PLANT TALK
THE QUARTERLY MAGAZINE THAT SUPPORTS PLANT CONSERVATION WORLDWIDE

CBD and GSPC Features

The Biodiversity Convention *Explained*

Part 5. Access to Genetic Resources & Technology Issues

H

Synge continues his series explaining this important agreement.

Introduction

Access is just as much part of the Biodiversity Convention as conservation – access to genetic resources, access to the some of the benefits gained from using those genetic resources, and access to relevant technology.

What are Genetic Resources?

"Genetic Resources" is a term for those plants and animals that are used by people or are of potential value. It includes, for example, all plants used as foods and medicines, forestry trees, and ornamentals. It includes their wild relatives, which are vital to plant breeders as a source of attributes such as resistance to pests and diseases. It also covers plants at all stages of domestication, including:

- Land-races of crops (varieties developed in traditional farming systems by selection);
- Breeding lines and other intermediate products of plant breeding;
- Obsolete cultivars;
- Highly developed modern crop cultivars.

Up to 100,000 different species of flowering plants have been used by people at some time or another, so the extent of genetic resources is very large.

In the Convention, "genetic resources" are defined as samples of plants, animals or microorganisms containing functional units of heredity ("germplasm") and that are of actual or potential value. Their value is as breeding material. Thus they are a form of intellectual property, like the manuscript of a book or the code of a computer programme.

A single statistic explains why the access issue is so important: the 20 plant species which provide 90% of the world's food do not come originally from the regions where they are mainly grown today. For example, wheat and barley orginated in SW Asia (modern Turkey, Iran and Iraq), tomato and maize (corn) in Mexico, and potato in Peru. None of the countries of origin share in the large profits generated by growing and selling these crops around the world.

In developing the Convention, the North (or developed countries) were most interested in a treaty on conservation. Since the main food crops grown in the North virtually all came from the South, they also wanted to keep the access open to the genetic resources needed to maintain the productivity of their agriculture.

The South (or developing countries) were more concerned about equity and development. The global bargain at the core of the Biodiversity Convention is therefore about balancing three issues – conservation, sustainable use and equitable sharing of benefits from the use of genetic resources. Access is central to the last of these.

In the past, farmers freely shared genetic material – seeds and other propagules of useful plants. It was as if this valuable genetic information was effectively the property of the community as a whole. Scientists too have usually freely shared the results of their work and the international seed banks, most in developing countries, are also freely accessible. But nowadays many genetic resources are owned by business, often multinational companies, which create and patent the new cultivars of crops. Industry argues that it is investing heavily in research to produce new cultivars, and the only way it can fund this and future research is by patenting the products. However, developing countries who provided the raw material feel they do not receive a fair benefit from their contribution. As a result the country of origin of a crop may not be able to afford the new cultivars it needs for its own development, despite the fact that it provided the original material. This is particularly unfair to those farmers and other indigenous people in the South, who have selected plants for generations, improving them to fit their needs. Plant breeders can collect samples of these plants from farms, breed them further, sometimes in only minor ways, and patent the result. As a result of this a movement for 'Farmers Rights' has emerged, as outlined by M.S. Swaminathan in Plant Talk 3.

In response to this and other concerns, the Convention dramatically changes the way that nations treat the ownership of genetic resources. Previously, genetic resources were considered as "the international heritage of mankind". This approach, which is the basis of the FAO Undertaking on Plant Genetic Resources, effectively means free access to all. It has encouraged an unrestricted flow of plant germplasm around the world. Although developing countries received much freely produced expertise from the North, enabling for example the First Green Revolution, they felt this was not an adequate compensation for the wild species and land-races they had provided – the basis for modern crops and the associated profits of international companies.

The Convention changes this situation by declaring that States have sovereign rights over "their" biodiversity. In legal terms, biodiversity is therefore no different from any other resources over which a State has sovereignty, such as minerals and oil. This is balanced by a statement that States have a duty to conserve those resources and that the conservation of biodiversity is rightly a common concern of all the world.

The consequence is simple: if States have sovereignty over genetic resources (as part of biodiversity), then they can determine access to them, negotiating mutually acceptable terms with those who want to use the resources concerned, such as a plant breeder. These terms can include royalties and access fees.

For example, the government of Yemen recently drew IUCN's attention to the fact that it could not control ships coming to its dependency of Socotra and removing rare endemic plants that could be of horticultural value and so of great potential profit. The Convention gives them some of the answers, and provides an international legal basis for any action they might take.

Access to Genetic Resources

Following the general principles outlined above, Article 15, on access to genetic resources, recognizes that national governments have the authority to determine who has access to genetic resources within their jurisdiction. This is balanced by a requirement for States to "endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties", in other words not to restrict access. This suggests that they should give special treatment to countries which have ratified the Convention ("the Parties").

Summary of Articles 15-19

Article 15. Access to Genetic Resources

a. Create conditions to facilitate access to genetic resources by other countries on "mutually agreed terms" and subject to prior informed consent by the providing country*, (Governments are accorded authority to determine access to genetic resources);
b. Carry out research on genetic resources with the providing countries

and share the benefits of research and development with them.

Article 16. Transfer of Technology

a. Provide and/or facilitate access to and transfer of relevant technology, in the case of developing countries on favourable terms, but respecting Intellectual Property Rights;
b. Develop policy for transfer of technology involving genetic resources to the providing countries, on mutually acceptable terms;
c. Encourage the private sector to facilitate access to joint development and transfer of relevant technology.

Article 17. Exchange of Information

Facilitate the exchange of relevant information.

Article 18. Technical and Scientific Cooperation

a. Promote technical and scientific cooperation on biodiversity;
b. Develop methods of cooperation and capacity-building in technology development, including indigenous techniques.

Article 19. Handling of Biotechnology

a. Take measures to provide for the effective participation in biotechnology research by providing countries;
b. Develop measures for priority access to biotechnology results and benefits by providing countries;
c. Consider a "biosafety" protocol on the safe transfer of living modified organisms (LMOs);
d. Provide information on LMOs before providing them to other countries.

* "Providing country": the country which was the origin of the genetic resources used in the research and development concerned.Adapted with permission from an unpublished paper by J.A. McNeely, Chief Scientist, IUCN.

The Convention restricts the genetic resources covered by these provisions to those provided by Parties (as countries of origin), or those provided by Parties that have acquired the genetic resources under the Convention. Resources acquired **before** the Convention came into force are excluded, as are resources acquired **illegally** from the country of origin. Thus Contracting Parties from which genetic resources are obtained before the Convention came into force have no claim under the Convention for the benefits from the past, present or future uses of those resources.

Although the principal of "non-retroactivity" is normal in any legal rule, in this case it excludes most of the genetic resources used today. Few new food crops have emerged in recent years. Alas, most land-races of crops have disappeared in the last 30 years and are now only represented in international seed banks. One could therefore argue that this is in part a case of "locking the stable door after the horse has bolted".

The Convention says that access shall be on mutually agreed terms. In other words, the person or institution wanting to acquire material of a genetic resource will have to negotiate an arrangement with the government of the country whence it comes. This could include, for example, search fees, royalties on any future products, or payments to the local communities who may have grown the plant concerned or discovered its unique property or properties.

The country with the genetic resource has the right of Prior Informed Consent (PIC). This gives it the authority to make the potential user outline the implications of access, in particular how the resources will be used. Thus the country of origin would have to have full information of the implications of access before making its decision.

Parties also have to endeavour to carry out scientific research on the genetic resources provided by other Parties. The aim of this is to build up the scientific capacity of the Parties providing the genetic resources, which are mainly developing countries.

Benefits from use of genetic resources

Under the benefits clause in Article 15, each country has to take measures with the aim of sharing in a fair and equitable way the benefits from the use of genetic resources with the Party that provided that resource in the first place.

The benefits to be shared are the:

- Results from research and development;
- Commercial and other benefits from using the resources;
- Access to and transfer of technology using the genetic resources;
- Participation in biotechnology research based on the genetic resources;
- Priority access to the results and benefits arising from biotechnological use of the genetic resources.

Most of these benefits are, at least in developed countries, in the private sector. Sharing them will be difficult to implement. But, despite the practical difficulties, the Convention does for the first time acknowledge in a legal way the rights of countries of origin to share in the benefits that come from their native plants and animals, and, more important, in the crops bred by their farmers and then taken abroad and used in modern cultivars.

This is something that botanists should appreciate, especially where there could be a commercial benefit arising from the discovery of a new plant species or variety.

Access to technology

This is a difficult part of the Convention, reflecting the sensitivity of the issues, and different interpretations are possible.

Some developed countries did not want technology transfer included at all and many were fearful of any language that could be interpreted as requiring them to force their private sector to share its technology with other countries. This is especially so in the case of biotechnology, seen as a major economic growth area. They also insisted on protecting the intellectual property rights of their private sector and of their citizens. As a result there are clauses reaffirming these rights.

On the other hand the developing countries wanted the technology. The Article, therefore, encourages technology transfer. When it goes to developing countries, the transfer has to be under "fair and most favourable terms", and this is linked this with the Convention's financial mechanism. Moreover, governments have to encourage their private sector to share its technology with developing countries, a novel provision that can be interpreted in different ways.

To cover the North's concerns, however, the language used in ambiguous. For example, the Parties only have to "facilitate" access to or transfer of technology, and this does not necessarily mean making it happen. In the case of technologies that use genetic resources, the language is even softer, implying that Parties have to make a framework with the aim of enabling transfers to take place.

The technologies concerned are those that are relevant to the conservation or sustainable use of biological diversity, or use genetic resources, but do not cause significant damage to the environment. This does, of course, include traditional techniques, such as traditional medicine and indigenous farming methods. Much, especially techniques of conservation, may be in the public domain anyway and so easy to transfer.

As IUCN's Jeff McNeely has pointed out, virtually all the technology being discussed is now freely available to scientists in developing countries. Much of the cutting-edge research is being done in universities in the North, but the graduate students doing the work frequently come from developing countries. For example, from a recent graduating class of 240 PhDs at the Indian Institute of Technology, all but six have moved to Europe and North America. The

issues of technology transfer may have less to do with global politics and more with providing a suitable research environment at the national level.

Nevertheless the Convention will surely encourage more sharing of technologies, building on existing goodwill and mutual benefits. As elsewhere, this Convention's real power is as a political statement of aims and policies, rather than as a concrete set of unambiguous legal obligations that all have to follow.

Exchange of Information and Technical and Scientific Cooperation

Two relatively simple Articles follow, obliging Parties to facilitate exchange of information and to promote international cooperation in matters relating to the aims of the Convention. These are fairly standard provisions in environmental treaties.

One phrase, however, is rather novel. Exchange of information, it states, "shall also, where feasible, include repatriation of information". This reflects the fact that the majority of information on biodiversity is in the North, while the majority of species are in the South. For example the original (or type) specimens of many economically important tropical plants are stored in botanical centres such as Geneva, London, Paris and New York. The Convention recognizes the rightness of the case for a more even distribution of knowledge around the world.

Fortunately photographic techniques, computerized databases and the Internet mean that, even if the specimens stay put, access to them and information about them can be made available all over the world relatively easily. Botanical institutions in the North should nevertheless be aware of the changed global political climate on biodiversity since the development of the Convention and give even more emphasis to ensuring their expertise, collections and data are freely available to those that need them in the South.

Biotechnology

Under the Article on biotechnology, Parties have to take measures to provide for the effective participation in biotechnological research of countries of origin, especially developing countries. The intention is to build up the biotechnology skills of developing countries. Parties also have to promote and advance priority access to the results and benefits of that research to the countries of origin.

In the earlier Article 8(g), Parties have to regulate domestically the risks from the use of Living Modified Organisms (LMOs) resulting from biotechnology. Under the biotechnology Article itself, they also have to supply information on LMOs to other Parties to whom these organisms may be transferred.

To provide some international standards on this important matter, they also have to consider the need for a "biosafety" protocol.This would cover the safe transfer, handling and use of LMOs resulting from biotechnology and that could have an impact on native biodiversity. The recent Conference of Parties decided that a "biosafety" protocol was indeed needed and agreed to start work on its preparation.

Part 6, which will end this series, will consider the funding mechanism for the Convention.

This article draws heavily on A Guide to the Convention on Biological Diversity, by Lyle Glowka, Françoise Burhenne-Guilmin and Hugh Synge (IUCN, Gland, 1994. The book explains the text of the Convention Article by Article, with background material.

Reproduced from Plant Talk No 5 (April 1996)

◀ Previous Next ▶

Home | Introduction | Aims | Latest | Past issues | Stories | Subscribe
Conferences | Plant Facts | Resource pages | Country data sheets | Web links
Contributors | Images | Advertising | Press | About us | Contact us

1996