at the expense of economic equity and environmental/health safety.

### Biotechnology and the Patenting of Life Forms

Patenting of genetic materials will eventually turn all life

into patentable commodities, with long term environmental, economic and ethical impacts. The battle over the past decade in the US and Europe has been the extent to which private enterprise can own genetic material. National patent legislation, where they exist, have consistently rejected the patenting of plants and animals, let alone human genes. The Indian Patents Act is a good model for the balancing of the private interest of corporations and the public good. Exclusions of patents are clearly laid out, reflecting the social, cultural and ethical values of the society, its economic priorities and sovereignty.

Article 27 (3)(b) of the TRIPs text of the draft GATT agreement appears to exclude plants and animals from being patented. However, the same phrase in the US patent legislation ('plants and animals other than micro-organisms') has not prevented the US Patent and Trademark Office and courts of law from allowing patenting of more and more life forms. The first patent on life was recognised by the US Supreme Court in the Chakrabarty case in 1980 when genetically engineered *Pseudomonas* bacteria was accepted by the court as an invention of the scientist and therefore as patentable. The genetically modified micro-organism was not considered a product of nature. Yet Chakrabarty himself had stated that he 'simply shuffled genes' and was not creating life when the Patent Office rejected the initial application on the grounds that animate life forms were not patentable. Two significant outcomes of this judicial decision are:

(a) Micro-organisms thus modified are not regarded as 'naturally occurring' organisms and can therefore be patented; and

(b) Modification of genetic materials is interpreted as **creation** thereby allowing ownership of any altered biological material.

### Slippery slope

The slippery slope towards ownership of all life was thus created by this Supreme Court decision. In 1988 the first patent on a living animal (a genetically engineered mouse for cancer research) was approved for Dupont. The company now has patent ownership over any animal species whose genelines are engineered to contain a variety of cancer-causing genes. There are over 190 genetically engineered animals, including cows, pigs, mice and fish awaiting patenting in the US. The escalating use of biotechnology has gone beyond traditional breeding of plants and animals to cross-species genetic transfers involving human genes, too. Patenting of human genes is also in the horizon unless the international community, both citizens and Governments, start rejecting it.

The other problem with the phrase 'plants and animals other than micro-organisms' is that it does not cover **parts or clones** of these biological materials, again allowing for compulsory patenting and rendering the exclusion clause of TRIPs meaningless. This loophole has been successfully exploited by industry in the US.

The above examination of the US slippery slope towards patenting of life reveals that the TRIPs provision in Article 27 (3)(b) is a globalisation of the US position. If accepted, all GATT Parties will be required to enact national laws for the compulsory patenting of micro-organisms and eventually all life.

Article 27 as it stands is unacceptable, and Southern Governments should reject this slippery slope in the GATT

negotiations. The Parties to the Biodiversity Convention should accordingly reject a similar regime and spell out clearly a genuine exclusion of patenting, under existing conditions, of the following: 'biological organisms and their parts and processes and any products therefrom, including but not limited to any such organisms, parts, products, information or processes derived from genetic engineering or similar techniques'.

Protection of plant varieties may be effected by national legislation and systems, taking into account the rights of local and indigenous communities and the sovereignty of the South.

### IPRs and Biohazards

The biotechnology industry plans to release a wide range of genetically modified organisms (GMOs) into the environment, with unknown health and environmental hazards created that cannot be recalled. The very biological resources which the Biodiversity Convention aims to protect could be threatened by such releases.

Public accountability by researchers and industry for the hazards of biotechnology which is protected by IPRs will accordingly be eroded because IPRs as they are globally promoted are primarily designed for the interest of private industry, and hides the ignorance about the ecological and health impacts of new technologies. Because they are alive, genetically engineered products are inherently more unpredictable than chemical products. They can reproduce, mutate and migrate. They cannot be recalled.

As bans and regulations delay tests and marketing in the North, biotechnology products will increasingly be tested in the South to bypass regulation and public control. There is an urgent need for stronger systems of laws and controls to assess and screen the development of biotechnology in the home country to be simultaneously accompanied by similar assessment and screening of transfers to the South. IPRs can be a fundamental obstacle because they protect industry's interest and often cover up the ignorance of the impacts of biotechnology processes and its products.

It is thus critical that a Biosafety Protocol be negotiated in accordance with Article 19(3) of the Biodiversity Convention.

### The Convention on Biological Diversity

The impetus for the Convention came from Northern conservation groups and the biotechnology industry, one to protect disappearing tropical forests and the other to ensure biological capital for the generation of profits. The South which holds most of the biological resources and diversity of the world argued that free access and IPR protection for the North created an unequal and unfair exchange. In this context the Southern governments looked forward to an international recognition of their ownership rights in genetic resources; and accessing advanced technologies of the North (especially biotechnology) in exchange for granting access to their genetic resources to Northern enterprises. For this reason the Biodiversity Convention was important for Southern countries.

First, the Convention recognised that States have sovereign rights over their natural resources. They determine access to their genetic resources. It is subject to their national legislation. Thus the 'common heritage principle' is abandoned

in favour of 'sovereignty over natural resources'. The State thus regulates access and can deny it if it be inimical to its national interest.

Secondly, the Convention obliges States to endeavour to 'create conditions to facilitate access for environmentally sound uses' by other States and not to impose restrictions that run counter to the Convention's objectives. Its objectives are declared to be:

- (a) conservation of biological diversity;
- (b) the sustainable use of its components;
- (c) the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources (Article 1).

As authority to determine access rests with the State, it is the State's legislation which will determine what constitutes 'environmentally sound uses'.

Thirdly, the Convention stipulates conditions (in addition to those set out by national legislation) for the grant of access to its genetic resources. Thus access shall be

- (a) on mutually agreed terms, and, (Article 15.4)
- (b) subject to prior informed consent of the State of the resource. (Article 15.5)

As regards (a):

Mutually agreed terms seem to include

- (i) the right of the State to participate in research and development activities, and (Article 15.6)
- (ii) the right to share in a fair and equitable way the benefits arising from their commercial and other utilisation. (Article 15.7)

Much, however, depends on the strength of the respective negotiating parties, in this case between industry and the State with the biodiversity. Experience has shown that transnational corporations are more able to assert their terms, and with a strong IPR regime favouring industry, 'mutually agreed terms' may not necessarily be equitable in reality. Since the US has indicated that the Convention will be interpreted to impose obligations only on States and not the private sector, and maintains consistently that IPR protection must be effective, corporations will be left to negotiate with little accountability.

As regards (b):

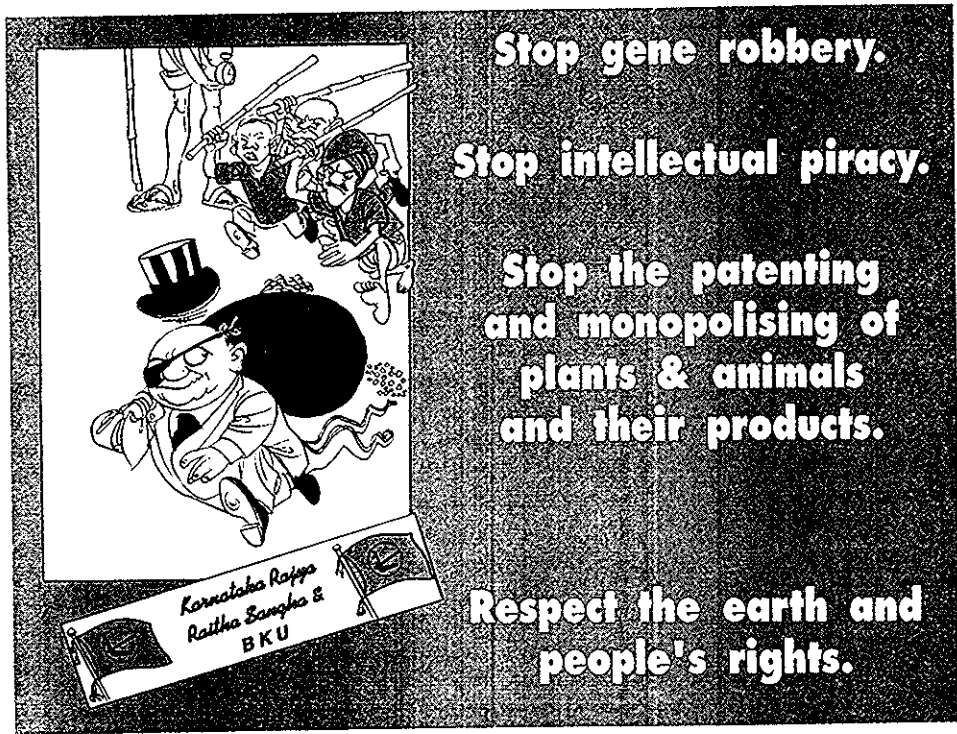
The consent must be 'informed', that is, given with full knowledge of its implications for the resource as well as for the sovereign rights of the State granting it.

An important limitation is established by the Convention. It is to apply only to *in situ* and *ex situ* resources acquired in accordance with the Convention, but not those taken away and deposited in gene-banks prior to the Convention. This is of special significance because most existing international collections are under the control of the North. Of the 127 base collections of the International Board of Plant Genetic Resources (IBPGR), 81 are in the industrialised countries and 29 are in the CGIAR system which is controlled by the governments and corporations of the industrialised countries in the North. Only 17 are in the national collections of Southern countries.

The Convention expressly recognises that both access to and transfer of technology are essential elements for attaining its objectives.

Each party undertakes to provide and/or facilitate access for and transfer to others technologies that

- (a) are relevant to the conservation and sustainable use of biological diversity, or,
- (b) make use of genetic resources and do not cause damage to the environment (Article 16.1).



Poster of the Karnataka Farmers' Association attacking seeds patenting.

and IPRs is far from clear. It is therefore open to interpretation and definition. It was precisely this ambiguity which made US industry lobby the Bush Administration against signing the Convention. The South will have to prepare for asserting its position on IPRs.

The Convention calls upon contracting parties to ensure that such IPRs are supportive of and do not run counter to its objectives. In view of recent trends to oblige developing countries to strengthen intellectual property rights protection, the Convention may offer an opportunity to reject the establishment of a US-led regime which will be incompatible with its objectives.

**The US Interpretation**

At first President Bush refused to sign the Convention, largely due to the pressure from the biotechnology industry

which was dissatisfied with the provisions on IPRs which it felt were against its interest. Industry was also unhappy with the call for a protocol on biosafety which it regarded as an unwelcome control over its activities. Industry demanded rights and privileges but refused any obligations under the Convention.

President Clinton subsequently signed the Convention on 4 June but his Administration had planned to do so with an accompanying interpretative statement which was drawn up with inputs from major US conservation groups and the biotechnology industry. The objective of the US interpretation is to restrict the scope and ambit of the area to which the provisions of the Convention apply. Thus it states that genetic resources obtained from countries before or outside of the Convention are excluded. (See its interpretation of Article 15.3). Secondly, it makes clear that no part of the Convention is to be coercive of the owners of the Technology and to restrict the free market of transnational corporations (See its interpretation of Article 16 para 2; Article 1, Article 15 para 7, Article 19 paras 1 and 2). Thirdly, it states that obligations are restricted to States and not private corporations, although the role of the private sector as owners of technology is acknowledged. (See interpretation of Article 15 para 6, and Article 16). Fourthly, it makes clear its abhorrence to any form of compulsory licensing. (See its interpretation of Act. 16 as a whole).

Finally, it reiterates that any access to technology must be on terms which reflect the new and higher standards of the protection stipulated in the Draft TRIPs agreement of the Uruguay Round, and which reflect the US legislative scheme on IPRs. (See its interpretation of Articles 16 paras 2, 3, 4 and 5 of the Convention).

Two draft statements were circulated in May 1993, one of which was used by the US to persuade other OECD countries to adopt a similar stance. This led to an immediate condemnation by environmental and development groups,

This access to and transfer of technology is to be provided to developing countries under fair and most favourable terms, including concessional and preferential terms. These terms, however, will only apply

- (i) where mutually agreed, and,
- (ii) where necessary in accordance with the financial mechanisms set up by Articles 20 and 21 of the Convention.

This almost certainly suggests that such concessional and preferential terms will hardly ever be applied. The Article goes on to draw a distinction between patented and non-patented technology. In the case of the former the terms on which access and transfer is provided shall be consistent with 'the adequate and effective protection of intellectual property rights' (Article 16.2). This would appear to refer to the standards set out in the TRIPs agreement of the Dunkel Draft, which, as we have noted, are the stringent IPR standards of the North which are unacceptable on the grounds discussed above.

With regard to technologies which make use of genetic resources, the Convention obliges States to take legislative, administrative or policy measures to give access and transfer of technology on mutually agreed terms to other States, especially the developing countries which provide the genetic resources. The technologies include those that are protected by patents and other intellectual property rights. (Article 16.3).

The Convention also obliges States to take legislative or policy measures to ensure that the private sector facilitates access to, joint development and transfer of technology to governmental institutions and the private sector of developing countries. This is to be done in accordance with the obligations set out in the earlier paragraphs 1, 2 and 3 of paragraph 16. (Article 16.4). These are, as noted earlier, not set out with any specificity.

The whole of this Article 16 on the transfer of technology

especially in the South. Although the international and domestic outcry aborted the US submission of an interpretative statement, the US position on IPRs remains the same. In a press release on the day of signature, the Clinton Administration stated that 'the US will address interpretative issues at the time of ratification'. They reaffirmed their belief that the 'voluntary participation of the private sector in the development of new technologies based on genetic resources will maximise the value of economic benefits proposed in the Convention' by among others, providing 'adequate and effective IPR protection for inventions based on genetic resources'.

On 25 June, the European Parliament unanimously voted against the attaching of any 'interpretative declaration' to the ratification of the Convention. This is a resounding statement sent to the Council of Ministers not to bow to the manoeuvres by the US to pressure the OECD countries to adopt ratification declarations as a means of interpreting the Convention in favour of the economic interests of the North.

### Conclusion and Proposals

The original attempts by developing countries to revise the international regime for IPRs have been completely displaced by the successful efforts of the North to include IPRs in the agenda for the Uruguay Round of GATT. This has profound implications. A universal set of norms based on the current levels of protection granted in the most technologically advanced countries will replace the present system which allows freedom of each country to adopt, within certain limits, the regime of protection that it deems best suited to its own development needs and to the values of each society. To compound this problem new trade-related patentable rights have been created, including property rights in biodiversity. This threatens the use and conservation of biological diversity and particularly affects the South where genetic resources are almost wholly located.

The Biodiversity Convention is an attempt to strike a balance between the value and ownership rights relating to genetic resources and 'improved' varieties. The hope that the Convention would pave the way for an equitable North-South relation, and guard against the adverse ecological, social and ethical impacts of technology, especially biotechnology, will rest upon the outcome of the negotiations among the Parties.

We therefore make the following proposals.

#### ● Farmers' Rights and IPRs

There should be no patenting of any life forms and biological organisms, including plants, animals, micro-organisms and genetic materials or any part thereof or any altered form thereof or processes including genetic engineering and similar techniques. The provisions of Article 27 (3)(b) of the Dunkel Draft Agreement on TRIPs should not become the international regime for countries and peoples, in this case in relation to biodiversity conservation.

An alternative system of rights which recognises and protects local commons for indigenous and local communities should be developed, in accordance with the traditions, customs and practices of such communities and the social and ecological objectives of biodiversity conservation.

In this context we would like to note the outcome of an FAO-organised expert consultation on Sustainable Agriculture and Rural Development in Asia which was held in

Bangkok on 13-17 September 1993. The meeting was attended by more than 60 senior agricultural officials, scientists, NGO representatives and senior officials of international agencies including FAO and UNDP. One of the conclusions of the group was that 'genetic materials which are provided by Third World farmers should be considered local common property, with defined rules for access, to prevent their appropriation by private enterprises'. It recommended that farmers' rights over these materials should be 'fully recognised and supported'.

The statement asserted that 'There should not be any patenting of life-forms, such as plants, animals, micro-organisms and genetic materials, as such patenting will be detrimental to farmers' and consumers' rights in developing countries, and moreover will render sustainable agriculture extremely difficult if not impossible to achieve'. Access to a diversity of seeds with the freedom to select, breed and re-use such seeds is a condition for sustainable agriculture.

This is in line with the Biodiversity Convention which in its Preamble recognises 'the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components. Article 8 which provides for *in situ* conservation requires each Contracting Party, 'as far as possible and as appropriate, subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices' of such indigenous and local communities, 'promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices', and encourage the equitable sharing of the benefits arising from such utilisation.

The Convention, however, failed to protect farmers' rights over existing *ex situ* collections of seeds. The battle that had been forged over the last two decades within the FAO with regard to 'ownership' of these collections was lost in the Convention negotiations. Nevertheless, the war is not over. The interpretation of the provisions which deal with intellectual property rights has yet to be determined, and all countries should agree that there should be no patenting of the seeds or their components (including genes and clones).

● Genetically modified organisms are living organisms which are subject to 'genetic shuffling'. They should therefore not be patentable. The term 'naturally occurring biological material' should be clearly defined by Parties to include altered biological material.

● The Biodiversity Convention should determine its own protection of rights regime, and not be subject to the TRIPs or UPOV regime.

● Assessing and Screening Technologies, especially biotechnologies, for their hazards to biodiversity, the environment and human health is critical, and the Biosafety Protocol should be negotiated immediately. ◆

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