

# *Giving Priority to the Commons: The International Treaty on Plant Genetic Resources for Food and Agriculture*

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*Intensive human activity over thousands of years created today's agricultural biodiversity. Attempts to create market-based incentives for its conservation and innovative uses, through the application of intellectual property (IP) and CBD-inspired access and benefit sharing (ABS) laws have not benefited large numbers of smallholder farmers, often living in marginal agricultural environments, who are the most active present-day users of agricultural biodiversity. Evidence is also growing that restricted access and use of plant genetic resources for food and agriculture (PGRFA) as a result of the application of these same laws (or political uncertainties surrounding them) can have a deleterious impact on scientific research and breeding. The International Treaty on Plant Genetic Resources for Food and Agriculture provides a general framework for conservation and sustainable use of PGRFA. Most dramatically, it also establishes a plant genetic resources commons to lower transaction costs for conservation, research, breeding and training, and to redistribute back to the commons some of the financial benefits derived from the commercial exploitation of those resources (under certain circumstances). The Treaty is unlike laws analysed in previous chapters because it concentrates on defining and maintaining a commons, instead of means by which to fence portions of it off.*

## *Introduction*

The International Treaty on Plant Genetic Resources for Food and Agriculture (the Treaty) represents a spirited reaction to the rising tide of measures that extend private or sovereign control over genetic resources, which is inappropriate for food and agriculture. It recognizes that ABS for agricultural biodiver-

sity must be treated differently from the way it is generally treated under the Convention on Biological Diversity (CBD). The Treaty creates an international genetic resources commons – the ‘multilateral system of access and benefit sharing’ – within which members, in exercise of their sovereignty, provide free (or almost free)

access to each other's plant genetic resources for research, breeding, conservation and training. It does not matter how many accessions of different species members bring with them into the club; as long as they agree to share what they have, they can get access to all the other members' materials for their own use. Access to materials within the commons comes largely without strings attached, and the strings that do exist are there to maintain the spirit of the commons. For example, recipients cannot take out intellectual property rights (IPRs) that prohibit others receiving them in the same form from the multilateral system. And if recipients choose to prohibit others from using, for their own research and breeding, any product they develop using materials they got from the commons, they must share a percentage of their sales of that product with the international community through a conservation fund.

The commons does not in any way restrict the sovereignty of countries over their resources; quite the opposite, in fact. The preamble to the Treaty explicitly recognizes that 'in the exercise of their sovereign rights over their plant genetic resources for food and agriculture, states may mutually benefit from the creation of an effective multilateral system for facilitated access to a negotiated selection of these resources and for the fair and equitable sharing of the benefits arising from their use'. Parties first exercised their sovereignty by participating in the negotiations of the Treaty and the creation of the commons, and then by choosing to become a member of it. Furthermore, they can, of course, withdraw from membership in the Treaty if they wish.

The commons created by the Treaty is not yet fully global, but it appears to be well on its way. So far, 113 countries have ratified the Treaty, and a number of others are on the verge of doing so, with each new country adding to the overall number of accessions within the commons. In addition, the eleven International Agricultural Research Centres of the

Consultative Group on International Agricultural Research (the CGIAR Centres) holding *ex-situ* collections of plant genetic resources for food and agriculture (PGRFA), the Centro Agronómico Tropical de Investigación y Enseñanza (CATIE) and two of the four organizations hosting collections as part of the International Coconut Genetic Resources Network have placed the collections they host under the framework of the Treaty, to be distributed according to the same rules. At present, it is impossible to say how many accessions of PGRFA are in the Treaty's commons (but it is in the millions), or how many times samples will actually be accessed or provided each year (but it will be in the hundreds of thousands).

Of course, the Treaty is not perfect. It is the product of seven and a half years of often highly polarized negotiations, and a number of compromises were necessary – with some contentious issues left hanging – for the countries involved to be able to agree on the final text in November 2001. Considerable progress has been made since then, but some challenges remain to be addressed before the Treaty, and the commons it creates, can be fully operational.

In this chapter, we briefly review why the Treaty was needed, focusing on the 'international' nature and uses of plant genetic resources for food and agriculture. Then we describe the mechanics of the Treaty, with particular emphasis on the multilateral system of ABS and its intersection with IP laws. We highlight the most innovative aspects of the Treaty, as well as challenges associated with its implementation. We also include accounts of how some of its elements evolved during the negotiations. Finally, we consider the potential implications of the Treaty – both its achievements and its limitations – for ongoing policymaking processes affecting how genetic resources for food and agriculture are conserved (or lost) and used (or ignored).

## ***Why Create a PGRFA Commons?***

The history of the development and use of PGRFA has been characterized by relatively rapid movements of domesticated materials – often in the form of a combination of domesticated crops and animals (and associated pests) – across and among continents, with ultimately a relatively small number of species representing a very high percentage of the daily diets of people around the world (Diamond, 2005). A FAO study on national and regional interdependence revealed that ‘four crops – rice, wheat, sugar (beet and cane) and maize account for over 60 per cent of human calorie intake from plants’ (Palacios, 1998). All countries are interdependent in their reliance on PGRFA. No region or country is self-sufficient. In examining the contribution of major food crops to peoples’ daily caloric consumption around the world, the study concluded that all regions were dependent on PGRFA from other regions to a high degree, with the degree of dependence for most regions being over 50 per cent. No country in the study was ranked as even close to

self-sufficient. This interdependency is graphically illustrated in a number of studies of the international flows of PGRFA and in the pedigrees of crop varieties of major food crops (SGRP, 2006a). For example, the wheat cultivar Sonalika, which was planted on over 6 million hectares in developing countries in 1990, has a pedigree drawing on materials acquired from 15 countries. Sonalika is far from being unique. Major spring bread wheats (planted on more than 0.25 million hectares in the developing world in 1997) on average had 50 farmers’ varieties parental combinations (Cassaday et al, 2001). Table 6.1 demonstrates the international nature of the pedigrees of a number of rice varieties.

PGRFA differ from other plant genetic resources (and genetic resources of all wild flora and fauna) because human intervention has played a critical role in the domestication of crops and in the human, gene and environmental interactions that have led, over thousands of years, to the genetic diversity within and across

**Table 6.1** *Summary of international flows of rice ancestors in selected countries*

<i>Country</i>	<i>Total landrace progenitors in all released varieties</i>	<i>Own landraces</i>	<i>Borrowed landraces</i>
Bangladesh	233	4	229
Brazil	460	80	380
Burma	442	31	411
China	888	157	731
India	3917	1559	2358
Indonesia	463	43	420
Nepal	142	2	140
Nigeria	195	15	180
Pakistan	195	0	195
Philippines	518	34	484
Sri Lanka	386	64	322
Taiwan	20	3	17
Thailand	154	27	127
United States	325	219	106
Vietnam	517	20	497

Source: Fowler and Hodgkin (2004), based on a table originally included in Evenson et al (1998)

species that currently exists. In the absence of active and continuous human management, most crop varieties would cease to exist (Darwin, 1859). Over the millennia, farmers have domesticated wild plants and, through a process of selection and breeding, made them suitable for agriculture. This they have done by breeding out the natural traits, such as shattering of seed-heads prior to maturity or seed dormancy, that allow those plants to survive in the wild. They have also bred in new traits, such as higher yields and drought or disease resistance. Any individual plant variety is thus the product of the breeding work of thousands of farmers over many generations.

Plant genetic resources are the foundation for all agriculture – providing the basis for developing new and improved varieties, and thus essential for achieving food security. Within the weedy and wild relatives, among the farmers' varieties developed on the farm or stored carefully in a seed bank, lie the genetic traits of resistance to plant viruses, diseases and even

insects. It is by screening thousands of varieties that critical traits are found that can save an entire crop and perhaps stave off a national or regional hunger crisis. The value of this variety is difficult to estimate, though the benefits from wheat breeding for spring bread wheat alone in the developing world were approximately US\$2.5 billion annually by the late 1980s (Byerlee and Traxler, 1995). PGRFA are clearly important as an immediate resource. They provide particular characteristics such as pest resistance, drought tolerance, plant architecture, taste, nutrition and colour essential for market success and adaptation in agricultural systems. PGRFA are also important as insurance against unknown future needs. Maintaining plant genetic diversity both within seed banks and in farmers' fields in the centres of origin is essential for responding to future challenges such as developing resistance to new diseases. As a result of their interdependence on PGRFA, countries must constantly access and use (for breeding, other forms of research and direct

### Box 6.1 Global germplasm flows facilitated by the CGIAR Centres' gene banks

Despite the early history of domestication of crops, in more recent times the flow of germplasm, as facilitated by international and some national gene banks, is mostly between developing countries. A study of approximately 1 million samples distributed from *ex-situ* collections of the CGIAR Centres from 1973 to 2001 revealed that 73 per cent of the samples originally collected from developing countries were distributed to developing countries. Transfers to developed countries of materials that were obtained from developing countries accounted for only 16 per cent of the total. Flows from developed to developing countries accounted for some 8 per cent. Only 3 per cent of the transfers carried out by the CGIAR Centres were from developed countries back to other developed countries. Through such transfers, countries are able to enjoy a multiplier effect, gaining access to a much wider range of diverse materials than exists within their own borders, and because of this virtually all countries are net recipients of plant genetic resources.

Maximizing these multiplier effects was one of the original intentions of creating the International Network for the Genetic Evaluation of Rice (INGER). Between 1975 and 2004, over 23,000 unique entries were contributed to the network from all regions of the world, and each region has benefited by being able to evaluate between 2 and 20 times as many varieties as it contributed.

Source: SGRP (2006b)

use) PGRFA from other countries. Analysis of acquisitions and distributions of PGRFA by the gene banks hosted by the CGIAR Centres illustrates this phenomenon (Box 6.1). Another study showed that 88 per cent of the unique accessions of seven crops accessed by Uganda and Kenya between 1980 and 2004 were originally collected in other countries and continents (Halewood et al, 2005).

### ***Scientific hurdles and complex transaction costs***

The creation of this commons for PGRFA avoids the problem inherent in the approach to ABS in the CBD, which is predicated upon being able to identify the ‘origin’ of material as a ‘trigger’ for benefit sharing. The CBD (Article 2) defines the ‘country of origin of genetic resources’ as ‘the country which possesses those genetic resources in *in-situ* conditions.’ In turn, the CBD defines ‘*in-situ* conditions’ as those ‘conditions where genetic resources exist

within ecosystems and natural habitats and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties’. Pursuant to this definition, the CBD requires more than simply identifying the country of origin of a crop – it requires the identification of the country of origin of the distinctive properties of the crop. Much of the literature addressing the international flows and pedigrees of PGRFA suggests, directly or indirectly, that it is difficult or impossible to determine the country of origin of crop varieties, and even more so their distinctive traits, given the long histories of human intervention and cooperation involved in their development (SGRP, 2006a). The Treaty avoids this problem by creating a multilateral system for ABS that builds upon and complements the international historical development of PGRFA. The two specifically listed criteria in the Treaty for identification/inclusion of crops and forages in the multilateral system of ABS are interdependence and importance to food security.

### ***From Recognition of Threats, to the International Undertaking***

The interdependence among nations for PGRFA and the common challenge of genetic erosion served as catalysts for the creation of an internationally cooperative system for germplasm collection and conservation through the Plant Genetic Resources and Crop Ecology Unit, established in the FAO in 1968. In 1972, the CGIAR followed recommendations of the UN Conference on the Human Environment and created the International Board for Plant Genetic Resources (IBPGR). The IBPGR was integrated into the CGIAR and had its own budget, and its secretariat was funded by the FAO’s Plant Genetic Resources Unit; it was located in the FAO in Rome. Its responsibility was to coordinate (and undertake) collection, conservation, evaluation,

documentation and use of germplasm (Esquinas-Alcázar and Hilmi, 2007).

In 1983, as discussed in the introduction to Chapter 5, the 22nd FAO Conference approved, without consensus, and with eight countries registering objections, the International Undertaking on Plant Genetic Resources for Food and Agriculture (IU). It also created, at the same time, the Commission on Genetic Resources for Food and Agriculture (CGRFA) to oversee the IU. The IU was the first comprehensive international agreement dealing with PGRFA. It sought to promote international harmony in matters regarding PGRFA and explicitly declared ‘the universally accepted principle that plant genetic resources are a heritage of mankind and consequently

should be available without restriction’.

The basis of the reservation on the IU expressed by the eight countries was that it did not recognize plant breeders’ rights (PBRs), which were enshrined at that time in the UPOV Conventions of 1961 and 1978 (see Chapter 2). In 1989, Resolution 4/89 – through which all countries finally recognized the primacy of those rights – was adopted by the FAO Conference to appease the ‘hold-out’ countries and to bring them onto the IU by recognizing their right to ‘impose only such minimum restrictions on the free exchange of materials covered by [the IU] as are necessary for [them] to comply with [their] international obligations’ under the UPOV Conventions. Another resolution (5/89), with its vaguely formulated recognition of the contribution and rights of farmers, was designed to appease those that had compromised by recognizing plant breeders’ rights. The influence of the ongoing negotiations of the CBD was later felt in 1991 with the adoption of Resolution 3/91 by the FAO Conference, which recognized that ‘the concept of mankind’s heritage, as applied in the International Undertaking on Plant Genetic Resources, is subject to the sovereignty of the states over their plant genetic resources’.

### *From IU to Treaty*

As discussed in Chapter 5, while adopting the text of the CBD as an appendix to the Nairobi Final Act, governments also resolved that there were outstanding issues on ‘the interrelationship between the Convention on Biological Diversity and the promotion of sustainable agriculture’. In 1993, the FAO Conference requested the FAO to provide a forum in the Commission on Genetic Resources for Food and Agriculture for negotiation among governments for:

- the adaptation of the IU, in harmony with the CBD;
- consideration of the issue of access on mutually agreed terms to plant genetic resources, including *ex-situ* collections not addressed by the CBD; and
- the issue of the realization of farmers’ rights.

Also in November 1993, the FAO Conference adopted the International Code of Conduct for Plant Germplasm Collecting and Transfer (Box 6.2).

### *Tough negotiations*

The negotiations of the Treaty text took six and a half arduous years, from the First Extraordinary Session of the Commission, in November 1994, to its Sixth Extraordinary Session, in June 2001. The negotiations were long and tough, with highly polarized debates between developed and developing countries. Some of the most contentious issues concerned the scope of crops and forages to be included within the multilateral system of ABS (MLS), the actual terms of benefit sharing, and IPRs (Box 6.3). The scope of materials to be included in the MLS was one of the most contentious negotiating issues and it shifted considerably over the course of the negotiations of the Treaty. In the end, negotiators agreed upon a list of 35 crops and 29 forage genera to be included in the MLS. These are popularly referred to as ‘Annex I’ crops or materials since they are included in Annex I to the Treaty (see Appendix 3, page 249, for a brief history of the list and the crops included).

As is the case in most, if not all, international negotiations, developed countries enjoyed substantially more financial and human resource support during the negotiations of the Treaty and, later, the Standard Material Transfer Agreement (SMTA). Developed country

## **Box 6.2 The International Code of Conduct for Plant Germplasm Collecting and Transfer**

The International Code of Conduct for Plant Germplasm Collecting and Transfer (the Code) is based on the principles that 'the conservation and continued availability of plant genetic resources is a common concern of mankind' and that 'nations have sovereign rights over their plant genetic resources in their territories'. This marked a reconciliation between the principles of the 1983 IU and those of the CBD. The Code is voluntary. It provides a set of general principles that governments may wish to use in developing national regulations or formulating bilateral agreements on germplasm exploration and collection, conservation, exchange and utilization. The Code also aims to involve farmers, scientists and organizations in conservation programmes in countries where collecting is taking place. It also aims to promote the 'sharing of benefits' and increase recognition of the rights and needs of local communities and farmers so that they may be compensated for their contribution to the conservation and development of plant genetic resources.

Although voluntary in nature, the Code has, in practice, established both moral and professional standards and is currently being used as a guide by many countries and several institutions, especially the CGIAR Centres, in seeking and granting permits for the exploration and collection of germplasm. In addition to undertaking, under Article 15 of the Treaty, to provide facilitated access to PGRFA in Annex I to the CGIAR Centres, Parties are encouraged to provide similar access, on mutually agreed terms, to non-Annex I PGRFA that are important to the programmes and activities of the CGIAR Centres. It is expected that any access and the collection activity will take into account or may be carried out in accordance with the stipulations of the Code.

delegates therefore came to Treaty negotiating sessions with more thoroughly annotated briefing books, and as part of substantially larger delegations that included experts from a diversity of departments to provide support on technical issues. During the negotiations all regional groups of countries are allowed the opportunity to meet together for a day or two immediately prior to the negotiating sessions, and the stipend from the FAO covers these extra days' expenses. However, regional meetings in preparation for the negotiating sessions in Rome were very important, given that delegations were meant to speak through regional representatives. Not surprisingly, the Europeans (though the coordination mechanism of the European Union) and North America were able to arrange regional meetings and/or communications between a number of the negotiating sessions. The African Group, at the other extreme, did not enjoy the benefit of

any dedicated intersessional regional meetings in Africa until sometime after the Treaty text was actually adopted, and negotiations on the SMTA were underway. These intersessional meetings within regions can make a big difference to groups' effectiveness.<sup>1</sup>

Apart from government negotiators, the private sector (biotechnology, seed and breeding companies), the CGIAR Centres and civil society organizations all played roles in the negotiation of the Treaty. The CGIAR Centres followed the negotiations closely, providing technical inputs on a number of subjects, including crop taxonomies, international flows of PGRFA and global information systems.

The private sector also participated actively in the international negotiations of the Treaty and, subsequently, the SMTA, mostly through the International Seed Federation (ISF), which represents, directly or indirectly, more than 10,000 seed companies around the world. The

## Box 6.3 Negotiating dynamics and IPRs

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Much of the utility of genetic resources in agriculture depends upon access to the greatest diversity of germplasm possible. The creation of monopoly rights over elements of this diversity through IPRs limits access and is thus often considered detrimental. Furthermore, there is increasingly frequent broad interpretation of the new and non-obvious conditions for the grant of patent rights. This leads to a blurring of the distinction between invention and discovery and thus potentially allows for the privatization of naturally occurring plants and other organisms. One concern about patents and plant variety protection (PVP) in agriculture is misappropriation. The knowledge and innovations of farmers often form the basis of patented or PVP-protected innovations but are neither acknowledged nor considered eligible for protection in their own right. This is one of the main rationales for seeking to protect farmers' rights under the Treaty.

The parties in the negotiations were broadly divided on IP, although by no means strictly, into the developed countries, with a highly advanced breeding industry, and the developing countries, with a less advanced breeding sector but constituting the predominant sources of the genetic resources. The developed countries, being generally better resourced and, therefore, better prepared for the negotiations, were generally dominant during the negotiations.

Led by the US, developed countries pushed for the recognition of IPRs over genetic resources and strongly opposed any provisions that might take away or otherwise moderate those rights during the Treaty negotiations. With far fewer resources and less capacity, the developing countries' participation and influence over the final outcomes was necessarily limited, although delegations from specific developing countries were remarkably dynamic in pushing their own issues throughout the negotiations. Some level of coordination with other developing countries, especially through regional blocs, also helped bolster their effectiveness. By and large, though, the participation of most developing countries was fragmented and largely uncoordinated. Their delegations were often composed only of officials from the focal points – which are based in specific ministries or departments – even when the issues were cross-sectorial or multidisciplinary and of critical importance to their national interests.

Unfortunately, in the course of multilateral transactions that shape international policy and law, nations do not necessarily get what they desire or deserve, but mostly what they negotiate. Treaty making is not necessarily rational or logical but a largely political process involving impositions, compromises and trade-offs, which accounts for some of the contradictions and ambiguities found in the text of the instruments, notably in part of the Treaty dealing with IPRs:

*recipients shall not claim any IP or other rights that limit the facilitated access to the PGRFA, or their genetic parts or components, in the form received from the multilateral system.*  
(Article 12.3(d))

Whether this provision means that no IPRs of any sort can be claimed or that IPRs could be obtained as long as those rights do not limit the facilitated access is still uncertain – an uncertainty that has carried over into the SMTA (Box 6.4). There is further uncertainty as to what 'parts and components' mean in practice and the extent to which IPRs may be claimed over them. Different parties have differing takes on what this provision means. Most developed countries interpret it as meaning that IPRs can be taken out on a product if some improvement or modification has been made, in other words if it is not 'in the form received' from the Multilateral System. However, most developing countries take the view that 'parts and components' implies that products containing parts and components of resources received from the Multilateral System, as well as derivatives, are covered by this provision and that it therefore prohibits IPRs over them. Parties fully recognize and admit these differences in interpretation and, it is hoped that the Governing Body of the Treaty will at some point in the future address the issue and give a definitive interpretation consistent with the spirit of the Treaty.

ISF was a keen and active observer throughout the negotiations of the Treaty and related processes, frequently publishing their positions – usually very clearly stated – on the ISF website. Companies, of course, were also consulted by their representative governments, and their influence was, naturally enough, pretty important for some developed countries’ delegations and their positions. Some delegations included representatives from the private sector of the countries concerned.

In contrast to both the CGIAR and the private sector, civil society organizations’ participation in the Treaty process – while very active at first – declined precipitously over the years. During the First Session of the Governing Body in 2006 (see below), civil society organizations themselves made impassioned pleas for more civil society organizations – farmers’ organizations in particular – to be involved in future meetings of the Governing Body, pleas that were supported by most delegations. The Governing Body requested the Secretary to facilitate the participation of civil society organizations in the work of the Treaty, especially in the implementation of its Article 6 on the sustainable use of plant genetic resources.

The text of the Treaty was finally adopted in November 2001 by the FAO Conference (Table 6.2). The Treaty entered into force in June 2004, 90 days after the deposit of the 40th instrument of ratification. As of June 2007, 113 Parties had ratified (approved or acceded to) the Treaty.<sup>2</sup>

However, the entry into force of the Treaty was not enough, in itself, for the genetic

resources commons – the MLS – to be operational. In addition, the Parties had to negotiate further to develop the Standard Material Transfer Agreement (SMTA) to be used for all transfers of materials under the multilateral system. The SMTA sets out the legal conditions that apply to both suppliers and recipients and establishes procedures for dispute resolution. The Treaty specified that Parties to the Treaty would have to adopt the SMTA at the First Session of the Governing Body (whenever that might be held). The Governing Body of the Treaty consists of all Parties thereto. Its main function is ‘to promote the full implementation of this Treaty, keeping in view its objectives’ (Article 19). It may also establish such subsidiary bodies as may be necessary, along with their respective mandates and composition.

The process for the development of the SMTA was spread out over almost four years. In October 2002, the First Meeting of the Commission on Genetic Resources for Food and Agriculture, acting as the Interim Governing Body for the International Treaty, developed terms of reference for an Expert Group to start work on the SMTA. The Expert Group met in October 2004 and set out a basic framework, which was used as the basis for negotiations in the two meetings of a Contact Group for the Drafting of the SMTA and later at the First Session of the Governing Body in June 2006, which adopted the final text of the SMTA. Before that time, the multilateral system could not operate (Lim, 2007).

## The Treaty's Nuts and Bolts

The main provisions of the Treaty are outlined in Table 6.2. We discuss below some of the key points from the Treaty and some issues arising from its negotiation and implementation.

**Table 6.2** *Summary of the main components of the International Treaty on Plant Genetic Resources for Food and Agriculture*

Part	Main provisions
<b>Part I – Introduction</b>	<ul style="list-style-type: none"> <li>• Article 1 establishes that the objectives are the conservation and sustainable use of PGRFA and fair and equitable sharing of benefits arising from their use, in harmony with the CBD, for sustainable agriculture and food security.</li> <li>• Article 2 defines some key terms.</li> <li>• Article 3 establishes the scope of the Treaty <i>to apply to all PGRFA</i>, and not just those listed in Annex I to the Treaty.</li> </ul>
<b>Part II – General provisions on conservation and sustainable utilization of PGRFA</b>	<ul style="list-style-type: none"> <li>• Article 4 requires Parties to make sure their laws conform to their Treaty obligations.</li> <li>• Article 5 lists the main tasks for Contracting Parties on the conservation, exploration, collection, characterization, evaluation and documentation of PGRFA and calls for the promotion of an integrated approach to the exploration, conservation and sustainable use of PGRFA.</li> <li>• Article 6 requires the Contracting Parties to develop and maintain appropriate policy and legal measures that promote the sustainable use of PGRFA and gives a non-exhaustive list of the types of measure that may be included.</li> <li>• Articles 7 and 8 deal with national commitments, international cooperation and technical assistance.</li> </ul>
<b>Part III – Farmers' rights</b>	<ul style="list-style-type: none"> <li>• Article 9 deals with farmers' rights, in recognition of the contribution of local and indigenous communities and farmers to the conservation and development of plant genetic resources, and places the responsibility for realizing those rights on national governments. Elements include the protection and promotion of (i) traditional knowledge relevant to PGRFA; (ii) rights of farmers to participate equitably in the sharing of benefits arising from the utilization of PGRFA; and (iii) the right to participate in making decisions at the national level with respect to the conservation and sustainable use of PGRFA.</li> </ul>
<b>Part IV – Multilateral System of Access and Benefit Sharing</b>	<ul style="list-style-type: none"> <li>• Article 10 recognizes the 'sovereign rights of States over their own PGRFA, including that the authority to determine access to those resources rests with national governments and is subject to national legislation'. It further recognizes that 'in the exercise of their sovereign rights, the Contracting Parties agree to establish' the MLS to facilitate access to PGRFA and to share, in a fair and equitable way, the benefits arising from the utilization of these resources.</li> </ul>

**Part V – Supporting components**

- Article 11 deals with the coverage of the MLS. Based on the criteria of their importance for food security and interdependence, the MLS covers a list of crops set out in Annex I to the Treaty (see Appendix 3 of this book).
- The MLS also includes PGRFA listed in Annex I and held by the CGIAR Centres or by other entities that have voluntarily included them in the MLS.
- Under Article 12, the Contracting Parties agree to take the necessary legal or other appropriate measures to provide facilitated access through the MLS to other Contracting Parties and to legal and natural persons under their jurisdiction.
- Recipients of material through the MLS must not claim IP or other rights that limit facilitated access to PGRFA, or their genetic parts or components, in the form received from the MLS. Facilitated access is to be accorded through the Standard Material Transfer Agreement (SMTA) adopted by the Governing Body of the Treaty.
- Article 13 sets out the agreed terms for benefit sharing within the MLS, recognizing that facilitated access to PGRFA itself constitutes a major benefit of the MLS. Other mechanisms for benefit sharing include the exchange of information, access to and transfer of technology, capacity building, and the sharing of benefits arising from commercialization.
- These are activities outside the institutional structure of the Treaty itself, but which provide support essential to achieving its objectives. They include promoting the effective implementation of the rolling Global Plan of Action (Article 14), the encouragement of international plant genetic resources networks, and the development and strengthening of a global information system on PGRFA, including a periodic assessment of the state of the world's PGRFA.
- Article 15 deals with *ex-situ* collections of PGRFA held by the CGIAR Centres and other international institutions. The Treaty includes a provision calling on the CGIAR Centres to sign agreements with the Governing Body to bring their collections under the Treaty. PGRFA listed in Annex I that are held by the CGIAR Centres are to be made available as part of the MLS. Non-Annex I materials will be made available according to a material transfer agreement (MTA) adopted by the Governing Body at its second session in October/November 2007. The Treaty states that this amended MTA must be 'in accordance with the relevant sections of this Treaty, especially Articles 12 and 13'. Article 12 includes the purposes for which access must be granted; charging administrative costs, including passport and other information; restrictions on claims for IPRs, including the phrases 'parts and components' and 'in the form received'; PGRFA under development; access to *in-situ* materials; dispute resolution; and emergency situations. Article 13 includes mandatory financial benefit sharing and voluntary financial benefit sharing. The Governing Body will also seek to establish similar agreements with other relevant international institutions.

Part	Main provisions
<b>Part VI – Financial provisions</b>	<ul style="list-style-type: none"> <li>• Article 16 deals with cooperation with international plant genetic resource networks.</li> <li>• In Article 17, Parties agree to establish a global information system to facilitate exchange of information. A truly globally harmonized information system is critical for the operation of the MLS; without it, no one will know what is available through the MLS and thus no one will be able to make targeted requests.</li> <li>• In Article 18, Parties agree to implement a funding strategy to assist in the implementation of the Treaty’s activities. The strategy aims to enhance the availability, transparency, efficiency and effectiveness of the provision of financial resources for the Treaty. It will include the financial benefits arising from the commercialization of plant genetic resources under the MLS, and also funds made available through other international mechanisms, funds and bodies.</li> </ul>
<b>Part VII – Institutional provisions</b>	<ul style="list-style-type: none"> <li>• Article 19 establishes a Governing Body composed of all Contracting Parties. This Governing Body acts as the supreme body for the Treaty and provides policy direction and guidance for the implementation of the Treaty and in particular the MLS. All decisions of the Governing Body are to be taken by consensus, although it is empowered to agree by consensus on another method of decision making for all matters other than amendments to the Treaty and to its Annexes. The Governing Body is expected to maintain regular communication with other international organizations, especially the CBD, to reinforce institutional cooperation over genetic resources issues.</li> <li>• The Treaty also provides for the appointment of a Secretary of the Governing Body (Article 20).</li> <li>• Article 21 deals with compliance and requires the Governing Body to deal with this at its first meeting.</li> <li>• Settlement of disputes is covered by Article 22, which also contains provision for a third party to mediate.</li> <li>• Articles 23–35 deal with amendments, annexes, signature, ratification, acceptance or approval, accession to and entry into force of the Treaty, relations with others, and provision for withdrawals from or termination of the Treaty.</li> </ul>
<b>Annexes</b>	<ul style="list-style-type: none"> <li>• Annex I lists the crops covered under the MLS, while Annex II deals with arbitration and conciliation.</li> </ul>

### *The MLS*

As the introduction already highlighted, the Treaty creates a genetic resources commons – the multilateral system of access and benefit sharing (MLS). The terminology here is very important, as the commons created by the

Treaty is not equivalent to the public domain. The MLS is bounded in ways that distinguish it from the public domain. For example, parties have agreed that they will make materials available through the MLS ‘solely for the purpose of utilization and conservation for research, breeding and training for food and agriculture,

provided that such purpose does not include chemical, pharmaceutical and/or other non-food/feed industrial uses' (Article 12.3 (a)). Of course, they can make materials available for these other purposes if they choose to, but they are not obliged to under the Treaty.

The MLS does not include all PGRFA. Furthermore, not all instances of Annex I crops in a country are automatically included in the MLS, though those which 'are under the management and control of the Contracting Parties and in the public domain' (Article 11.2) certainly are. Contracting Parties do not have to make a list of what satisfies those conditions for it to be included in the MLS – since it is by definition – but it helps if they do, so that potential users know they are there. Beyond those materials, governments, individuals and organizations are encouraged to voluntarily include additional materials. Furthermore, international organizations are also encouraged to place their collections under the Treaty by signing agreements with the Governing Body (Article 15). Since the Treaty is open to membership only by States, the CGIAR Centres and other international institutions holding genetic resources collections needed to have a different way of expressing their consent to be bound by the provisions regarding their collections set out in the Treaty. As stated above, 11 CGIAR Centres, CATIE and Coconut Genetic Resources Network (COGENT) have already signed such agreements, and other international organizations/networks are considering doing so.

As stated above, all materials in the MLS will be distributed under the SMTA. The Treaty makes clear that materials for use for food and agriculture will be made available for free, or for the minimal costs involved (Article 15). If recipients use the materials for something else, they will be in violation of the SMTA. They are, however, allowed to use materials received to develop improved materials. In such cases, if they commercialize a final product that is itself a PGRFA and restrict others from using it for

research and breeding, they must pay 1.1 per cent of sales of the product, minus 30 per cent, into a common fund created under the Treaty. If the PGRFA product is available for further research and breeding, no payment is necessary, although it is still encouraged. Recipients may opt for a second mandatory benefit sharing scheme whereby they agree to pay a royalty rate – 0.5 per cent of sales – over a 10-year period on all PGRFA products they commercialize of the same crop, whether or not they are available without restriction for research and breeding. Whatever they choose, the funds generated will be used to support conservation and sustainable use in developing countries; the Governing Body of the Treaty has oversight over such expenditures.

The monetary benefits go back to the MLS, not to any particular supplier (unless one characterizes the MLS as the supplier or source). This is where the MLS departs radically from the kind of bilateral regulatory arrangements that many countries have created (or are creating) pursuant to the CBD. It is also how it addresses the inherent difficulties associated with the CBD's definition of 'country of origin' for PGRFA discussed above. The fact that monetary benefits go to an international fund, and not to the supplier, however, raises questions about enforcement. Stated bluntly, if suppliers do not receive direct benefits back in the form of royalty payments, they will not have an incentive – other than good global citizenship – to pursue recipients who violate the terms of the SMTA, for example by taking out IPRs that prevent others from obtaining the same materials in the form received, using MLS materials for pharmaceutical research or not making due payments to the international fund.

### ***Third party beneficiary interests***

Some of the most innovative law-making in the negotiations of the Treaty and SMTA took

place in response to this issue. In short, it was agreed that to address the gap in enforcement incentives, the third party beneficiary interests of the MLS as a whole should be given some form of legal recognition and representation. Discussion on this issue stretched over four international meetings (Moore, 2007), and the manner of its resolution is potentially enormously significant for future international law-making; however, it is dealt with in just a few short paragraphs in the SMTA. The SMTA states that the parties agree that:

*[The entity] representing the Governing Body and the MLS has the right, as a third party beneficiary, to initiate dispute settlement procedures regarding rights and obligations of the Provider and the Recipient under the Agreement. (Article 8.2)*

To empower the entity representing the system's third party beneficiary interests, the SMTA provides that the entity has the right to request information from providers or recipients that are relevant to their obligations under the SMTA. Subsequent to the adoption of the SMTA, the FAO in principle accepted the invitation of the Governing Body to represent the third party interests of the Governing Body and the MLS (Moore, 2007). The procedures to be followed to bring alleged violations of the SMTA to the attention of the FAO as the representative of the MLS's third party beneficiary interests, and the role of the Governing Body in such instances, still have to be clarified, however. Whatever procedures are eventually adopted, it is quite likely they will entail considerably more systematic consideration of alleged wrongdoings at much higher levels within the international community than have ever existed before.

### ***Dispute resolution***

Pursuant to the SMTA, recipients and providers agree to a three-stage process for dispute resolution. The first stage is that the parties will attempt to resolve a dispute through negotiation. If negotiations fail, then the parties may choose mediation. If mediation fails, the matter can be referred to binding international arbitration. Furthermore, the SMTA states that the 'applicable law shall be the General Principles of Law, including the UNIDROIT Principles of International Commercial Contracts 2004, the objectives and relevant provisions of the Treaty and, when necessary for interpretation, the decisions of the Governing Body' (Article 7). The combined provisions regarding dispute settlement and applicable law are significant: they provide the foundation for the development of a universally relevant body of law as disputes are resolved. In the absence of these clauses, disputes would often have been settled according to the national laws of either the providers or recipients (or both, since they could both be from the same country). Such decisions would have had less value as precedents, given the differences between countries' laws, and an uneven patchwork of uneven case decisions would have developed. Having binding international arbitration following general principles of law should lead to the gradual build-up of a useful body of consistently applicable precedents, in the form of binding arbitration-panel decisions, to provide guidance on otherwise unclear or unresolved issues, such as those on IPRs (Box 6.4).

### ***Farmers' rights***

Article 9 of the Treaty urges parties to take measures to protect and promote farmers' rights, and provides that 'responsibility for realizing farmers' rights ... rests with national governments', including:

## **Box 6.4 Clarity through arbitration: Resolving outstanding questions about IPRs?**

*Michael Halewood*

One issue that could end up being addressed through binding international arbitration is whether or not genes isolated from MLS materials can be patented. Article 6.2 of the SMTA states that '[t]he Recipient shall not claim any IP or other rights that limit the facilitated access to the Material provided under this Agreement, or their genetic parts or components, in the form received from the MLS'. This article of the SMTA is copied almost directly from Article 12.3(d) of the Treaty (Box 6.3). Some experts say the article allows patenting of isolated genes; others say it does not.

The article is not, however, the product of sloppy drafting during late-night negotiations. It represents a careful compromise among the delegations, which had very different opinions about how the issue should be resolved, but who realized that they would not be able to close negotiations of the Treaty if any side insisted on achieving clarity. So it was left cloudy or ambiguous. One possibility was that it would be further negotiated during the meetings to develop the SMTA. But there too the issue was quickly reconfirmed to be too divisive to address 'head on' and footnotes to negotiating texts offering opposite interpretations were quietly dropped between the Contact Group's two meetings. So the text remains the same.

One possibility is that a recipient will seek to patent a gene isolated from MLS material, and the supplier will end up referring the matter to binding arbitration. In this event the resulting decision would clarify the rules of the game for everyone. Another possibility, in the absence of an actual case of conflict, would be for the Governing Body to refer the question to an arbitration panel for an opinion. This too would promote clarity. A third possibility is that the issue simply will not arise. Would-be patentors may prefer to obtain materials from sources other than the MLS as long as this uncertainty exists.

- protection of traditional knowledge relevant to PGRFA;
- the right to equitably participate in sharing benefits arising from the utilization of PGRFA; and
- the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of PGRFA.

The concept of farmers' rights was seen as a means to reward farmers and their communities for their contributions in the past, to encourage them to continue in their efforts to conserve and improve PGRFA, and to allow them to participate in the benefits derived, at present and in the future, from the improved

use of plant genetic resources, through plant breeding and other scientific methods.

Farmers' rights were primarily canvassed and negotiated, under both the IU and the Treaty, as a counterbalance to the expansion of plant breeders' rights, and later patents, which were seen as major threats to the rights and long-established practices of farmers of saving, exchanging and reusing seeds. Another concern was the failure of plant breeders' rights to acknowledge the contributions of farmers in breeding and developing foundation varieties used in advanced breeding programmes, thereby not requiring the sharing of benefits derived from such use with farmers. The emergence of the concept of farmers' rights was motivated more as part of a political effort

to redress the perceived imbalance created by the growing use and expansion of plant breeders' rights and patents than as legal rights, per se, in real property, IP or anything else. In practical terms, countries had intended that farmers' rights would be recognized through an international fund, a fund that was never established. However, unlike breeders' rights, which enjoy internationally recognized standards and application as well as enforcement through UPOV, and with some form of plant variety protection being required under TRIPS, farmers' rights as set out in the Treaty are to be implemented at the national level in accordance with national legislation (Table 6.3). There is also no international forum discussing or promoting farmers' rights akin to UPOV, which exclusively promotes and seeks to protect plant breeders' rights (though some of the ongoing work concerning misappropriation of traditional knowledge under the aegis of WIPO's Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore overlaps to some degree).

The inclusion of farmers' rights in the IU and, subsequently, in the Treaty marked the first time that such rights were formally recognized in an international instrument. The primary focus of farmers' rights is not on some form of *sui generis* IPRs, per se, although some literature mentions this as a desirable goal. Indeed the farmers' and peasants' movements supporting the food sovereignty approach specifically reject IPRs in agriculture (see Chapter 8, Box 8.2). Probably a more fruitful emphasis with regard to strategies to promote farmers' rights would be measures to facilitate farmers' stewardship of biodiversity (Andersen, 2006), including preserving their freedom to operate – in other words not being prevented, for instance, from saving, exchanging or reusing harvested seeds, and being allowed access to commercial markets for their varieties and products. Furthermore, although several elements of these rights are outlined in the

Treaty, their conceptual scope is yet to be fully articulated and their application or enforcement in practice still presents major challenges. All these issues are left by the Treaty to national governments to address in their laws. However, only a few countries have, so far, attempted to address the complex conceptual and operational problems that are involved, for instance, with indigenous knowledge, even in the CBD context. India has included the protection of farmers' rights in its recent legislation on biodiversity (Chapter 2, Box 2.1), yet even here, despite their inclusion in the law, there is not a clear definition of the nature and scope of these rights.

Despite the Treaty being ostensibly oriented to their interests, the level of participation of farmers and farmers' groups in the negotiations has been minimal, and their absence was particularly significant during the negotiation of the SMTA. If the Treaty is to be effectively implemented and its objectives realized, it is essential that the Contracting Parties find ways to proactively encourage the effective participation of civil society and farmers' organizations in the work of the Governing Body.

### Compliance

Beyond the MLS, where obligations between suppliers and recipients of materials are bound by the terms and conditions of the legally binding SMTA, the Treaty is largely silent on the issue of enforcement, although it does provide for the normal gamut of dispute settlement procedures, including optional acceptance of international arbitration or reference to the International Court of Justice. The Treaty provides for the adoption of procedures and mechanisms on compliance which are simple, facilitative, non-adversarial, non-punitive and cooperative in nature. Such mechanisms will, for instance, involve the provision of advice or assistance, including financial and technical

**Table 6.3** *Main differences between plant breeders' rights and farmers' rights*

<i>Breeders' Rights</i>	<i>Farmers' Rights</i>
Internationalized in conception and enforcement through TRIPs Article 27.3(b) (which requires PVP but does not specify UPOV's PBRs or any other particular form) and UPOV, although granted on a national basis through national law.	Can only be elaborated and implemented at the national level, although recognized in the Treaty – the only international agreement to do so.
Strictly IPRs, with more-or-less clear subject matter and legally defined scope or 'boundaries', including territorial limits and time limitation of, usually, up to 25 years for trees and vines and 20 years for other plants.	A bundle of rights, which may include elements of, but extend far beyond, IPRs per se. The scope and contents are yet to be fully elaborated (the Treaty has an indicative list of elements). Perceived as not subject to time or territorial limitations as such.
Private monopoly rights restricting others' actions without the permission of the 'owner' of the property concerned.	Conceived as largely collective/communal in nature and tend to be non-exclusive, since they promote sharing and exchange of materials and knowledge. Carry a certain connotation of freedom from restriction, i.e. rights not to be restricted in carrying out certain actions, especially to save, use, exchange and sell farm-saved seed/propagating material.
Relates to commercial activities and commercially oriented breeding.	Cover much more than commercially oriented activities and issues and include social/policy/ political issues, e.g. right to participate in decision making.
Granted upon the satisfaction of a definite set of criteria: <ul style="list-style-type: none"> <li>• (commercial) novelty;</li> <li>• distinctness;</li> <li>• uniformity;</li> <li>• stability; and</li> <li>• appropriate denomination.</li> </ul>	Considered inherent by virtue of past and present contribution in the development of varieties, knowledge and technology.
No requirement or obligation to share benefits even if materials or knowledge are obtained from traditional knowledge or other unprotected sources.	Expectation or right to share benefits when their genetic material or knowledge has been used in the development of a protected variety.

assistance, technology transfer, training, and other capacity-building measures. The Treaty anticipates a mostly cooperative and consensual approach to implementation, to dealing with disputes and outstanding or emerging issues, and to encouraging compliance. This is, in large part, because all countries are interdependent where PGRFA are concerned and all share a common interest in their conservation and sustainable utilization. It is also a reflection of

the compromises, or lack of them, on the issue of enforcement during the negotiations. At its First Session, the Governing Body adopted a resolution establishing a compliance committee, though without mandate or terms of reference. It postponed consideration of the procedures and operational mechanisms of the committee to its Second Session, and agreed on provisional procedures and operational mechanisms which would allow parties to raise issues

of compliance in advance of the Governing Body's sessions.

### ***Conservation and sustainable use of PGRFA***

The MLS received the most attention during the negotiations of the Treaty. Now that the basic rules for the MLS have been established and the SMTA agreed, the Governing Body should be able to shift a larger proportion of its attention to sustainable use under the Treaty. Sustainable use of PGRFA is the ultimate goal. The MLS is not an end itself; it exists to support sustainable use. Moreover, apart from those parts of the Treaty concerning the MLS, the Treaty applies to all PGRFA (in other words well beyond the Annex I list). Article 5, concerning conservation of all PGRFA, encourages countries, subject to national legislation, to survey existing inventories, collect materials under threat, support farmers to

conserve on-farm, promote *in-situ* conservation of wild crop relatives and wild plants, and document, characterize, regenerate and evaluate PGRFA. Article 6 obliges member countries to develop policy and legal measures to promote the sustainable use of all PGRFA; it provides an indicative (and mixed) list of the kinds of activities such laws and policies should support, including maintenance of diverse farming systems, research that maximizes variation for farmers' benefit, broadening the genetic base of crops available to farmers, and expanding use of local and locally adapted crops and underutilized species. The two articles provide a framework for future work on sustainable use and conservation. The immediate challenge for the Governing Body will be to develop a programme of work related to these two articles that fully exploits the fact that governments, having just ratified the Treaty, are going to be more willing to invest resources in these areas than they have been in the past.

## ***Looking Forward, Looking Back***

### ***Using the MLS and SMTA***

Through the Treaty, governments have set up an innovative mechanism to maintain a managed commons for PGRFA. Many issues remain to be ironed out in the course of implementation, however, including how countries are going to approach implementing their participation in the commons, both as suppliers and receivers of materials. To date, there have been very few examples of national implementation to look to as examples, although some regional meetings have been held to tentatively explore possible means to develop harmonized approaches to implementation. There is clearly a need for assistance to be made available, upon request, to assist national policymakers and technicians think through issues such as:

- What materials are in the management and control of the government and in the public domain?
- What information system should they be developing and how can they link it to whatever system is developed as the 'leader' in the global information system envisaged under the Treaty?
- How will they circulate non-Annex I materials?

In addition, on a related issue, countries will have to consider their capacity to ensure the health of samples they supply.

At this point, it is difficult to predict what the role of companies will be in the Treaty's MLS. For the time being, they are under no obligation to make any materials available to

others. The Treaty includes provision for a review, within two years of entering into force (that is, say, by June 2006, but the review has not taken place), of whether to discontinue facilitated access to natural and legal persons (in other words companies) that do not themselves include materials in the MLS. On the one hand, pushing forward with such a review now would be premature, potentially raising tensions among a range of actors both inside and outside the MLS at just the time it needs stability and widespread support. On the other hand, the obligation is there, explicitly stated in the Treaty, and the Governing Body will eventually need to make some sort of decision about how to address this issue.

A more immediate question is how frequently private companies will actually request genetic resources from the MLS. In May 2007, the ISF published an opinion piece questioning ‘the degree to which the SMTA is acceptable in practice for seed companies to utilize material’. The paper goes on to state that:

*... the main concerns of the seed industry are linked to the absence of a threshold for the level of incorporation of accessed material in the final product, and to ambiguity as regards the duration of benefit sharing in case of restrictions for further research and breeding. (ISF, 2007)*

Meanwhile, some companies have indicated independently, to some CGIAR Centres, that they have reservations about receiving materials under the SMTA, citing similar concerns. It is possible, therefore, that the most likely candidates for ‘triggering’ the mandatory benefit sharing provisions of the Treaty and SMTA may seek PGRFA from other sources, at least for the time being.

It might seem a disappointing start for the operation of the MLS to find that a significant subset of would-be users may choose not to participate in the system. However, representa-

tives of the private sector have said at various meetings that they already had access to (or collections of) the materials they need for the next 5–15 years to support their breeding work. In other words, they did not have pressing needs for access to materials through a global multilateral system, at least not for some time. Only ‘1.7 [per cent] of samples distributed from the *ex-situ* collections hosted by the CGIAR Centres between 1974 and 2005 inclusive went to commercial companies’ (Gaiji, 2006). Evidently most companies already had what they needed (or could get it from other sources). Perhaps then, even if companies did not have these reservations about the SMTA, they would not be accessing much material through the MLS, at least not for a number of years.

The CGIAR Centres themselves will be significant players in the day-to-day operation of the MLS, given their mandate to provide facilitated access to the materials they host in gene banks (and improved materials) and given that these collections represent a significant proportion of the total materials available through the MLS (Box 6.5). In the first nine months of 2007, the CGIAR Centres distributed 97,500 samples (in 833 shipments) under the terms and conditions of the SMTA. During the same period, only 3 would-be recipients refused to take materials under the SMTA (SGRP, 2007).

Although the participation of civil society organizations (CSOs) dropped off over the course of the negotiations of the Treaty and, later, the SMTA, there are potentially very important roles for farmers’ and civil society organizations to play in monitoring the proper functioning of the MLS. Civil society organizations have been very effective in raising the alarm concerning allegations of improper actions by a range of actors vis-à-vis genetic resources, and their participation in raising awareness about the MLS and promoting compliance with its spirit will be important. The launching of the MLS provides a poten-

### **Box 6.5 The CGIAR Centres under the Treaty**

A significant portion of public agricultural research has traditionally been carried out by the CGIAR Centres. The CGIAR is an informal association, founded in 1971, whose mission is to contribute to food security and poverty eradication in developing countries through research, partnerships, capacity building and policy support, promoting sustainable agricultural development based on the environmentally sound management of natural resources. Its membership consists of 47 countries (of which 25 are developing countries), four private foundations, and 13 regional and international organizations. It is sponsored by the FAO, the International Fund for Agricultural Development, the United Nations Development Programme and the World Bank. In 2005, CGIAR members contributed approximately US\$450 million to the CGIAR Centres.

The CGIAR supports an international network of 15 Centres, which include Bioversity International, based in Rome; the International Rice Research Institute (IRRI), based in the Philippines; the International Maize and Wheat Improvement Center (CIMMYT), based in Mexico; and the International Center for Tropical Agriculture (CIAT), based in Colombia. Eleven CGIAR Centres collectively hold approximately 13 per cent of the *ex-situ* PGRFA in the world, with over 700,000 accessions of crop, forage and agroforestry species, encompassing farmers' varieties, improved varieties and wild relative species. Of these, 601,323 were designated, under agreements made in 1994 between the CGIAR Centres and the FAO, to be held 'in trust for the benefit of the international community, in particular the developing countries'. These agreements have been supplanted by the Agreements Between the 11 CGIAR Centres Holding *ex-situ* Collections of PGRFA and the Governing Body of the International Treaty signed on 16 October 2006. Under the Treaty, the CGIAR's *ex-situ* collections of Annex I genetic resources have been added to the MLS and will be distributed using the SMTA. Non-Annex I materials are distributed – as directed by the Treaty – using the MTA Centres used pursuant to the In Trust Agreements of 1994 until the MTA is amended by the Governing Body.

Guiding Principles issued in 1996 stated that the CGIAR Centres will not seek IP control over derivatives:

*... except in those rare cases when this is needed to facilitate technology transfer or otherwise protect the interests of developing nations. The Centres do not see their protection of IP as a mechanism for securing financial returns for their germplasm research activities, and will not view potential returns as a source of operating funds (CGIAR, 2003).*

In 2000, attempts to introduce further consideration of the Centres' use of IPRs (CGIAR, 2003) met with stiff resistance by civil society organizations (Thornström, 2001), and finally a statement was issued by the Centres' Directors that, pending resolution of a number of issues, no new guiding principles on IPRs would be adopted (CDC, 2003).

In 1998, a case of a recipient seeking plant breeders' rights over materials received from a Centre was widely publicized by the RAFI (now ETC Group) (RAFI/HSCA, 1998). The Centre involved – ICRISAT – demanded that the claim be withdrawn, as in the end it was. More recently, CIAT has been involved in challenging a patent granted in the US over a yellow bean named variety (Enola). CIAT did not actually supply the bean to the patentee, Mr Larry Proctor; however, CIAT holds very similar beans in the international collection it hosts, and, pursuant to the US patent, CIAT should not send its equivalent beans into the US. Objecting to this, CIAT wrote a letter to Proctor stating that CIAT would continue to export the beans into the US. In 2000, CIAT challenged the patent, asking for a re-exami-

nation. Finally, in March 2007, the Patent Examiner notified the patent owner that his claims had been rejected. Since then, Proctor has filed an application with the Board of Patent Appeals and Interferences (CGRFA, 2007).

Given the high numbers of MTAs that have been sent around the world by the CGIAR Centres over the years, there have been very few cases of alleged inappropriate use of materials – in other words use in contravention of those MTAs – by recipients seeking IPRs. In 2004, it was reported that:

*Of approximately 500,000 accessions 'designated' by the CGIAR, fewer than 200 cases of improper IPR applications/protection have been alleged. All but a handful of these allegations have proven baseless. Allegations associated with fewer than one thousandth of one per cent of total distributions have been substantive enough to provoke action, and in all relevant cases the result was the withdrawal of the application or of the grant of protection. The low rate of 'abuse' does not, of course, excuse those situations in which it has taken place, but it does add context and perspective to the magnitude of the problem. (Fowler et al, 2004)*

tially very important opening for them to re-enter the stage in highly proactive, provocative and positive ways. Of course, some CSOs and farmers' organizations will also be recipients, and possibly suppliers, of PGRFA under the MLS.

### ***What to put on the list?***

Some of the hardest and longest negotiated components of the Treaty concern the list of crops to be included in the MLS. The inclusion or non-inclusion of many crops was informed as much by political and strategic considerations as by scientific conclusions. During the negotiations that resulted in the current list, many important crops which clearly or apparently satisfy the criteria set out under the Treaty for inclusion were excluded, for example:

- among food crops: soya bean, groundnut, onion, tomato, cucumber, grape, olive and sugar cane;
- among wild relatives: species of *Phaseolus*, *Solanum*, *Musa*, *Zea*, *Aegilops*, cassava included in the genus *Manihot*;
- most tropical forages; and

- among industrial crops: rubber, oil palm, tea, coffee and cocoa.

One of the main drivers of the expanding and contracting size of the Annex I list was the constantly shifting expectations and positions taken by delegates concerning benefit sharing. Many developing countries felt that, in the absence of appropriate and effective mechanisms for benefit sharing, the Treaty would reinforce historic patterns of Northern exploitation and appropriation of Southern genetic resources without any benefits accruing to the South. They withheld consent or opposed inclusion in the hope of compelling the inclusion of stronger or more effective provisions for benefit sharing. The choice to exclude some crops was also informed by the special interests of particular parties, where, for instance, a country was the centre of origin of the particular crop and wished to retain at least some control over it in the hope of benefiting from it under the terms and provisions of the CBD. Others appear to have withheld inclusion on a tit-for-tat basis. It has been suggested that had a particular country been willing to allow inclusion of particular crops, 'this might well have sparked reciprocal concessions from other

countries on other crops' (Moore and Tymowski, 2005). We know that the opposite was certainly the case: in the last sessions of the negotiations, a number of species were taken out of Annex I list in a series of reciprocal retaliations (see Appendix 3 of this book).

The Annex I list of crops could be expanded, and the issue is likely to be raised at some point in the future by the Governing Body. On the adoption of the Treaty, the European region issued a statement in effect calling for the list of crops to be extended and diversified as quickly as possible as a way for the Treaty to have maximum impact on world food security. The Center for Genetic Resources, in The Netherlands, has adopted the policy of using the SMTA whenever possible for transfers of non-Annex I materials around the world.<sup>3</sup> This position reflects, to a large extent, the aspirations of many other parties, role-players and stakeholders. Such developments could create precedents that could be followed by parties and other organizations, thereby broadening the de facto scope of the MLS. Such de facto broadening would set the stage for a de jure lengthening of the list by way of future Governing Body decisions.

Clearly, these are early days for the MLS; everyone is waiting to see how it actually performs before pushing for expansion of the list. If it works well, and the benefits – all the benefits, not just the monetary benefits – are clear to see, increasing the scope of the list should be relatively straightforward, or at least as straightforward as things can get when more than 100 countries have to agree.

### *Balancing IP and the commons*

IP and related issues presented by the implementation of the Treaty are all, in large part, a reflection of the controversies in the broader international arena. Undoubtedly, IPRs and associated marketing of products form an important, and often primary, incentive behind

most commercial breeding activities. At present, the key challenge at the multilateral level is to forge greater consensus on the means and mechanisms of having IPRs support access to genetic resources and equitable sharing of benefits. However, for the Treaty specifically, the main concern is how to ensure that IPRs do not unduly inhibit the ability of parties and public institutions to access materials and technology required to carry out research and breeding at the national, institutional and local levels to address food security issues.

The Treaty recognizes that IPRs are an important issue that might affect its implementation and tries to address this directly to some extent. The Treaty pretty artfully creates as much horizontally distributed (in other words across national borders) open research space as is possible, given the pre-existing IP laws and obligations of almost all of the negotiating parties. The interface between the open, public space of the research commons and assertions of private control through IPRs or other restrictive approaches which demarcate the boundaries of the 'commons' was, in fact, one of the main preoccupations of the negotiations. Consider, for example, how the mandatory benefit clause is not triggered by standard plant breeders' rights, because the material is still available for research and breeding, but is triggered by most patents, which generally disallow use for research and further breeding. These are not trite or haphazard distinctions; they reflect the end points of highly politicized negotiations over positions negotiators held dear. And not everyone is equally pleased with the final results. The distinction between PBRs and patents in the Treaty has prompted negative reactions from the biggest, biotech-based life sciences/seed companies, which rely proportionately far more on patents than smaller, traditional breeding companies (which generally seek PBRs). The big companies would prefer to have the mandatory benefit sharing provisions triggered by commercialization, regardless of the form of IPRs claimed and

whether or not the commercialized products are available for further research or breeding.

### ***Implementation and extension***

The creation of the MLS under the Treaty responds to concerns that important uses of PGRFA can and will be frustrated through the spread of laws (and technologies) that facilitate restrictive controls over people's uses of such resources. Bilaterally oriented access and benefit sharing and IP are among the most commonly cited issues in this context. The MLS directly addresses concerns about bilateral ABS laws by offering an alternative model. The MLS does not address IP issues nearly so directly, however. It merely recognizes and accommodates existing (and possible future) IP laws at the peripheries of the system. When the IP law invoked does not infringe upon the basic tenet of the plant genetic resource commons – that the material is available for further research and breeding without restriction – the MLS does not 'layer on' additional obligations. Thus UPOV-inspired PVP laws, which include research and breeding exemptions, do not trigger the benefit sharing clause of the SMTA. But when the IPR sought (or technology developed) prevents further use of PGRFA in ways that are inconsistent with the spirit of the commons, then the MLS (through the SMTA) requires the owner of that IP or technology to pay a surcharge, penalizing them, in a sense, for not keeping their materials in the commons. So while the Treaty does not make, break or alter IP laws, it is not value-neutral, and it does create additional obligations – sharing 1.1 per cent of sales – for some sorts of IPR holders.

### ***National implementation***

The MLS is brand new, and to date, very few countries have made fixed plans for its implementation in their domestic laws and/or

practices. They need to do so soon, however, and may need technical assistance, upon request, to work out the most appropriate means of implementation in their specific contexts. The CGRFA Centres started using the SMTA in January 2007, but it is too early to make any informed observations about how it is actually functioning. What one can do, and what we have done in this chapter, is reflect upon the texts of the Treaty and the SMTA, the negotiations that led up to their adoption and the brief period of shuffling around the starting line that has passed since the Governing Body adopted the text of the SMTA in June 2006.

### ***Beyond plants to all genetic resources for food and agriculture?***

What implications do the Treaty, and the PGRFA commons it creates, have for future international policymaking? The Commission on Genetic Resources for Food and Agriculture is currently working on animal genetic resources for food and agriculture (Box 6.6). These too are also a global resource essential to achieving food security and to ensuring sustainable livelihoods, especially in marginal areas. A global plan of action on animal genetic resources was agreed at the first International Technical Conference on the subject held in September 2007 in Interlaken, Switzerland, 11 years after that on plant genetic resources in Leipzig. The Technical Conference also received the first 'Report on the state of the world's animal genetic resources', which was compiled by the FAO. The report's analysis has been welcomed by a range of social organizations of pastoralists, herders and farmers, since it recognizes that the industrial livestock system is a major cause of biodiversity loss. However, they have criticized the plan of action for failing to 'challenge the policies that cause the loss of diversity' and governments for failing to commit substantial finances to carry through the plan (UKABC, 2007).

## **Box 6.6 Animal genetic resources**

Around 20 per cent of animal breeds are at risk of extinction, with one breed lost each month, according to the FAO. Of the more than 7600 breeds in the FAO's global database of farm animal genetic resources, 190 have become extinct in the past 15 years and a further 1500 are considered at risk of extinction.

Some 60 breeds of cattle, goats, pigs, horses and poultry have been lost over the last five years, according to a draft 'Report on the state of the world's animal genetic resources'.<sup>a</sup> The report is the first ever global assessment of the status of animal genetic resources and the capacity of countries to manage them in a sustainable manner.

### ***Globalization***

Keeping livestock contributes to the livelihoods of one billion people worldwide, and approximately 70 per cent of the world's rural poor depend on livestock as an important component of their livelihoods. Livestock currently accounts for about 30 per cent of agricultural gross domestic product in developing countries, a figure projected to increase to nearly 40 per cent by 2030.

According to the FAO, the globalization of livestock markets is the biggest single factor affecting farm animal diversity. Traditional production systems require multi-purpose animals, which provide a range of goods and services. Modern agriculture, on the other hand, has developed specialized breeds, optimizing specific production traits, which have achieved striking productivity increases but depend on high external input.

Just 14 of the more than 30 domesticated mammalian and bird species provide 90 per cent of human food supply from animals. 'Five species: cattle, sheep, goats, pigs and chickens, provide the majority of food production,' says Irene Hoffmann, Chief of the FAO's Animal Production Service:

*Selection in high-output breeds is focused on production traits and tends to underrate functional and adaptive traits. This process leads to a narrowing genetic base both within the commercially successful breeds and as other breeds, and indeed species, are discarded in response to market forces.*

### ***Maintaining diversity***

The existing animal gene pool contains valuable resources for future food security and agricultural development, particularly in harsh environments. 'Maintaining animal genetic diversity will allow future generations to select stocks or develop new breeds to cope with emerging issues, such as climate change, diseases and changing socioeconomic factors,' said José Esquinas-Alcázar as Secretary of the FAO's Commission on Genetic Resources for Food and Agriculture.

Because of countries' interdependence on animal genetic resources, there is a need to facilitate the continued exchange and further development of these resources, without unnecessary barriers, and to ensure that benefits reach farmers, pastoralists, breeders, consumers and society as a whole, adds Esquinas-Alcázar.

*Note:* <sup>a</sup> Final report available as document CGRFA-11/07/Inf.6 at [www.fao.org/ag/cgrfa/cgrfa11.htm](http://www.fao.org/ag/cgrfa/cgrfa11.htm).

*Source:* FAO news release 06/147 E, 15 December 2006

The outcome of the 11th Session of the Commission on Genetic Resources for Food and Agriculture (CGRFA) in June 2007 confirmed that the Commission will take an even broader approach in the years to come. Among other things, the Commission agreed to include consideration of policies and arrangements for ABS for genetic resources for food and agriculture at the 12th meeting of the Commission, probably in 2009. Aquatic genetic resources, forest genetic resources, animal genetic resources and microbial genetic resources for food and agriculture all appear to be included in the scope of that work. In addition, the Commission highlighted repeatedly the importance of taking an ecosystem approach to agricultural biodiversity (see Chapter 8).

It is too early to say how work done on ABS for genetic resources for food and agriculture will relate to or affect the ongoing negotiations to develop a new ABS regime or regimes under the CBD (see Chapter 5). But the willingness of all countries to include ABS in the Commission's mandate reflects a growing common concern that progress on ABS issues under the CBD is taking too long, and that, ultimately, the CBD may not be sufficiently well placed to fully appreciate the nuances of the issues surrounding genetic resources for food and agriculture where ABS is concerned. It also reflects a newly confirmed trust, based on the successful conclusion of the Treaty negotiations, that the Commission has the capacity to constructively address ABS issues in ways that are tailored to the realities of food and agricultural uses. The Treaty and the MLS can therefore take some credit for having provided the international community with the confidence to address directly the particularities of genetic resources for food and agriculture as a whole in the context of ABS and to shift, at least partially, work on that subject away from a body whose focus is all biological diversity to one whose *raison d'être* is food and agriculture.

### ***Proliferating commons?***

The creation of the MLS may be one of the early globally endorsed signs of disillusion with exclusive forms of control accreting to public goods. Through its embrace of the MLS, the global community is saying pretty clearly that attempts to create and exploit market incentives to address conservation and development concerns, at least where PGRFA are concerned, are not getting us where we need to be. IPRs and strict controls over genetic resources through bilaterally oriented access regulations are not providing the kinds of results we expected – at least not for the large numbers of people who exist outside functioning markets and without the means to gain meaningful entry into them. The MLS supports other approaches to exploiting the value of PGRFA, approaches based on what can be gained from the exploitation of those resources through cooperative research, sharing and passing on benefits. A similar expression of global interest in more open systems of innovation and gaining value through sharing, albeit at more informal levels, is reflected in the rapidity with which 'copy left' and creative commons ideas have been seized on in the area of software development (see also Chapters 5 and 8).

The recognition of the MLS's third party beneficiary interests in the proper conduct of suppliers and recipients of germplasm in the MLS provides a precedent for how to protect the public interest in other international public goods, or, more accurately, international common interests in international common goods. In so doing, at least in the context of PGRFA under the Treaty's multilateral system, it provides a means of addressing the 'free rider' problem – a problem that plagues so many realms of activity wherein public interests and public goods end up being ignored, overridden or undermined.

The recognition of the third party beneficiary interests of the MLS will not, on its own, fix the tragedy of the commons (or the anti-

commons). But it will go some distance to addressing the problem. The model can potentially be adapted and included in other international systems involving a wider range of

genetic resources. The existence of such a mechanism should encourage states to see the proliferation of such commons-based systems as a real possibility.

## ***Conclusion***

The issues raised in the implementation of the Treaty are part of a broader international context linking with more general concerns about biodiversity, innovation and the role of

IPRs in both. It is to the linkages and interactions between the various agreements discussed in this and earlier chapters that we now turn.

## **Resources**

*For a detailed guide to the Treaty see Moore and Tymowski (2005).*

*The Earth Negotiations Bulletin covers most international negotiations and its report of the First Meeting of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture is available at [www.iisd.ca/biodiv/itpgrgb1/](http://www.iisd.ca/biodiv/itpgrgb1/) and [www.iisd.ca/vol09/enb09369e.html](http://www.iisd.ca/vol09/enb09369e.html).*

*The FAO Global System on Plant Genetic Resources for Food and Agriculture is found at [www.fao.org/ag/AGP/AGPS/pgrfa/gpaeng.htm](http://www.fao.org/ag/AGP/AGPS/pgrfa/gpaeng.htm) and the FAO pages on the International Treaty on Plant Genetic Resources for Food and Agriculture at [www.fao.org/ag/cgrfa/itpgr.htm](http://www.fao.org/ag/cgrfa/itpgr.htm).*

*For links to websites concerned with genetic resources intellectual property rights websites see [http://dmoz.org/Society/Issues/Intellectual\\_Property/Genetic\\_Resources/](http://dmoz.org/Society/Issues/Intellectual_Property/Genetic_Resources/) and for details of the System-wide Genetic Resources Programme of the CGLAR see <http://sgrp.cgiar.org/>.*