

Outstanding Issues on Access and Benefit Sharing under the Multilateral System of the International Treaty on Plant Genetic Resources for Food and Agriculture

BACKGROUND STUDY PAPER

by

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Disclaimer: The opinions expressed are solely those of the authors and do not constitute in any way the official position of the IDDRI & IASS.

Executive Summary

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) came into force in 2004. This study assesses the state of implementation of the Treaty's Multilateral System for Access and Benefit-sharing (MLS), seven years after the Treaty came into force. The study finds that overall implementation of the MLS has been slow and identifies a need for several measures to allow for an implementation of the MLS in a way that achieves the objectives of the Treaty.

The first part of the study assesses the access-part of the MLS and the inclusion of plant genetic resources into the system. Less than one-sixth of the parties have notified which collections they are placing in the MLS and provided the documentation necessary to facilitate access. No natural and legal persons that are not part of national PGRFA systems, such as private plant breeding companies, have decided to voluntarily place their collections of Annex I materials directly in the MLS. No benefit-sharing payments have been received so far under the mechanism devised by the Treaty, and as of January 2011, confirmed voluntary contributions amount to only 13.7% of the agreed target between July 2009 and December 2014.

With regard to possible actions that the ITPGRFA Governing Body could take to accelerate the inclusion of the materials in the MLS, the study recommends that measures should target the respective groups of actors and types of materials to be included. The Governing Body should consider:

- With respect to developed country parties:
 - Request Parties to submit reports to the Compliance Committee on the reasons why they have not yet notified their collections and provided adequate documentation; and ask the Compliance Committee to develop guidance for countries facing particular legal, administrative or institutional problems.
- With respect to developing country parties:
 - Extend and significantly expand the scope of the joint FAO/ITPGRFA/Bioversity International capacity building programme to allow a much higher number of developing country parties to build the technical and legal capacity needed to identify, inventory and notify their collections.
 - Consider options for making measures for inclusion of collections part of projects funded by the Benefit-sharing Fund and other sources, such as funding for regeneration projects from the Global Crop Diversity trust.
- With respect to non-parties:
 - Explore whether there is scope for measures that would incentivize non-parties to ratify.
- With respect to natural and legal persons:
 - Consider and adopt the suggested amendments to the SMTA regarding the clarification of reporting obligations, the further transfer of PGRFA accessed under the SMTA and transfer of PGRFA under development, as well as the explanatory guidance on legal and practical implications of placing materials in the MLS. This

is considered a package deal that removes the concerns expressed by the private sector, coupled with the expectation that companies will make materials available without further delay.

- Consider options for restricting access to natural and legal persons (from contracting and non-contracting parties) that have not made their materials available under Article 11.4. This option should be considered with caution, however, since a direct restriction could lead to adverse effects and deter private sector participation and thereby undermine the MLS in the long run. A better application of Article 11.4 could be the development of an up-front payments scheme that offers incentives for the timely inclusion of materials. The scheme could be coupled with the two existing payment options for making benefit-sharing payments laid out in the SMTA. The scheme would create a double incentive to include materials in the MLS and to opt for the alternative payments scheme under which payments are made per crop rather than per accession and per product. The scheme would not only create additional revenues for the Benefit-Sharing Fund, but also ensure that a part of these revenues are paid immediately rather than at the time of commercialization.
- With regard to *in situ* materials under the management and control of contracting parties:
 - Clarify the scope of Article 12.3, with regard to materials held by local communities, and its relationship with national legislation on access and benefit-sharing
 - Explore whether there is a need for international standards and which elements such standards would cover
 - Further explore the applicability of the *International Code of Conduct on Plant Germplasm Collecting and Transfer* and consider necessary additions and adjustments such as changing the legal nature of the so far voluntary Code.
- With regard to *in situ* materials held by local communities:
 - Clarify the scope of Article 12.3 and its relation to national and international legislation on access and benefit-sharing, prior informed consent, and rights of indigenous and local communities.
 - Explore the use of bio-cultural protocols and other instruments to develop terms and procedures for accessing materials held by local communities.
 - Develop options for realizing benefit-sharing at the community level, in particular through programs of participatory plant breeding and other collaborative projects, including the provision of assistance to communities for accessing funds from the Benefit-Sharing Fund

The second part of the study assesses the state of benefit-sharing under the MLS as well as the extent and nature of voluntary payments. This study finds that voluntary contributions to the Benefit-sharing Fund do not take into account whether (and the extent to which) such contributions are additional to resources that were previously earmarked for agriculture and development projects in general. Therefore, the Governing Body should take effective measures to promote additionality of voluntary contributions to the Benefit-sharing Fund.

This study has highlighted an institutional aspect that needs improvement regarding the project selection process under the Benefit-sharing Fund. The Contracting Parties, through the Governing Body, may wish to establish:

- that experts and Bureau members, whenever they perform their duties *in any* stage of the project selection process, shall act in their personal capacity and on the basis of the best available scientific evidence and methodologies; and
- effective conflict-of-interests rules, which shall prevent the above experts and Bureau members from submitting projects for funding or assessing projects for which they may directly or indirectly bear an interest.

As regards monetary benefit sharing, there is an urgent need to clarify the expression «available without restriction,» which defines who has to pay mandatory benefit-sharing and who is exempt. This should be done by keeping in mind the needs of on-farm breeding. In accordance with such line of arguments, varieties protected in accordance with 1991 UPOV-type legislation or by widespread technical restrictions could also incur benefit-sharing payments. This solution could simplify monitoring compliance with benefit sharing and broaden the amount of resources that are made available to the Benefit-sharing Fund. In addition, the SMTA's provision, that prohibits IPRs on PGRFA and their genetic part or components in the form received from the Multilateral System, also needs clarification and subsequent implementation. Therefore the Governing Body should:

- clarify the application of relevant SMTA's provisions and fence off the public domain status of materials in the Multilateral System;
- spell out the critical distinction between restrictions that may derive from the patenting of MLS materials *per se*, which would violate the SMTA, and all other patent-related restrictions that can trigger benefit sharing;
- clarify that:
 - patents that cover PGRFA products under current IP laws should be presumed to restrict access for research and breeding and fulfil the relevant benefit-sharing requirement of the SMTA;
 - 1991 UPOV-type plant variety protection impedes informal exchange and sale of seeds, and it reduces opportunities for on-farm breeding, varietal improvement and selection by farmers. By doing so, UPOV 1991 also imposes restrictions on research and breeding, which takes place outside the *formal* seed system, and should fulfil the benefit-sharing requirement of the SMTA.
 - there are already technical means in widespread use that are restricting the access to PGRFA for research and breeding (e.g. CMS-Hybrids), and would therefore fulfil the benefit-sharing requirement of the SMTA.

A possible way to enhance transparency and the mutual supportiveness between the Nagoya Protocol and the ITPGRFA would be to amend the SMTA in order to request recipients to disclose, at plant variety protection and patent offices, that the materials for which protection is

sought have been obtained from the Multilateral System, and to inform the Governing Body accordingly. The disclosure of legal access from the MLS and the related notifications should include a quote of the accessions' unique identifier numbers. Parties that endeavour to implement the Treaty and the Nagoya Protocol in a mutually supportive manner may envisage using the SMTA as an internationally-recognized certificate of compliance to be presented by resource users at all relevant checkpoints. We finally recommend that the Governing Body should decide to make the annual payments on a product-by-product basis under Article 6.7 of the SMTA mandatory for all commercialized products that incorporate MLS material, regardless whether such «products» are available without restrictions.

Foreword by the Editors

Is the Multilateral System of the International Treaty Functioning?

Are the benefits arising from the commercial use of plant genetic resources shared in a fair and equitable way with the farmers in developing countries who conserve and sustainably use these resources? Or do we need a change in the form of the mandatory payments to achieve this goal?

Are donations an alternative to mandatory benefit-sharing, or just a way to hide the failures of the system?

Is access facilitated for everybody, including those legal and natural persons who are not incorporating their own genetic resources into the Multilateral System? Is there a «free-rider problem» concerning these persons and with non-contracting parties, and does this need additional measures by the Governing Body?

Are the rules of the Standard Material – including the requirement to not claim intellectual property rights – followed by the recipients? Is there a compliance problem? Is there any way to recognize if there is a compliance problem?

There are so many open questions relating to the functioning of the multilateral system of the International Treaty on Plant Genetic Resources for Food and Agriculture. Most of them have rarely been discussed, let alone answered.

It is the aim of this background study paper to raise the above-mentioned questions, to contribute to this discussion and to propose first answers. As this study report shows, the International Treaty still contains some serious shortcomings. There is an urgent need to act and to overcome them – a challenge the Governing Body of the Treaty has to tackle now. If the problems are not solved, the credibility of the whole International Treaty could be jeopardized.

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Acronyms

ABS	access and benefit-sharing
BCP	bio-cultural protocol
CBD	Convention on Biological Diversity
CGIAR	Consultative Group on International Agricultural Research
FAO	UN Food and Agriculture Organization
GB	Governing Body
IARC	International Agricultural Research Center
ICARDA	International Center for Agricultural Research in Dry Areas
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFAD	International Fund for Agricultural Development
ILC	indigenous and local community
ILO	International Labour Organization
ISF	International Seed Federation
IPR	intellectual property right
ITPGRFA	International Treaty for Plant Genetic Resources for Food and Agriculture
MLS	Multilateral System
NARC	National Agricultural Research Center
PGRFA	plant genetic resources for food and agriculture
PPB	participatory plant breeding
PVP	plant variety protection
PVS	participatory variety selection
SMTA	standard material transfer agreement
UNDRIP	UN Declaration on the Rights of Indigenous Peoples
UNDP	UN Development Programme
UPOV	International Union for the Protection of New Varieties of Plants

Introduction

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) came into force in 2004. Under the Treaty, parties agree to establish a Multilateral System (MLS) for access and benefit-sharing with regard to plant genetic resources for food and agriculture (PGRFA). The MLS is a global pool of PGRFA for a select group of crop species (Annex I species) to which access will be facilitated for research and breeding for food and agriculture, subject to the condition that users will share benefits derived from commercial products incorporating materials from the system, if access for further research and breeding is restricted. Seven years after the Treaty's coming into force, progress in the implementation of the MLS has been slow. Less than one-sixth of the parties have notified which collections they are placing in the MLS and provided the documentation necessary to facilitate access. No natural and legal persons who are not part of national PGRFA systems, such as private plant breeding companies, have decided to voluntarily place their collections of Annex I materials in the MLS. No benefit-sharing payments have been received so far under the mechanism devised by the Treaty,

and as of January 2011, confirmed voluntary contributions amount to only 13.7% of the agreed target between July 2009 and December 2014.

This study assesses the state of implementation of the MLS and benefit-sharing, and develops options for the Governing Body to accelerate the implementation and broaden the scope of benefit-sharing. The Study is divided into two parts: Part I addresses access to PGRFA, with a focus on impediments to the inclusion of materials from developed and developing countries, materials held by natural and legal persons, and *in situ* materials held by parties and local communities. It also develops options for accelerating the inclusion of materials from different sources. Part II considers the state of benefit-sharing under the MLS and discusses options for broadening the scope of benefit-sharing payments, including: clarifications and modifications to the requirement that access to products must be restricted for further research and development to trigger benefit sharing obligations; options and practices for voluntary payments; and options for monitoring and tracking compliance.

1. Access to, and Inclusion of, Plant Genetic Resources for Food and Agriculture Under the ITPGRFA Multilateral System

1.1. The Multilateral System

The Multilateral System is the Treaty's core mechanism to achieve the objectives of facilitated access and fair and equitable benefit-sharing. Under Article 10, parties agree to establish «a Multilateral System, which is efficient, effective, and transparent, both to facilitate access to plant genetic resources for food and agriculture [(PGRFA)], and to share, in a fair and equitable way, the benefits arising from the utilization of these resources, on a complementary and mutually reinforcing basis.» Article 11.2 states that the Multilateral System «shall include all [PGRFA] listed in Annex I that are under the management and control of the Contracting Parties and in the public domain.» Parties further agree to «invite all other holders of the [PGRFA] listed in Annex I to include these [PGRFA] in the Multilateral System» (Article 11.2), and to «take appropriate measures to encourage natural and legal persons within their jurisdiction who hold [PGRFA] listed in Annex I to include such [PGRFA] in the Multilateral System.»

Article 11.4 provides for an assessment of progress in including PGRFA held by natural and legal persons in the Multilateral System within two years after the Treaty's entry into force, noting that «[f]ollowing this assessment, the Governing Body shall decide whether access shall continue to be facilitated to those natural and legal persons referred to in paragraph 11.3 who have not included these plant genetic resources for food and agriculture in the Multilateral System, or take such other measures as it deems appropriate.»

At its second session in Rome 2007, the Governing Body decided to postpone the assessment of progress in the inclusion of PGRFA in the Multilateral System until its

third session. At its third session in Tunis 2009, the Governing Body conducted an assessment of progress of inclusion of materials, but decided to postpone the assessment of whether facilitated access should continue to be granted to legal and natural persons who have not included their PGRFA in the Multilateral System until its fourth session in March 2011.

1.1.1 Current coverage of the System

The Multilateral system is composed of the collections of Annex I materials that have been included by: contracting parties, the collections of International Agricultural Research Centers (IARCS) of the Consultative Group on International Agricultural Research (CGIAR), and other international organizations, and collections by natural and legal persons from contracting parties who have placed their collections under the Multilateral System (see Table 1). Materials are considered to be effectively «in» the System, if there is adequate and public documentation with regard to the materials and how these can be accessed.¹

¹ IT/GB-3/09/13 «Review of the implementation of the Multilateral System». Available at IT/GB-3/09/13 Review of the implementation of the Multilateral System (accessed 10 January, 2011)

Origin	No. of Accessions
CGIAR Centers	693,752
European Region	
Materials reported by Governments	89,577
Other institutions in national PGRFA Programmes	172,433
Direct notifications by institutions in national PGRFA Programmes	2,317
Materials from other European Countries in EURISCO	53,674
Total European Region	318,001
Notifications from other contracting parties	25,769
Total Accessions available in the Multilateral System	<u>1,037,522</u>

Table 1: Estimate of total number of accessions included in the MLS

Source: Compiled by the authors based on IT/GB-4/11/13²

While all materials under the management and control of contracting parties are legally part of the Multilateral System, their effective inclusion requires that parties identify which collections are under their management and control, and inform the ITPGRFA Secretariat where information on how to access these materials is publicly available. As of January 2011, the total number of accessions for which such complete information is available can be estimated at around one million. Roughly two-thirds are accessions made by the IARCs of the CGIAR and one-third by parties and institutions of the European Region. Accessions by other regions make up approximately 2.6 percent, with African countries contributing 2.1 percent, those from the Near East 0.3 percent and those from Latin America and the Caribbean 0.2 percent (see table 2).³

So far only 22 of the 127 contracting parties have provided notification of their collections and access to the relevant information. Of these, 13 have made all

necessary information directly available to the Secretariat. Six parties have made partial information available, but information about their collections can be accessed through the EURISCO catalog or the ICARDA website. One party has submitted information about a website but no number of accessions, and one party has not submitted a website (see Table 2).

This calculation should be treated with caution, however. On the one hand, there could be some double counting since some of the materials in the EURISCO database from other countries could include accessions that were also notified by other countries. Furthermore, there could be a significant overlap between the accessions in CGIAR collections and national collections. This overlap stems from joint collection projects in which identical accessions were entered into national and international collections as well as from accessions from the CGIAR system that occurred prior to the coming into force of the Treaty. A concrete example of such overlap could be the collections of Jordan and Yemen of which duplicate collections have been placed within the collection of ICARDA. Another example is provided in the case study on Sorghum (see Box 1).

² IT/GB-4/11/13 Reviews and assessments under the Multilateral System, and of the Implementation and Operation of the Standard Material Transfer Agreement. Available at <http://www.itpgrfa.net/International/sites/default/files/gb4w13e.pdf> (accessed 11 February, 2011)

³ Information about the number of inclusions from Canada was not available at the time of writing.

Two natural and legal persons are listed on the ITPGRFA website – the *Association pour l'étude Française du Maïs* (PRO-MAÏS), and the *Association Française des Semences de cereals à paille* (AFSA) – however these are both part of the French National Institute for Agricultural Research (INRA) and thus have to be considered to be part of the materials under the management and control of a

party.⁴ This means that to date, no collections of truly separate natural and legal persons (i.e. collections from the private sector) have been included in the Multilateral System, and thus there are currently no natural and legal persons outside of national PGRFA systems that have included their collections in the MLS.

⁴ IT/GB-4/11/13 p.8;

Party	Collections included	Website or other source of information	No. of Annex I Accessions
Brazil	five collections with 2.377 accessions within the gene banks of the The Brazilian Agriculture Research Corporation (Embrapa)	ITPGRFA dedicated website with all relevant information http://tirfaa.cenargen.embrapa.br/tirfaa/indexEnglish.html	2.377
Canada		http://pgrc3.agr.gc.ca/	
Czech Republic	Collections of the Czech Research Institute of Crop Production (EGIVEZ)	http://genbank.vurv.cz/genetic/resources/asp2/default_a.htm	N/A* (32.616, EURISCO)
Denmark, Finland, Iceland, Norway, Sweden	Joint collections held by the Nordic Genetic Resource Center (NORGEN)	http://www.nordgen.org/index.php/en/content/view/full/2/	24.713 (not identified in EURISCO)
Estonia	Jogeva Plant Breeding Institute; the Potato collection held by the Department of Plant Biotechnology of EVIKA of the Estonian Agricultural Research Centre, the <i>Malus, Prunus, Pirus, Ribes, Rubus, Fragaria</i> collection held by the Polli Horticultural Research Centre of the Estonian University of Life Science	http://www.nordgen.org/sesto/index.php?scp=est&thm=sesto	2.683
Germany	Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Gatersleben Julius Kuehn Institute, Institute for Breeding Research on Horticultural and Fruit Crops, Dresden	http://pgrdeu.genres.de/index.php?tpl=home&lng=en	N/A* (10.8671, EURISCO)
Jordan	National Center for Agricultural research and Extension (NCARE)	http://www.ncare.gov.jo/	1885 Access via ICARDA
Lebanon	Lebanese Agricultural Research Institute (LARI)	http://www.lari.gov.lb/Home/tabid/37/Default.aspx	1095 Access via ICARDA
The Netherlands	Centre for Genetic Resources, Wageningen University Solanaceae collection, Radboud University Apple collections, Pomologische Vereniging Noord-Holland, Stichting Fruithof Frederiksoord,	http://www.cgn.wur.nl/UK/ www.bgard.science.ru.nl www.applescollecties.nl www.fruithof-frederiksoord.nl	N/A (16.458, EURISCO)
Namibia	National Plant Genetic Resources Center	http://www.nbri.org.na/index.html	1,722
Madagascar	Several institutions see submission	ftp://ftp.fao.org/ag/agp/planttreaty/agreements/inclusion/inclu_madagascar.pdf (notification)	7999
Malawi	Malawi Plant Genetic Resources Centre at Chitedze Research Station and Bvumbwe Research Station (Banana).	N/A	1,419
Portugal	Instituto Nacional dos Recursos Biológicos	www.eurisco.ecpgr.org	813
Romania	National Gene bank, Romania, located in Suceava.	www.svgenebank.ro	N/A
Spain	Centro de Recursos Fitogenéticos	wwwx.inia.es/webcrf/CRFesp/Paginaprincipal.asp	16.157
Sudan	Plant Genetic Resources Unit of the Agricultural Research Corporation in Wad Medani		6351
Switzerland	-National Gene bank of Switzerland, Agroscope -Different private and public organisations	http://www.bdn.ch/lists/list_content?id=383	22.507 (not in EURISCO)
UK	Total of 8 collections (see submission)	ftp://ftp.fao.org/ag/agp/planttreaty/agreements/inclusion/inclu_uk.pdf (notification)	2223 (national fruit collection only)
Zambia	Total of 12 collections	ftp://ftp.fao.org/ag/agp/planttreaty/agreements/inclusion/inclu_zambia.pdf (notification)	4,340

Table 2: Collections notified by ITPGRFA Parties, as of 10 February 2011.

Source: Compiled by the authors based on country submissions posted on http://www.planttreaty.org/inclus_en.htm

1.1.2. Constraints to inclusion

Parties

One of the problems parties face in placing their materials in the Multilateral System are varying policy, legislative and administrative structures regarding PGRFA. While in some countries PGRFA in the Multilateral System are held by government entities, such as national gene banks, in other countries part or all of these materials may be held by institutions that are formally separate legal persons, but under the management of a national PGRFA policy framework. In some countries PGRFA are also held under public/private partnerships. The varying arrangements may lead to confusion as to when the collections of natural and legal persons are part of national PGRFA systems and when not. In fact the only two collections that are currently listed on the ITPGRFA website as collections of natural and legal persons are part of the French national PGRFA framework (see above).

The diversity of arrangements of national PGRFA systems can complicate the identification and notification of collections in the management and control of contracting parties. In some cases parties may need to renegotiate contractual relationships with institutions holding collections that are part of national systems, such as universities, in order to align their practices with the provisions of the Treaty, in particular the coherent use of the SMTA for access under the System.⁵ Some collections may combine materials that are in the public domain and materials that are subject to plant variety protection or patents. The screening of such collections and the inventory of accessions that are part of the Multilateral System can be time-intensive and involve further negotiations with the holders of such PVP or patents. A particular problem exists in countries where collections are under the control of

provincial or federal states institutions. In Canada, for example, several provincial collections exist that are held by universities. While these collections are legally outside the management and control of the federal government, their status with regard to access is similar to national collections. In such cases the prospect for inclusion depends both on the relationship between federal and provincial governments as well as the particular arrangements with the institution holding the collection.⁶ These constraints can explain a certain time delay between the entry into force of the treaty in 2004 (or ratification by a particular country) and the notification of collections. On the other hand, long time delays may point to a lack of political will or low priority given in the country to take the necessary steps towards implementation. Since the benefit-sharing component of the Treaty will take effect only with a time delay, many provider countries may not expect any immediate advantages of placing their collections into the system. This disincentive should disappear as benefits start to flow towards those countries and Parties gain confidence that the Treaty will be effective.

Developing countries also face much more severe constraints to inclusion. Many countries lack the legal and technical capacities to take adequate measures to implement the Treaty in general. Many countries even face technical difficulties in keeping their *ex situ* collections operational, and often collections are not sufficiently characterized to allow for the identification and documentation of the accessions that are part of the Multilateral System.⁷ In addition,

⁵ IT/GB-4/11/13 p.7

⁶ A full analysis of the scope of this problem is beyond the scope of this study, however it should be noted that constraints of this sort can explain particular delay in the notifying of collections by some countries, or why the number of accessions initially reported is lower than expected.

⁷ IT/GB-3/09/12 *Assessment of progress in the inclusion in the Multilateral System of plant genetic resources for food and agriculture held by natural and legal persons*. Available at: <ftp://ftp.fao.org/ag/agp/planttreaty/gb3/gb3w12e.pdf> (accessed 11 February, 2011).

many countries face difficulties in developing adequate legislative measures to implement the Multilateral System. The joint capacity building program for developing countries established by the Treaty, FAO and Bioversity International⁸ has become an important element in advancing implementation of the MLS in developing countries. Through a series of regional workshops and national assistance, the program has enabled several countries to complete national processes for notification and follow-up measures. This has resulted in the inclusion of the collections of countries such as Sudan and Madagascar, with several other countries nearing the point of notification of their collections.⁹ The report on the status of implementation of the MLS (IT/GB-4/11/12) notes however that the capacity building program, after completing its first two-year cycle, is currently in abeyance due to lack of funds. The report further notes that the third Session of the Governing Body has already recognized the need to expand the capacity building program as well as the number of countries that receive assistance.¹⁰

1.1.2.2 Collections of natural and legal persons

The least progress in implementation has been achieved in the inclusion of collections held by natural and legal persons who are not considered to be part of national programs or policy frameworks, such as collections held by private plant breeders or other institutions not under the control of governments. The inclusion of such collections is voluntary, and the Treaty does not set an explicit timeline for inclusion. An implicit timeline is given by Article 11.3, which mandates a review of progress in inclusion of PGRFA in the Multilateral System within two years of coming into force of the Treaty and

Following this assessment, the Governing Body shall decide whether access shall continue to be facilitated to those natural and legal persons [...] that have not included these PGRFA in the Multilateral System, or take such measures as appropriate.

The first assessment of progress in the inclusion of PGRFA was postponed to the second meeting of the Governing Body. The third meeting conducted the assessment of progress in the inclusion of materials, but decided to postpone the assessment of whether facilitated access should continue for natural and legal persons who have not included their materials in the Multilateral System until the fourth meeting of the Governing Body. The expectation at the time of the Treaty's adoption was that natural and legal persons would start including their materials within two years; however seven years later, no such materials have been included.

According to the deliberations of the *Ad hoc* Advisory Technical Committee on the Standards Material Transfer Agreement and the Multilateral System (the SMTA-MLS Committee), the main impediment to the inclusion of collections held by natural and legal persons appears to be a lack of clarity and understanding of the legal and practical implications of putting material in the Multilateral System.¹¹ The issues to be clarified include questions such as: how are materials put into the Multilateral System? What are the obligations for the person putting materials in the system and can that person continue using the material without being bound by the SMTA? Can materials that were put into the system be distributed within companies or to other partners without using the SMTA? Other questions relate to the reporting obligations for providers and recipients under the SMTA relationship with natural and legal persons

⁸ Resolution 8/2009

⁹ IT/GB-4/11/12 p. 16

¹⁰ Resolution 8/2009

¹¹ IT/AC-SMAT-MLS 2/10/2 p.2

from non-parties, and questions of liability regarding the materials provided.¹²

In general, the questions relate to issues of legal uncertainty and administrative burden arising out of the provisions of the Treaty. A number of the concerns are not directly related to the implications of putting materials in the Multilateral System but rather to the effect of using the SMTA as a legal document for transfers of genetic resources. Because of the existing legal uncertainty it is difficult to say whether the private plant breeding sector in general or any particular sub-sector has more fundamental concerns with the Multilateral System. The leading associations such as the International Seed Federation (ISF) and the European Seed Federation have repeatedly welcomed the ITPGRFA and the Multilateral System and stressed its importance for food security and adaptation to climate change. However they have so far refrained from recommending that their members make materials available to the system.¹³

The second meeting of the SMTA-MLS Committee¹⁴ (Brasilia, 31 August – 2 September, 2010) sought to address the issues of legal and administrative uncertainty by developing a number of

proposals and inputs for discussion for the Governing Body, including:¹⁵

- An opinion on further transfer of PGRFA under Development (Appendix 2);
- A set of amendments to the SMTA in order to clarify the reporting obligations under the SMTA (Appendix 4);
- A proposal for an annex to the SMTA regarding the transfer of PGRFA under development, to which the alternative payments scheme under SMTA Article 6.11 applies (Appendix 5); and
- A guidance document in the form of questions and answers to clarify the practical and legal implications for natural and legal persons putting materials into the Multilateral System (Appendix 6).

These inputs are available for the fourth meeting of the Governing Body to discuss measures to strengthen the implementation of the Multilateral System. Together they represent a package that would clear the concerns that have so far been cited as the main impediment to inclusion of materials held by natural and legal persons. If legal uncertainty is in fact the main impediment to inclusion, the adoption of these proposals should lead at least some natural and legal persons to include their materials in the System.

In particular it should be noted that the clarification on practical and legal implications (Appendix 6) suggests that there is no obligation for a natural and legal person putting materials in the Multilateral System apart from notifying the Secretariat, making information on the materials available and transferring materials using the SMTA if requested by recipients. An open

¹² IT/AC-SMAT-MLS 2/10/2 p.5-9; IT/GB-4/11/12, p. 7; similar questions had already been raised by ISF during the negotiation of the SMTA, see: *ISF Contribution to the Establishment of a Material Transfer Agreement for the Multilateral System of the ITPGRFA*, available at: http://www.worldseed.org/cms/medias/file/PositionPapers/OnSustainableAgriculture/ISF_Contribution_to_the_Establishment_of_a_Material_Transfer_Agreement_for_the_Multilateral_System_of_the_International_Treaty_on_Plant_Genetic_Resources_for_Food_and_Agriculture.pdf (accessed 11 February, 2011)

¹³ See for example: Declaration of the Second World Seed Conference, available at: <https://www.seedtest.org/upload/cms/user/DECLARATIONFROMTHESECONDWORLDSEEDCONFERENCE-WE1.pdf> (accessed 10 February, 2011)

¹⁴ The SMTA-MLS Committee was established by the Governing Body at its third meeting (Tunis, 2009) to advise the Secretary on implementation questions raised by users of the SMTA as well as matters relating to the SMTA and the MLS that may need to be brought to the attention of the Governing Body through the Secretary (Resolution 4/2009)

¹⁵ The following are included as appendixes in the report of the second meeting of the *Ad hoc* technical committee on the SMTA and the MLS (IT/AC-SMAT-MLS 2/10/Report)

question is the extent that a legal person retains to make materials available without using the SMTA. The guidance states that the person putting material in the Multilateral System may transfer the same materials to other units of his company or institution as well as commercial partners and affiliates without using the SMTA as part of normal business practice.¹⁶ This would include partners of a joint venture which may themselves not have made their collections available under the MLS. The limits of this interpretation need to be further clarified in order to ensure that such practices do not become a loophole through which materials that have been put into the MLS can continue to be accessed without using the SMTA. A possibility to close this loophole would be to clarify that providers who place their collections in the System are bound to use the SMTA for all transfers, in order to maintain the integrity of the Treaty and the MLS. But such an obligation may force them to change practices in previously-existing business relationships. The interpretation by the SMTA-MLS Committee is an attempt to bridge the tension between maintaining the integrity of the MLS and avoiding undue obligations for natural and legal persons acting as providers of materials to the MLS

To summarize, adopting the proposals of the SMTA-MLS Committee would resolve most reasons, publicly cited by the private sector so far, for not putting its materials in the Multilateral System. Other reasons for not including materials may nevertheless exist. One reason could be the fear of private plant breeders that facilitating access to their collections and related information could reveal strategic information to competitors. Such strategic reasons may exist from some companies or some sub-sectors in plant breeding but not for others. Another reason related to business culture could be the attitude that many private plant breeders equate «unrestricted» access to PGRFA with

access and use «free of charge» and without further obligations such as benefit-sharing. Changing this perception within companies may take some time. Both strategic and business culture reasons could lead to a critical mass threshold in participation; that is, companies are reluctant to take the lead in making their materials available as long as other companies do not do the same. However once a critical mass of companies joins the system, others would quickly follow as they would expect the SMTA to become the new standard of business for Annex I materials.

The first meeting of the *Ad hoc* committee has also considered legal and administrative measures that parties can take to encourage natural and legal persons to voluntarily place materials in the Multilateral System in accordance with Article 11.3.¹⁷ The Committee agreed that such measures «could include, but are not limited to, financial or fiscal incentives to holders of material (e.g. eligibility for public funding schemes). They might also consist of policy and legal measures, administrative actions establishing domestic procedures for inclusions, or awareness raising efforts (especially at the level of farmers).»¹⁸

In Switzerland, for example, all collections that receive funding through the National Action Plan have to make their collections available to the MLS. This has led to a number of private collections (NGOs) being included in the collections notified by the Swiss government.¹⁹

1.1.3. Possible action by the Governing Body

Developed country contracting parties

The delay in notifying the collections to the Secretariat is primarily a compliance issue since provisions of the Treaty oblige parties

¹⁶ IT/AC-SMAT-MLS 2/10/Report, p.31

¹⁷ IT/AC-SMTA-MLS-1/10/5

¹⁸ IT/GB-4/11/Inf.7 p. 13

¹⁹ Personal communication with Bela Bartha, Director of Pro Specie Rara Switzerland

to identify the materials that are part of the Multilateral System. If the Governing Body succeeds in adopting the procedures and operational mechanism to promote compliance and address issues of non-compliance, it could request parties that have not yet notified their materials to the Secretariat, to submit information to the Compliance Committee with regard to the obstacles for doing so. The compliance committee could then consider ways and means to support countries to address these problems or ask countries that face similar challenges to cooperate in finding solutions. If the adoption of procedures and mechanisms for compliance fails, the Governing Body could instead request parties to report on progress on the inclusion of their materials and share experiences in overcoming particular problems through the SMTA-MLS Committee.

Developing country contracting parties

The most effective measure to boost notifications by developing countries would be to continue and broaden the joint capacity building program. The main challenge here would be to generate adequate funding. The Governing Body could also explore ways to combine capacity building under the Treaty with other initiatives aiming at improving the conditions for *ex situ* conservation in developing countries. In this regard it might be useful to explore whether such initiatives could be carried out jointly with projects funded by the Global Crop Diversity Trust.

Inclusion of Materials held by natural and legal persons

Based on available information, a first step should be to address the concerns about legal and administrative uncertainty raised by private plant breeders. The Governing Body could adopt a series of modifications to the SMTA and explanatory guidance on legal and practical implications to address these concerns. This should sufficiently

address the main reason cited by natural and legal persons for their reluctance to include their materials. At the same time, the Governing Body may wish to explore whether there are other reasons or concerns raised by private sector holders of materials for not including their materials. Finally, the Governing Body could decide to take measures to restrict access to MLS materials for natural and legal persons who have not made their materials available in accordance with Article 11.3.

However given that legal and administrative uncertainty still prevails at this point, it might not be advisable to take immediate measures in this regard. The Governing Body should therefore develop options for measures that would come into effect if there is no significant increase in participation by natural and legal persons within a certain timeframe. The measures should act as gradually increasing incentives for natural and legal persons to include their materials. Given the current lack of knowledge with regard to strategic reasons, or reasons relating to business culture, the measures should be based on a «comply or explain» approach. This would entail a set of sanctions, such as restriction of access or imposing access fees that act as a fine, unless the company can give a plausible reason for not putting their materials into the system by the set deadline.²⁰

1.2. Analysis of flow of genetic resources since the Treaty came into force

1.2.1. Data Availability

The Multilateral System functions as a geographically-distributed «virtual» gene bank. Materials in the system are distributed

²⁰ This approach is based on the idea of «situational contracting» which has been suggested as a tool to improve compliance in contractual relationships that include a strong element of reciprocity, such as the contribution towards a common resource system. See for example: Wolfson (2010), *Situational Contracting as Mode of Governance*. Public Management Review 12(6) pp. 857-872.

over a large number of individual collections located in different countries. In order to facilitate monitoring the flow of genetic resources from the Multilateral System, both providers and recipients have reporting obligations under the SMTA. Article 5.e states that «the provider shall periodically inform the Governing Body about the Material Transfer Agreements entered into according to a schedule to be established by the Governing Body. This information shall be made available to the Third Party Beneficiary.» Recipients are obliged, under Article 6.4 to notify the Governing Body, in accordance with Article 5e, in case they transfer the material to another person.²¹ The same requirement applies if they transfer a PGRFA under development. The second meeting of the SMTA-MLS Committee proposed a number of amendments to clarify these reporting obligations, to the effect that providers shall inform the Governing Body at least every two calendar years either by transmitting a copy of the completed SMTA, or by ensuring that a completed SMTA is at the disposal of the third-party beneficiary when needed, stating where the SMTA is stored and how it can be obtained and by providing information about the provider, the recipient and the material transferred.²²

The SMTA is thus the key mechanism of tracking access to, and transfer and use of, materials in the Multilateral System. Due to the recent establishment of the Multilateral System and the fact that neither the periodicity of reporting nor the addressee have been clearly identified, only a small number of SMTAs have been transmitted to the ITPGRFA Secretariat so far. The Secretariat has made arrangements to establish a secure data store for the Third Party Beneficiary to receive SMTA data and preserve the confidentiality of submitted

²¹ At the time of writing, no information was available on whether such notifications have been made. The relevant report of the ITPGRFA Secretariat notes that a small number of SMTAs have been received without specifying whether these include notifications of subsequent transfers.

²² See also discussion in section 1.2.3

information.²³ As of January 2011 no detailed information was available as to where the data can be accessed. The report by the Secretary notes the receipt of a small number of SMTAs, however there is no information on whether and how these can be accessed or how many SMTAs have been received.

A separate reporting obligation applies to the International Agricultural Research Centers of the Consultative Group on International Agricultural Research (CGIAR). The CGIAR has been submitting periodic reports about acquisitions and distributions of Annex I materials by gene banks and breeding programs.²⁴ Detailed information for different time periods is available on the ITPGRFA website.²⁵ The analysis in the next section is based on the summary report submitted to the Governing Body.²⁶

1.2.2. Distribution of Annex 1 Materials

Under Treaty Article 15, the IARCs of the CGIAR signed agreements with the Governing Body in which they place their in trust collections of the Annex 1 materials under the MLS. In line with the CGIAR's mission as holders *in trust* of germplasm collections, the agreements note that CGIAR centers will make materials available to the country of origin without using the SMTA.²⁷ Furthermore, the SMTA-MLS Committee has clarified that CGIAR centers may make materials available to farmers for direct

²³ Under SMTA Article 6.9, recipients are required to make all non-confidential information available to the MLS. Confidential information could include that relating to materials under development. An unresolved question is whether the transfer of such materials itself may be kept confidential for the time of development.

²⁴ The first CGIAR report was submitted to the second session of the Governing Body in 2007, followed by updated reports for each subsequent GB session.

²⁵ http://www.itpgrfa.net/International/cgiar_centers_data

²⁶ IT/GB-/11/Inf.5

²⁷ These agreements can be accessed at: http://www.planttreaty.org/inclus_en.htm

cultivation and use.²⁸ The IARCs started using the SMTA for materials of Annex I crops on 1 January 2007. At the second session of the Governing Body, parties also endorsed the use of the SMTA by the CGIAR centers for materials other than those included in Annex I.²⁹

In the time period until 31 December 2009, a total of 1.15 million samples of Annex I crops have been distributed using the SMTA, of which approximately 84% were sent to recipients in developing countries or countries with economies in transition, 9.5% to developed countries and 6.5% to other

CGIAR centers. More detailed information regarding the recipients is available for the time period 1 August 2008 through 31 December 2009. During this time a total of 608,644 samples were distributed. Tables 3 and 4 show the proportions of samples distributed by recipient country and type of institution. The great majority of samples have been transferred to national agricultural research centers (NARCs) in developing countries. About 11.5% were distributed to recipients in developed countries and only a small percentage was made up of exchanges among CGIAR centers.

Recipient	No. of samples	%
Developing	465,375	76.46
Developed	70,087	11.51
Economies in transition	42,914	7.05
CGIAR	11,689	1.92
Not specified	18,579	3.05
Total	608,644	100

Table 3: CGIAR transfer by type of country

Source: Compiled by the authors, based on IT/GB-/11/Inf.5

²⁸ See also Section 1.3.4

²⁹ Paragraph 68, IT/GB-2/07/Report. Available at <ftp://ftp.fao.org/ag/agp/planttreaty/gb2/gb2repe.pdf>

Institution	No. of Samples	%
Unknown	51,517	8.46
CGIAR	11,689	1.92
Commercial Company	21,925	3.60
Farmer	409	0.07
Gene bank	1,154	0.19
NARS	455,925	74.91
NGO	369	0.06
Regional Organization	3,215	0.53
University	58,419	9.60
Individual other than farmer	651	0.11
Germplasm Network	190	0.03
Other	3,181	0.52
Total	608,644	100

Table 4: CGIAR Transfers by type of user institution
Source: Compiled by the authors, based on IT/GB-/11/Inf.5

With regard to the receiving institutions, the highest share after developing country NARCS was received by universities. Commercial companies received 3.6% of the samples distributed. The recipient of 8.46% of samples is unknown.

1.2.3 Access granted to legal and natural persons who have not made their collections available

Treaty Article 12.2 states that access «shall also be provided to legal and natural persons under the jurisdiction of any Contracting Party, subject to the provisions of Article 11.4,» meaning that the Governing Body could decide to introduce discrimination between recipients that have made their own collections available to the MLS and those who have not. Since such a decision has not yet been made, there is currently no legal basis to refuse access to natural and legal persons from contracting parties who have not made their collections available to the MLS.

Since the mechanism for making SMTA data about recipients publicly available is not yet operational (with the exception of the CGIAR Centers), there is currently only limited information regarding the number of samples distributed to natural and legal persons. The report by the CGIAR centers states that 3.6% of all samples distributed were received by commercial companies. Furthermore, it can be assumed that some recipients in the following categories are institutions with their own collections that are not included in the system: universities (9.6%), some of which may be working in partnerships with private sector breeding companies; unknown (8.46%); other (0.52%); and individual other than farmer (0.11%). Taken together, the percentage distributed to such persons could be any percentage between 3.6% and 22.3 %. The CGIAR does make detailed information with regard to individual recipients available, however a full analysis of this data is beyond the scope of this study.

The CGIAR also reports that some recipients have raised concerns with regard to the provisions of the SMTA. While these incidents were small in number, they may be an indication that some potential recipients have withheld their orders because of the obligatory use of the SMTA when accessing materials from the MLS. In particular, the report notes that «some large commercial companies with lawyers» did not want to commit their institutions to the open-ended terms of the SMTA.³⁰ This could point to a deterring effect of the SMTA that reduces accessions by large private sector companies. An in-depth study would be required to explore whether accessions by such recipients have in fact decreased since the adoption of the SMTA, and where such recipients have accessed materials instead.

A related question is whether there should be a distinction between access for legal and natural persons from parties and those from non-parties. The Treaty does not provide explicitly for discrimination between natural and legal persons from parties and non-parties, however Article 12.2 could be interpreted in such a way that facilitated access under the MLS is limited to natural and legal persons from parties. In general, any restriction of access to users from non-parties (public or private) would create a strong incentive for non-parties to ratify the Treaty; however it may be difficult to introduce such discrimination. Any such restriction would go against the mandate of the CGIAR centers as holders in trust of PGRFA. The centers stated that in accordance with this mandate they would continue to make materials available to recipients from non-parties. It is therefore likely that any restriction on access by natural and legal persons under Article 11.4 would not apply to materials held by the CGIAR. This would substantially weaken the effectiveness of such a measure.

Finally, a question that has not been addressed under the Treaty so far is access

that occurs via access to products. Due to the self-replicating nature of PGRFA, propagation material and seeds bought for cultivation and even commercialized products can be used for breeding. But access with the intent of production or consumption will not require an SMTA. The problem arises if there is a change of intent, and the commercialized products are used for breeding and research. The Governing Body should assess whether such change of intent could become a loophole under the MLS, and if so, how to address this problem.

Conclusion: The Treaty does not currently provide for discrimination in access between natural and legal persons from contracting parties and those from non-contracting parties, nor from those that have made materials available to the MLS and those that have not. It should therefore be expected that access by such persons has been taking place on a regular basis. While specific data on such access are not available, the CGIAR report suggests that a relevant – though most likely small – proportion of samples were distributed to such persons. The terms of the SMTA and associated legal and administrative uncertainties could have a deterring effect and lead to lower rates of access by such persons. This could point both to substantial concerns by the private sector with regard to the terms of the SMTA, as well as the ready availability of material of equivalent or similar characteristics from other sources.

A significant problem in this regard could arise from the fact that a large part of CGIAR collections are duplicated in national and regional gene banks. As long as these duplicate collections are not part of the MLS, recipients can circumvent the obligations under the SMTA by accessing materials from these other sources. Furthermore, the CGIARs past policy to grant unrestricted access to its collections may have led to significant duplication of collections by private sector companies. This

³⁰ IT/GB-11/Inf.5 p. 7

could mean that such recipients won't need to access materials from the MLS and under the conditions of the SMTA for some time to come. Furthermore, companies could be actively seeking to duplicate publicly-available collections before they are placed into the MLS. The sudden surge in accessions to duplicate materials from ICARDA held by USDA gene banks since the Treaty's coming into force could be an indication of such efforts.

Box 1. How US sorghum seed distributions may undermine the FAO Plant Treaty's Multilateral System

Overlap and use of the CGIAR and US sorghum gene bank collections

New data from ICRISAT and the US Department of Agriculture and a comparison of gene bank records indicates that at least half of ICRISAT's sorghum gene bank collection is also being distributed outside of the Multilateral System. This yawning gap creates an economic incentive for the Multilateral System and its benefit-sharing requirements to be avoided. USDA's sorghum germplasm customers, who are primarily corporate and commercially-oriented academic breeders, are taking advantage of this perverse incentive. In the past six years, they have ordered four times more ICRISAT gene bank seeds from USDA than from ICRISAT itself. Globally, it is likely that more distributions of Multilateral System sorghum take place without an SMTA than occur with one. Recipients of large USDA distributions of sorghum do not pay benefit-sharing and do not comply with the restrictions of the SMTA on patenting parts of the material. Under present circumstances, the promise of the Multilateral System cannot be fulfilled for sorghum, a crop of global food security importance, particularly in Africa. Furthermore, even if the US ratifies the ITPGRFA, a vexing problem has been created by its recent massive distributions of Multilateral System sorghum germplasm

to institutions potentially not bound by the Treaty, such as Texas A&M University.

Source: Edward Hammond (2011), *How US Sorghum Seed Distributions Undermine the FAO Plant Treaty's Multilateral System*. A briefing paper by The Berne Declaration, Development Fund and the African Center for Biosafety.

It was not possible within the scope of this study to quantify the accessions by legal and natural persons who have not made their materials available. In quantitative terms, the number of accessions to materials from CGIAR collections may be significant, in particular accessions by universities that often work in close collaboration with the private sector³¹, and important in qualitative terms, such as accessions to a few highly valuable traits. It is clear that there has been access by private sector recipients, and the problem that there have so far been no inclusions by natural and legal persons other than those under the management and control of contracting parties remains. The following section explores ways and means by which this problem could be addressed.

1.2.4 Options for solving the «free rider»³² problem

In a narrow sense, Article 11.4 provides a mandate to restrict access to natural and legal persons who do not place their collections in the MLS. This could be done in several ways. The following sections discuss two options: a plain restriction of access to all free-riding entities (the radical option); and a scheme that would make access subject to additional contributions to the Benefit-Sharing Fund for those persons

³¹ See for example accesses made by universities in the case of sorghum (paper cited in Box I).

³² Free-riding is referred to here as benefiting from access to materials under the MLS without making one's own materials available. Another type of free-riding would be using MLS materials while circumventing obligations for benefit-sharing, which is not addressed here.

not making their collections available (the payments option).

The radical option

This option would follow the principle that only those entities that share their own materials are entitled to benefit from facilitated access through the MLS, and seek to create an incentive for those persons who have so far not made their materials available to do so in order not to lose the benefits created through the MLS. This approach is however problematic since there may be a large degree of overlap between materials in the MLS and duplicate accessions that are available outside of the MLS. As the sorghum example (see box I) shows, such overlap may be in the order of 50% or even higher. The immediate effect of restricting access would be that affected natural and legal persons would seek to maintain the free availability of such sources, and invest in substantive lobbying activities so that parties that have not ratified the Treaty refrain from doing so. Secondly, such persons would have an incentive to access and duplicate such materials before they are placed within the MLS, which would further increase the degree of duplication and undermine the effectiveness of the MLS in the long run. This highlights the fact that the effectiveness of any measure under Article 11.4 hinges on progress in the effective inclusion of materials held by contracting parties in order to avoid attempts at duplication. Any measure should therefore be coupled with a deadline for parties to report their collections to the Secretariat.

From an economic perspective, the decision of a natural and legal person to make his own materials available under the threat of losing access to the MLS would be based on the ratio between the costs of losing access compared to the costs and benefits of joining the MLS. The costs of joining the System are affected by a number of factors, including:

- Additional administrative burden of acting as provider under the MLS and of using the SMTA as a recipient;
- Legal uncertainty with regard to the extent of benefit-sharing required; and
- Strategic cost of making one's own collection available: Some companies may be in the possession of exclusive accessions which would count as a substantial asset for the value of the companies and a strategic advantage of their operations. Large companies may have also invested in improvement and pre-breeding efforts which they may feel is not sufficiently protected by the provisions on PGRFA under development.

If a company expects these costs to be higher than the benefits, it could choose to circumvent the MLS – either by seeking access from sources outside the MLS or by changing its breeding strategies so that its dependence on MLS materials is reduced. Rather than incentivizing companies to join the MLS, an access restriction could lead them to invest in becoming independent of the MLS – with potential impacts on their breeding and research activities, such as lower investments in improving neglected crop species (orphan crops) or producing varieties adapted to the impact of climate change. Given the uncertainty about the reaction of the private sector in general, and the scope of new inclusions that can be expected, it should be carefully assessed whether the benefit from additional inclusions in the MLS is likely to outweigh the negative effects of companies investing in alternative access and breeding strategies in the long run.

The Payments Option

An alternative option could be to devise a payment scheme for access for those natural and legal persons who have decided not to make their materials available. The scheme would make access subject to additional

contributions to the Benefit-Sharing Fund for those entities that benefit from facilitated access under the MLS but refuse to grant the same access to their own materials by not putting their collections in the MLS. The level and modalities of the scheme should be designed in a way that they constitute a significant incentive for natural and legal persons to make their materials available. In addition, there could be two options that are aligned with the current options for making payments for benefit-sharing under the SMTA³³ as follows:

Option 1 - Pay per accession: At the time of accession, the recipient would pay a fixed fee per accession to the Benefit-Sharing fund. Benefit-sharing payments would be made once a product incorporating that material is commercialized, subject to MLS Article 6.7; that is, based on a percentage of the sales of the individual product.

Option 2 – Pay per crop: Recipients that opt to make payments based on SMTA Article 6.11 – that is, to make payments based on a percentage of all sales of a given Annex I crop – would have to contribute a higher percentage of the sales of products of that crop as long as their own collections are not available to the MLS. If they make their materials available, the payment is reduced to the normal rate.

A scheme based on these options would have the advantage of setting incentives to make collections available without

restricting access for the use of MLS materials in general. Natural and legal persons would be presented with a choice to either make their collections available or make higher payments to the Benefit-sharing Fund, which would increase overall contributions to the fund. In addition, some part of the payments would be generated immediately, rather than only after commercialization of a product. The coupling with the two payment options would further enhance the incentive to make collections available to the MLS. Companies would have an incentive to choose the second option for access together with the alternative payment scheme for benefit-sharing, because this option would both reduce transaction costs and legal uncertainty with regard to future accessions and potential disputes whether or not benefit-sharing payments have to be made once a product is commercialized.

1.3. *In situ* Access and incorporation of farmer varieties

1.3.1 *In situ* materials

The MLS under the Treaty covers all materials of Annex 1 species, including materials that exist in *in situ* conditions (Articles 11.2 and 12.3(h)). This means that parties are obliged to take measures to facilitate access to such *in situ* materials if these can be considered to be under their management and control. Two types of *in situ* materials can be distinguished: wild relatives of crop species, and varieties maintained and managed on farms (landraces, farmer seeds).

Crop wild relatives are species closely related to crop plants which can contribute beneficial traits, such as pest or disease resistance and yield improvement. These species are critical for improving agricultural production and increasing food security. They are also essential components of natural and semi-natural habitats as well as agricultural systems, and are therefore vital

³³ See SMTA articles 6.7 and 6.11. Article 6.7 provides for payments based on a percentage of the sales of any individual commercialized product incorporating MLS materials if it is not available without restriction for further research and breeding. Article 6.11 provides for payments at a discounted rate for the sale of all products of a given Annex I crop regardless whether access for further research and breeding is restricted or not.

in maintaining ecosystem health.³⁴ Most crop wild relatives are present in centers of diversity of crops where they can exchange genetic material and traits with crops that are maintained under dynamic conditions *in situ*. Crop wild relatives also exist in other regions, where they can form a distinct repository of potentially valuable traits for plant breeding. Crop wild relatives are considered to be particularly important as a source of traits for developing climate-ready crops. This importance was highlighted by a recent announcement of the Global Crop Diversity Trust to invest in a major global initiative to systematically find, gather, catalog, use, and save the wild relatives of wheat, rice, beans, potato, barley, lentils, chickpea, and other essential food crops.³⁵

Farmer seeds are relevant as materials under the MLS for several reasons. On the one hand, farmers in traditional agricultural systems conserve and develop numerous distinct varieties that evolve under dynamic conditions and develop new potentially valuable traits for plant breeding. These «landrace» populations are often highly variable in appearance, but they are each identifiable and usually have local names. Many materials that exist in *ex situ* collections were originally collected from landraces, and a continuous interchange between materials held *ex situ* and materials cultivated *in situ* under dynamic ecological conditions is considered desirable to ensure that the gene pool available for plant breeding contains the traits necessary to address changing environmental conditions

such as increasing temperatures or the emergence of new pests and pathogens.³⁶

Secondly, many farmer seeds include modern varieties that are reproduced and further developed by farmers in all parts of the world (farm saved seed). Such varieties include both the traits of improved high-yielding varieties as well as specific adaptations to local conditions and farmer and consumer preferences. Networks and movements for on-farm management of seed exist in different countries, and they are becoming increasingly important for organic agriculture and farmers looking for traits that are not necessarily offered by the formal seed sector. Farm saved seed includes both local traditional varieties and improved varieties that have been further adapted and developed.³⁷

To summarize, both crop wild relatives and farmer varieties represent important sources of genetic material that are indispensable to maintaining the viability of plant breeding in the long run. *In situ* conservation is complementary to *ex situ* conservation since it provides for the dynamic adaptation of varieties to changing environmental conditions, which leads to the development of new valuable traits and genetic information that can be used for plant breeding. *In situ* conservation also provides for on-going exchange between crop species and their wild relatives, which may be an important source of valuable characteristics. *In situ* conservation is therefore particularly important in centers of origin of crop species where varieties evolve under various social, ecological and physical conditions and wild crop relatives are present in the agricultural environment.

³⁴ Maxted, N., Ford-Lloyd, B.V. and Kell, S.P., (2008). Crop wild relatives: establishing the context. In: Maxted, N., Ford-Lloyd, B.V., Kell, S.P. Iriando, J., Dulloo, E. and Turok, J. (eds.) *Crop Wild Relative Conservation and Use*. Pp. 3-30. CABI Publishing, Wallingford.

³⁵ <http://www.croptrust.org/documents/Press%20Releases/Crop%20Wild%20Relative%20Program%20Press%20Release%20Final.pdf> (accessed 25 February, 2011).

³⁶ A Training Guide for *In situ* Conservation On-farm. Bioversity International. Available at [http://www.bioversityinternational.org/index.php?id=19&user_bioversitypublications_pi1\[showUId\]=2537](http://www.bioversityinternational.org/index.php?id=19&user_bioversitypublications_pi1[showUId]=2537) (Accessed 11 February 2011)

³⁷ See http://www.farmseed.net/home/seeds_and_farmers/definitions (accessed 11 February, 2011)

1.3.2 Access to *in situ* materials under the Treaty

The MLS covers all PGRFA of Annex I species present in a member country as long as they are under the management and control of parties (Articles 11.1 and 11.2). Article 12.3(h) further states that access to PGRFA found in *in situ* conditions «will be provided according to national legislation or, in the absence of such legislation, in accordance with such standards as may be set by the Governing Body.» So far, the Governing Body has not yet initiated work under Article 12.3(h), but the matter was considered by the SMTA-MLS Committee.

At its second meeting, the Committee noted that Article 12.3(h) raises a number of questions with regard to the relationship with other provisions in Article 12 and the implications of national legislation for access to *in situ* plant genetic resources. The guidance prepared for the second meeting of the Committee provides a number of clarifications and suggests a way forward in the development of standards.³⁸

Among other issues, the document notes that the application of Article 12.3(h) is limited to:

- PGRFA of Annex I crops and species
- PGRFA that are in the public domain and under the management and control of contracting parties
- Access to PGRFA for the purpose of utilization and conservation for research, breeding and training for food and agriculture

The document further notes that «if *in situ* material does not meet those conditions, for instance because it is subject to proprietary rights of local communities that take it out from the public domain, then the material does not fall under the MLS and Article 12.3(h) does not apply to it.»³⁹ Furthermore,

national legislation and/or standards adopted by the Governing Body would apply solely to the act of accessing PGRFA and not to their transfer, since transfer under the Multilateral System is subject to the SMTA. Article 12.3(h) thus demands putting in place a practicable system «for regulating the act of collecting and not the possible subsequent transfer of collected material.» Article 12.3(h) also implies that any standards developed by the Governing Body will be subsidiary to national legislation and only apply if such standards are not provided for at the national level.

To summarize, the international standards to be developed would apply only to materials in the public domain and under the control of parties, and in the absence of national laws regulating facilitated access to those materials. For other *in situ* materials, such as farmer varieties of local communities that have established rights over those varieties, Article 11.2 would apply, under which parties «invite all other holders of [PGRFA] listed in Annex I to include these [PGRFA] in the Multilateral System:» The following sections discuss options for developing standards for *in situ* materials that are under the management and control of parties, followed by a discussion of measures to include *in situ* materials held by local communities.

1.3.3. Access to *in situ* materials in the public domain and under the management and control of parties

While most ITPGRFA parties have already adopted legislation, or are in the process of developing legislation for implementing the Treaty, it is currently unclear how many countries are developing explicit rules and procedures with regard to *in situ* access. It is likely that the primary concern for most parties is the implementation of the MLS with regard to *ex situ* collections and the use of the SMTA. In the absence of national legislation, international standards would be relevant for several reasons:

³⁸ IT/AC-SMTA-MLS 2/10/6

³⁹ IT/AC-SMTA-MLS 2/10/6 p: 2

- To clarify which Annex I crops existing under *in situ* conditions are part of the MLS. In the absence of national legislation it may be difficult to draw the boundary between resources that are considered in the public domain and under the management and control of contracting parties, and those that are under the management of local communities, farmers or other groups and thus not in the public domain.
- To ensure differentiated treatment under national ABS legislation. In countries that have implemented national ABS legislation under the Convention on Biological Diversity, different ABS regulations may apply for genetic resources in general than for PGRFA under the Multilateral System. In such cases access standards may be necessary to ensure that access to such resources is in fact facilitated as provided for by the Treaty.
- To facilitate research and information gathering on PGRFA available *in situ*. Similar to *ex situ* materials, information regarding the type of PGRFA available *in situ* and how and where they can be accessed is essential for their effective inclusion in the MLS.
- To streamline potential future national laws for access to *in situ* PGRFA.

Possible Elements of Standards

The first meeting of the SMTA-MLS Committee⁴⁰ considered possible elements of standards drawing on the *International Code of Conduct on Plant Germplasm Collecting and Transfer*.⁴¹ It noted that the Code of Conduct pre-dates the negotiation of the

⁴⁰ IT/GB-4/11/Inf.7. *Report of the First Meeting of the Ad Hoc Technical Advisory Committee on the MLS and the SMTA*. Available at: <http://www.itpgrfa.net/International/sites/default/files/gb4i07e.pdf> (accessed 11 February, 2011).

⁴¹ http://www.cglrc.cgiar.org/icraf/lawPolicyPltGenRes/CGRFA_International_Code_of_Conduct.htm (accessed 11 February, 2011)

Treaty and that any provisions taken from the Code would thus have to be brought in line with the Treaty. It also noted that other standards exist that provide guidance in genetic resource collection and promote good ethical and responsible research.⁴²

The report of the SMTA-MLS Committee outlines the most relevant sections of the Code of Conduct for the development of standards for access under Treaty Article 12.3(h).⁴³ These are the chapters on issuing, requesting and granting permits for collectors (Articles 6-8) and the chapter on responsibilities of collectors (Articles 9-11). The chapter on permits provides elements for a practical system for implementing access standards, including the designation of a national competent authority with the responsibilities such as:

- Establishing and implementing national policies for access
- Setting up and operating a system for the issuance of permits for collectors
- Informing collectors of the national policies and rules, and the approval process and follow-up action to be taken
- Collecting necessary information from collectors to determine whether a permit should be granted
- Making decisions on the granting of permits and, if applicable, informing the collector of any restrictions or modifications of plans
- Provision of relevant information regarding the country, including its genetic resources policy, germplasm management system, quarantine procedures and relevant laws and regulations.

⁴² These are included for example in the 2006 Code of Ethics of the International Society of Ethnobiology or the 1996 proposed Guidelines for Researchers and Local Communities Interested in Accessing, Exploring and Studying Biodiversity, developed by the Pew Conservation Fellows Biodiversity and Ethics Working Group.

⁴³ IT/GB-4/11/Inf.7. Appendix 6

The chapter addressing the responsibilities of collectors is divided into three parts, addressing responsibilities before, during and after collection:

- Responsibilities before collection include familiarization with ongoing research in the host country, and making practical arrangements for collecting priorities, methodologies and strategies.
- Responsibilities during collection address, among other issues: adequate interaction with local farming communities including respect of local customs, traditions, values and property rights as well as demonstrating a sense of gratitude, especially if local knowledge is used or recorded; responsibility to adequately inform local communities of the purpose of the mission and how they can access samples and information gathered; provide duplicate samples, if so required; prevent genetic erosion; and adequate and systematic recording of passport data and contextual information.
- Responsibilities after collection aim at ensuring accuracy of information and preserving plant health, including: adequate and timely processing of information and its subsequent availability; provision of duplicate samples; and alerting the host country of any threats to plant populations or of genetic erosion discovered during the mission.

Further sections of the Code of Conduct address: responsibilities of sponsors, curators and users; reporting; and monitoring and evaluating the observance of the code. Aside from these elements, standards under the Treaty would have to ensure that providing access to *in situ* populations of Annex I species is in line with rights and obligations of the Multilateral System and the SMTA, including ensuring that SMTAs are signed for all Annex I materials accessed and transferred during a collecting mission.

Possible Action by the Governing Body

Given the fact that the Governing Body has not yet initiated work on the development of standards under Article 12.3, the Governing Body may wish to initiate some preparatory work towards taking up this matter at the fifth session. Such preparatory activities should include:

- Clarification of the scope of Article 12.3(h), in particular with regard to materials held by local communities, and the relationship between Article 12.3(h) with national legislation on Access and Benefit-Sharing under the CBD or other relevant international instruments
- Exploration of the main issues that should be covered by standards, including the extent to which such issues are not already covered by national legislation in parties
- Further exploration of the applicability of the *International Code of Conduct on Plant Germplasm Collecting and Transfer* as standards under Article 12.3(h), and analysis of the need to adjust and complement the Code to bring it in line with the Treaty. Since the Code of Conduct is voluntary, this would need to include a discussion of the legal nature of the elements that are to be used as standards under the Treaty.

1.3.4. In situ materials that are held by local communities and farmers

As noted above, Article 12.3(h) does not apply to materials held by local communities that have established ownership over their local and traditional varieties, or the right to decide on access through an obligation for users to obtain prior informed consent. Such rights may be established under national legislation in line with the Convention on Biological Diversity or other international instruments on the rights of local and indigenous communities

such as the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) or Convention 169 of the International Labour Organization. In these cases, materials held by local communities would not be considered to be under the management and control of parties, and parties would need to find ways and means to encourage communities to place their materials in the MLS and regulate access to such materials in accordance with existing rights of, and responsibilities towards, such communities.

The legal situation is somewhat complex however, since the relationship between the Treaty and other international instruments that address access to genetic resources and rights of indigenous and local communities is not entirely clear. It could be argued that the fact that Article 12.3(h) is part of the Treaty provisions on the MLS indicates that *in situ* materials of Annex I crops are regarded as materials that are under the management and control and are therefore part of MLS. In other words, the Treaty suggests that *in situ* access is not so much a question whether such materials are under the management and control of parties, but how access to them can be facilitated. Furthermore, the Treaty does not make reference to other international instruments, but states that international standards should be developed under the Treaty. Another interpretation could be that the relationship with other international agreements with regard to *in situ* materials was left deliberately open-ended, for example in order to be able to adjust to the outcomes of negotiations on an international regime access and benefit-sharing under the Convention on Biological Diversity (CBD). In line with this interpretation there would be a need to clarify the Treaty's relationship with recently adopted Nagoya Protocol on Access and Benefit Sharing, and possibly other developments in international law.

Even if the first interpretation holds, the restriction to materials in the public domain

and under the management and control of parties still applies.

The Treaty does not oblige parties to implement legislation that would alter the status of materials in this regard; nevertheless, taking into account existing international law on the rights of indigenous and local communities, and with regard to access and benefit-sharing and existing national legislation, it seems evident that materials held by local communities are not in the MLS by default, but have to be placed there through an explicit decision or approval by the communities holding such materials. Additional recognition of existing legislation is given by Article 9 on Farmers' Rights, which states that responsibility for establishing Farmers' Rights rests with national governments (Article 9.2). Furthermore, the Article states that nothing in the Article «shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate.» This means that the Treaty respects existing or future national legislation on Farmers' Rights, which may include legislation that establishes rights of farmers and communities over their crop varieties, protects associated traditional knowledge, and requires that communities give their prior informed consent or approval when materials are accessed and further distributed. To some extent there is a parallel between *ex situ* materials held by natural and legal persons, and *in situ* materials held by local and indigenous communities. In both cases participation is voluntary, and communities will base their decision on the expected costs (or disadvantages) and expected benefits of placing their materials in the MLS.

It could also be argued that materials developed and cultivated by farmers should be considered to be materials under development according to Article 12.3(e), stating that access to such materials shall be

at the discretion of the developer.⁴⁴ This argumentation would also provide for a right of farmers to prior informed consent when their materials are accessed.

The main challenge in these cases is to develop a process that ensures that communities give their prior informed consent to make their materials available to the MLS and have access to materials in the System and participate in the benefits distributed through it. The decision to place materials in the system may be complicated by the fact that varieties are usually owned collectively within a community and are shared among communities through informal networks of seed exchange and reproduction. The process must also respect the requirements for prior informed consent and involvement of such communities where these are required under national law. The process will thus vary with national circumstances and legislation as well as with the existing relationship between local communities and the government.

One way to address the question of access to materials held by local farming communities is to develop and sign bio-cultural community protocols (BCPs). A BCP is «a protocol that is developed after a community undertakes a consultative process to outline their core ecological, cultural and spiritual values and customary laws relating to their TK and resources, based on which they provide clear terms and conditions to regulate access to their knowledge and resources.»⁴⁵ The BCP process includes measures for awareness-raising and legal empowerment to ensure that communities

understand the international and national legal regimes that regulate various aspects of their lives, such as the consequences of placing their varieties in the MLS for facilitated access under the terms of the SMTA. It also ensures the integrity of national and international legislation with customary rights and laws and procedures for prior informed consent and participation. For example, a BCP would help to ensure that the consent is only given by a community if it knows and agrees with the terms and conditions of the SMTA and for the purposes of the Treaty. An open question is what happens if communities place use restrictions that go beyond those explicitly included in the SMTA – such as restrictions that could be placed on the use of intellectual property rights or the use for the production of genetically modified organisms, based on customary law of indigenous and local communities. It is currently not clear whether such restrictions could be in conflict with the provisions of the SMTA and how they should be transferred to the recipient and subsequent users.

Regardless of how these issues are addressed, the signing of the BCP offers the opportunity to lay down additional objectives and procedures that will ensure that communities benefit from the MLS, including by:

- Using *ex situ* collections as backup for their own varieties;
- Improved access to their own varieties or varieties from other communities within the same region or seed system;
- Collaborative research in the description and evaluation of their varieties;
- Opportunities for collaborative plant breeding and improvement of their varieties; including adaptation to new climatic conditions and other stresses.

⁴⁴ Article 12.3(e) states that «Access to plant genetic resources for food and agriculture under development, **including material being developed by farmers**, shall be at the discretion of its developer, during the period of its development.» (emphasis added)

⁴⁵ *Bio-cultural Community Protocols: A Community Approach to Ensuring the Integrity of Environmental Law and Policy*. UN Environment Programme and Natural Justice (2009). At p.9. Available at: <http://www.unep.org/communityprotocols/PDF/communityprotocols.pdf> (accessed 12 February, 2011)

In addition, the participation of communities would strengthen the links between *ex situ* and *in situ* conservation efforts by ensuring a two-way exchange between the varieties used and conserved by communities under dynamic conditions and the MLS. This does, however, require that communities have both the right and the capacity to access materials from the MLS and to use them for cultivation and breeding.

Ensuring Access by Communities

The question of «transfer» of materials under the SMTA from the MLS to farmers for direct use for cultivation was considered by the SMTA-MLS Committee at its second meeting. The Committee considered whether the practice of the CGIAR centers to make both improved and unimproved PGRFA available to farmers for direct cultivation – in line with their responsibilities as «holders in trust» of those materials – is consistent with objectives of the Treaty and the terms and conditions of the SMTA.⁴⁶ In its opinion on this issue, the Committee states that:⁴⁷

- CGIAR centers have the right to make improved material developed from PGRFA acquired from the MLS available for farmers for direct use;
- Centers may make available PGRFA in their collections for direct use and cultivation where these are held in trust;
- PGRFA received under the SMTA can be made available for direct cultivation and use, only if there is a separate, express permission from the provider allowing such distribution;
- No such permission is required when materials are restored to farmers that originally provided them;
- PGRFA for direct cultivation and use should not be transferred under the SMTA, but with a statement that the material can be used directly for

cultivation and passed on to others for cultivation; and

- If materials are transferred for both direct cultivation and research and breeding, the SMTA and the statement allowing direct cultivation should be used.

The opinion suggests that there is sufficient leeway for ensuring access to materials in the MLS, as well as improved PGRFA derived from them, as long as these are held by the CGIAR centers. Whether similar practices can be established for other collections in the MLS remains to be decided. Nevertheless, the continuation of existing practices of the CGIAR centers provides a basis for establishing or strengthening the desired two-way exchanges with communities wishing to place their materials into the MLS.

Building capacity of Communities to benefit from the MLS

One of the most effective ways to provide benefits to communities through participation in the MLS is the establishment of programs of participatory plant breeding (PPB) and participatory variety selection (PVS). «[PPB] is the process by which farmers are routinely involved in a plant breeding program with opportunities to make decisions throughout»⁴⁸ The involvement of farmers in plant breeding can take many forms, ranging from the selection of materials for breeding, to full collaboration with scientists in the selection of source germplasm, trait development, cultivar development, and varietal evaluation. Next to access to improved varieties and targeted breeding, PPB offers a number of additional benefits, and has been

⁴⁶ IT/AC-SMTA-MLA 2/10/7

⁴⁷ IT/SMTA-MLA 2/10/Report at 37 (Appendix 7)

⁴⁸ *Participatory Plant Breeding to Promote Farmers' Rights*. M. Halewood, P. Deupman, B.R. Sthapit, R. Vernooij and S. Ceccarelli. Bioversity International (2007). Available at: <http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1254.pdf> (accessed 12 February, 2011)

advocated as a means to promote Farmers' Rights, gender equality and capacity building.⁴⁹ PPB is one way to achieve the Treaty's multiple objectives with regard to benefit-sharing, and it has been proposed as one of the main activities to be supported through the Benefit Sharing Fund, together with on-farm conservation and management, and dissemination of seed and planting materials.⁵⁰ In PVS, farmers participate only in the selection of varieties from their fields for further breeding. While there are fewer direct benefits for farmers under PVS, it is much easier to scale up and involve a larger number of communities.

Possible Action by the Governing Body

The previous discussion has shown that there are a number of links between the issue of access to *in situ* material held by local communities, access by farmers to materials from the MLS, and support for participatory plant breeding as means to ensure benefit-sharing for those communities and achieving the Treaty's benefit-sharing objectives. Since the Governing Body has not yet taken any specific action with regard to these issues, it may wish to consider establishing a work program or roadmap towards addressing these issues in a coherent manner, including:

- Exploring the use of bio-cultural protocols and other instruments to develop terms and procedures for bringing materials held by local communities into the MLS, while respecting customary laws and rights established under national legislation and in international law, in particular the right to prior informed consent
- Develop options for realizing non-monetary benefit-sharing at the community level, in particular through programs of participatory plant breeding and other collaborative projects. These options should ensure that assistance is provided to communities in accessing funding from the Benefit-Sharing Fund.

1.4. Conclusions – Options for accelerating the growth of the MLS

Seven years after the ITPGRFA came into force, the process of inclusion of Annex I materials faces a number of obstacles. While the collections of parties are legally part of the System, their effective inclusion is hampered by institutional and administrative complexities in a number of developed countries, and additionally by a general lack of capacity in developing countries. The main impediment to the inclusion of materials from natural and legal persons, including the private sector, may be the administrative burden of using the SMTA and legal uncertainty with regard to the SMTA's provisions and the extent and terms of benefit-sharing. Nevertheless, there could also be other, more strategic reasons for the reluctance of the private sector to include their collections. Finally, the question of access to *in situ* materials may be legally complex, and some clarifications may be needed to open the way towards effectively including these materials.

Specific measures by the Governing Body should be targeted to the respective groups of actors and types of materials to be

⁴⁹ *ibid*

⁵⁰ *Expert Advice on the Second Call for Proposals, Including a Strategy and Programme for the Benefit-Sharing Fund.* G. Hatwin, R.A. Moreno, M.S. Swaminathan, B.R. Sekhara Pillai, and D. Hedgewood. FAO, Rome. Available at http://ftp.fao.org/ag/agp/planttreaty/funding/experts/bsf_exp_p01_en.pdf (Accessed 12 February 2011).

included. The Governing Body could consider:

- With respect to developed country parties:
 - Request parties to submit reports to the Compliance Committee on the reasons why they have not yet reported their collections and provided adequate documentation; and ask the Compliance Committee to develop guidance for countries facing particular legal, administrative or institutional problems. If the rules and procedures of the compliance committee are not adopted, such information can be reported to the SMTA-MLS Committee (or another committee with this duty).
- With respect to developing country parties:
 - Extend and significantly expand the scope of the joint FAO/ITPGRFA/Bioversity International capacity building program to allow a much higher number of developing country parties to build the technical and legal capacity needed to identify, inventory and notify their collections.
 - Consider options for making measures for inclusion of collections part of projects funded from the Benefit-Sharing Fund and other sources, such as funding for regeneration projects from the Global Crop Diversity trust. This would not only accelerate inclusion but also lead towards a more comprehensive approach to capacity building.
- With respect to non-parties:
 - Explore whether there is scope for measures that would incentivize non-parties to ratify.
 - Consider whether measures taken under Article 11.4, with respect to

natural and legal persons who have not made their collections available to the MLS, could be applied to recipients from non-parties (see next point).

- With respect to natural and legal persons:
 - Consider and adopt the suggested amendments to the SMTA regarding the clarification of reporting obligations, the further transfer of PGRFA accessed under the SMTA and transfer of PGRFA under development, as well as the explanatory guidance on legal and practical implications of placing materials in the MLS. It should be clear that this is considered a package deal that removes all concerns expressed by the private sector which is coupled with the expectation that companies will make materials available without further delay. This should be the priority action.
 - Consider options for action under Article 11.4, providing for the possibility to restrict access to natural and legal persons who have not made their materials available. This option should be considered with caution, however, since a direct restriction could lead to adverse effects and deter private sector participation and thereby undermine the MLS in the long run. A better application of Article 11.3 could be the development of an up-front payments scheme that offers incentives for the timely inclusion of materials. The scheme could be coupled with the two existing payment options for making benefit-sharing payments laid out in the SMTA. From the perspective of companies, this would align the costs of payments for access and for benefit-sharing with the admini-

strative costs of signing and monitoring SMTAs for each accession and each commercial product placed on the market. The scheme would create a double incentive to include materials in the MLS and to opt for the alternative payments scheme under which payments are made per crop rather than per accession and per product. The scheme would not only create additional revenues for the Benefit-Sharing Fund, but ensure that a part of these revenues is paid immediately rather than at the time of commercialization. The scheme could also substantially reduce administrative costs and help overcome potential thresholds of critical mass or strategic reasons that impede private sector participation at this point. This action should be second priority. Given the importance of previous action, it may be useful not to engage in a detailed discussion at GB 4, but lay down the main cornerstones of action under Article 11.3 and develop options for a decision at GB5 if no significant progress in inclusion of materials has been made. This would have the character of a credible deadline.

- With regard to *in situ* materials under the management and control of contracting parties
 - Clarify the scope of Article 12.3, with regard to materials held by local communities, and its relationship

with national legislation on access and benefit-sharing

- Explore whether there is a need for international standards, and which elements such standards would cover
- Further explore the applicability of the International Code of Conduct on Plant Germplasm Collecting and Transfer and consider necessary additions and adjustments such as changing the legal nature of the so far voluntary Code.
- With regard to *in situ* materials held by local communities:
 - Clarify the scope of Article 12.3 and its relation with national and international legislation on access and benefit-sharing, prior informed consent, and rights of indigenous and local communities.
 - Explore the use of bio-cultural protocols and other instruments to develop terms and procedures for bringing materials held by local communities into the MLS.

Develop options for realizing benefit-sharing at the community level, in particular through programs of participatory plant breeding and other collaborative projects, including the provision of assistance to communities for accessing funds from the Benefit-Sharing Fund.

2. Monetary Benefit-Sharing Under the FAO Multilateral System

Article 13.2 (d) (ii) of the Treaty states that «[...] the Governing Body [...] may assess within a period of five years from the entry into force of this Treaty [i.e. before 2009], whether the mandatory payment requirement in the MTA shall apply also in cases where such commercialized products are available without restriction to others for further research and breeding.»

2.1. Assessment of monetary Benefit-Sharing

A key question is the following: Has the establishment of the Benefit-Sharing Fund of the Treaty promoted new funding or a redirection of funding from pre-existing sources, which was already available to agriculture and development projects?

2.1.1. Context

At a High-Level Round Table in December 2010 on the role of the International Treaty in addressing food security, participants emphasised that «in the last year, some US\$ 12 million have been committed, and US\$ 10 million will be invested at the next Governing Body [...] requests were received for more than 400 projects, for a total value of US\$ 100 million, of which less than 10% can be funded. The next meeting of the Governing Body, in Bali, Indonesia, in March, will [...] provide [...] an opportunity to Contracting Parties to work together to put this initiative on a sustainable long-term footing [...].»⁵¹

⁵¹ Outcomes of the High Level Round Table - Moderator's summary (7 December 2010), available at: ftp://ftp.fao.org/ag/agg/planttreaty/gb4/hlrt/hlrt_outcomes_en.pdf

2.1.2. Donations and voluntary contributions vs. benefit-sharing payments

In Resolution 4/2009, the Governing Body requested the Secretary «to prepare a comprehensive report to its Fourth Session on the status of non-monetary and monetary benefit-sharing, as provided for in Articles 13.a, b, c and d, of the International Treaty.»⁵² The Secretary of the Treaty has reported that:⁵³

- US\$ one-half million were granted for eleven projects from the Benefit-Sharing Fund under the first round of the project cycle;
- a Strategic Plan for the implementation of the Benefit-Sharing Fund was agreed to under the Funding Strategy, including a US\$ 116 million target for benefit sharing over five years.⁵⁴

As regards benefit-sharing up to January 2010, disbursements have been made only for funds under the first project cycle. Such funds amount to a total of US\$ 550,000, which derive entirely from voluntary contributions. In March 2011, new projects would be approved under the second project cycle for a total (still to be confirmed) of approximately US\$ 10 million.

In October 2010, the *Ad hoc* Advisory Committee on the Funding Strategy considered progress on the Benefit-Sharing Fund's resource mobilization activities. A professional fundraising company, CCS, was

⁵² However, at the time of writing such documentation is not yet available.

⁵³ Shakeel Bhatti (2009), *Technology Transfer Aspects of the Multilateral System of the ITPGRFA*. Presentation given in Guadalajara, Mexico on 3 March 2009.

⁵⁴ In accordance with Resolution 3/2009, the Governing Body established «a target of US\$ 116 million between July 2009 and December 2014.»

hired to assist with «the Treaty’s effort to raise the \$116 million target outlined in the [strategic] plan.»⁵⁵ CCS underlined the «support received from Spain, Italy and Australia, the US\$10 million commitment from UNDP and the commitment from Norway of 0.1% of seed sales in perpetuity.»⁵⁶ CCS reported that US\$ 14.37 million have been committed to the 2010 Call for Proposals under the Benefit-Sharing Fund. Their breakdown is as follows:

- Spain US\$ 2.2 million
- Italy US\$ 1.2 million
- Australia US\$ 870,000
- UNDP US\$ 10 million
- Norway 0.1% of seed sales (\$101,368)
- Kenya’s level to be confirmed

Besides, at the sixth meeting of the *Ad hoc* Advisory Committee on the Funding Strategy, the International Fund for Agricultural Development (IFAD) pledged US\$ 1.5 million to fall under the 2010 Call for Proposals with the expectation that these funds be made available to the Governing Body in the first week of March 2011. IFAD also undertook «to support mobilization of co-funding by the European Commission.» However, it shall be noted that the contributions made by Spain and Italy, among others, were pledged before the financial crisis, and it is highly uncertain the extent to which such level of sustained donations will be maintained by these countries in the future.

As regards mandatory and voluntary payments, document IT/GB-4/11/13 reports

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<http://www.ccsfundraising.com/environmental/1056-the-international-treaty-on-plant-genetic-resources-for-food-and-agriculture-rome-italy>

⁵⁶ IT/ACFS-6/10/Report, at paragraph 2, available at: ftp://ftp.fao.org/ag/agp/planttreaty/gb4/acfs6/acfs6_repe.pdf

that:⁵⁷ «There is to date [February 2011] very little information regarding the effects of these clauses on payment, in terms of:

- the number of Products being commercialized that incorporate material received under [the SMTA];
- the number of mandatory [...] and voluntary payments; and
- the level of voluntary payments, in relation to the value of the Products in question.»

«The Secretariat has, so far, not received any mandatory payment in accordance with either Article 6.7 or 6.11. One voluntary payment, in the sum of US\$ 1190, has been received. The material, from which the Product in question was developed by Agriculture and Agri-Food Canada (AAFC), was accessed before the entry into force of the Treaty, and therefore not under a [SMTA], but the developers felt it was important to make a voluntary payment to the Benefit-Sharing Fund, and have stated that they will endeavour to make an annual voluntary payment for the duration of the market life of the Product. No information is available as to the level of payment that this represents, that is, the rate on the basis of which it is calculated *vis-à-vis* the total sales of the product.»⁵⁸ As regards payments under the alternative payments scheme of Article 6.11 of the SMTA, the above document states that «a few such notifications have been received, but no payments have yet been made against any of them.»⁵⁹ An ongoing discussion is taking place within the International Seed Federation (ISF) regarding the possibility of adopting some form of «voluntary agreement» to make payments to the Benefit-Sharing Fund of the Treaty along the lines of

⁵⁷ IT/GB-4/11/13, paragraphs 41 and 42.

⁵⁸ *Ibid.*

⁵⁹ *Ibid.*

the alternative payments scheme of the SMTA (Article 6.11). ISF sources have indicated that some breeding companies in the ISF, in particular Dutch companies, may be willing to make such payments in situations where they would not be legally required to do so, in exchange for avoiding the bureaucracy that stems from the signature of multiple SMTAs. In March 2011, the ISF Breeders Committee meeting will discuss these issues. It appears that the most problematic aspect of using MLS materials for the private sector is managing the volume of SMTAs, which companies and breeders would be required to sign – both as recipients and subsequent providers of such materials.⁶⁰

Therefore, their potential willingness to make voluntary crop-based payments to the Benefit-Sharing Fund appears to be linked to a possible request to avoid or relax the tracking requirements that are contained in the SMTA. Besides, it has been argued that the rate of payments currently set out in the SMTA's alternative payment scheme (namely, 0.5% of the overall sales) is deemed to be too high. Therefore, lobbying may be expected to take place at different levels to eventually reach the conclusion of some preferential deal, which may comprise the following elements: a preferential rate for crop-based BS payments, and limited or no tracking through the SMTA. Besides, payments would be made on an annual basis and could essentially operate as a global gene bank fee for free access to particular crop species. However, some companies and breeders in the ISF may also be expected to oppose undertaking any additional commitment along the above modalities because of worries that they would not control such BS funds, which could possibly be spent to finance farmers groups or NGOs that are known for criticizing the seed industry.

Regarding the procedure for the approval of projects under the Benefit-Sharing Fund, it is the responsibility of the Bureau of the Governing Body to select eligible project proposals in accordance with the criteria and priorities established for the Benefit-Sharing Fund by the Governing Body. Besides, upon request by Secretariat of the ITPGRFA, expert advice was provided on the second call for proposals (2010-2014), including a strategy and program for the Benefit-Sharing Fund.⁶¹

Under the second call it is foreseen that the number of project proposals that may be eligible may exceed the available funding. Therefore, it is expected that the US\$ 10 million pledged by UNDP would be used to finance projects that meet the selection criteria, but for which funding may not be available. It is unclear whether such money would be channelled through the Benefit-Sharing Fund or directly provided to selected projects. In the latter case, the envisaged arrangement would seem to resemble the outsourcing of the selection process by UNDP in accordance with the priorities set out in the Treaty's call for proposals.

Besides the question of additionality of funds that are made available through the Benefit-Sharing Fund (see next section), a critical institutional aspect that needs to be improved regards the status of experts and Bureau members who are in charge of project selection, assessment and review under the Benefit-Sharing Fund call for proposal. The Contracting Parties may wish to establish that experts and Bureau members, whenever they perform their duties *in any* of the above stages of the project selection process, shall act in their personal capacity and on the basis of the best available scientific evidence and methodologies. The Contracting Parties should also establish effective conflict of

⁶⁰ Personal conversation with a representative of the breeding sector on 26 January 2011, Brussels.

⁶¹ Available at: ftp://ftp.fao.org/ag/agp/planttreaty/funding/experts/bsf_exp_p01_en.pdf

interest rules, which shall prevent the above experts and Bureau members from submitting projects for funding and assessing projects for which they may directly or indirectly bear an interest.

2.1.3. Which part of contributions is additional and which part is re-directed from existing funds?

The above review of current contributions to the Benefit-Sharing Fund shows that the most important funding sources are «top of tire» voluntary contributions by a small number of parties, who are sustaining donors. Besides, it clearly appears that mandatory benefit-sharing payments are expected to play a very marginal role in achieving the US\$ 116 million target for benefit-sharing under the Funding Strategy, if any.

The question arises as to whether the structure of current and expected contributions to the Benefit-Sharing Fund may pose a problem in terms of the effective capacity of the benefit-sharing mechanism of the Treaty to generate additional resources *vis-à-vis* re-directing contributions from existing funds and other financial mechanisms. In other words, the Treaty's reliance on voluntary contributions (from Contracting Parties, international foundations and the private sector) may require an assessment of the extent to which relevant fundraising efforts can effectively catalyse additional resources, while avoiding the risk that funds already earmarked for agricultural development assistance or development projects, in general, are simply shifted from one line of budget to another.

Contributions made by Norway provide a virtuous example. Norway decided to make a permanent annual contribution to the benefit-sharing fund of the Treaty that amounts to 0.1% of the value of all seeds that are sold in the country.⁶² «The value of

this contribution was \$101,368 and was received on 15 June 2010.»⁶³ The Norwegian Minister of agriculture and food, Riis-Johansen, emphasized that the envisaged mechanism «is not conventional development funding [but] a situation in which the agricultural sector of Norway [is] contributing to the farmers of countries in the developing world.» However, the reference to 0.1% of seed sales refers only to the method that is used to calculate the amount of donations to the Benefit-Sharing Fund, while ultimately such contribution is paid with Government money and not directly by the private seed sector. In response to the Norwegian initiative, the Governing Body «welcome[d] the decision of Norway to make an additional annual payment of 0.1% of the value of all seeds sold in its territory;» and «appeal[ed] to other Contracting Parties to take similar decisions, with the aim of providing the International Treaty's Benefit-sharing Fund with substantial and reliable resources.»⁶⁴ Regarding the question of whether it is sustainable to rely on donations, the CCS's report highlights «a concern that the Treaty is heavily reliant on a small number of committed donors» and «no funds have yet been secured from the private sector or from international foundations.»⁶⁵ A related concern is that, «[...] to date, most investments have been

march 2008), available at: ftp://ftp.fao.org/ag/agp/planttreaty/news/noti005_en.pdf The Norwegian Minister of agriculture and food Riis-Johansen estimated that «[...] if we all contribute a similar percentage from sales of our seeds, the Treaty's benefit-sharing fund would have some USD 20 million a year - encouraging farmers to continue conserving and improving plant diversity on their farms.» He also emphasized that the envisaged mechanism «is not conventional development funding [but] a situation in which the agricultural sector of Norway [is] contributing to the farmers of countries in the developing world.»

⁶³ IT/ACFS-6/10/3, at paragraph 37, available at: <ftp://ftp.fao.org/ag/agp/planttreaty/gb4/acfs6/acfs6w03.pdf>

⁶⁴ Paragraphs 18 and 19 of GB3 Resolution 4/2009.

⁶⁵ IT/ACFS-6/10/Report, available at: ftp://ftp.fao.org/ag/agp/planttreaty/gb4/acfs6/acfs6_repe.pdf

⁶² *Norway announces annual contribution to the benefit-sharing fund of the International Treaty* (3

‘one-off’ contributions» as opposed to reliable multi-annual commitments.

In general, the review of available documentation shows that both current and expected voluntarily contributions to the Benefit-Sharing Fund simply do not take into account whether (and the extent to which) such contributions are additional to resources that were previously earmarked for agricultural development assistance and development projects. Therefore, the Governing Body should establish criteria to measure additionality of voluntary contributions that are made by Contracting Parties as well as by national, regional or international donor agencies. It should also take effective measures to promote additionality of voluntary contributions to the Benefit-Sharing Fund.

2.1.4. Cost of fundraising for donations vs. cost of enforcing compliance with Benefit-Sharing obligations

To date, the costs of fundraising for donations are mainly those related to hiring CCS to provide its consulting services to the Secretariat, plus the cost of hiring a P3 position on resource mobilizations,⁶⁶ which was expected to take over the CCS’s tasks from November 2010.

While the following sections show that the institutional structure to monitor and enforce compliance with benefit-sharing obligations is sophisticated, enforcement costs appear to be primarily justified by the need to protect the integrity and the legitimacy of the Multilateral System. By contrast, there seem to be no expectations that investments in monitoring and enforcing compliance by recipients of PGRFA can actually generate monetary benefits of a magnitude sufficient to sustain the financial needs of the Multilateral System as long as benefit-sharing is

restricted by the current requirements and their prevalent interpretation. The above considerations may explain why the Governing Body at its third session has decided to prioritize human and financial resource investments on fundraising for donations.

Under the current international financing framework, increased competition for funding can be expected between different Multilateral Environmental Agreements. While this situation may require more resources to be spent for the provision of in-house or external professional fundraising services, ultimately the question is whether it is efficient and ethical for UN bodies to spend an increased share of public resources for fundraising *vis-à-vis* the current countries’ and communities’ needs for capacity building, implementation and related projects in the field.

2.2. Clarifying the definition of «available without restriction»

2.2.1. Context

In Article 2, the SMTA provides for the following definition of «Available without restriction»: «a Product is considered to be available without restriction to others for further research and breeding when it is available for research and breeding without any legal or contractual obligations, or technological restrictions, that would preclude using it in the manner specified in the Treaty.»

Restrictions on access to PGRFA are one of the cumulative requirements for compulsory benefit-sharing under the Standard Material Transfer Agreement (SMTA). In June 2006, with its adoption, the Governing Body established the level, form and manner of mandatory payments to be made by users of PGRFA to the Benefit-Sharing Fund of the Treaty. Thus, if certain legal requirements are met, compulsory benefit-sharing of 1.1% of the incomes that derive from the sale of

⁶⁶ Professional officers at the P-3 level carry a net salary per year from US\$ 87,475 to US\$ 112,570 (without dependants) and from US\$ 93,714 to US\$ 121,027 (with dependants).

seeds must be paid by recipients to the Multilateral System.

The first requirement is that the commercialized «Product» (i.e. seeds) must incorporate «the Material» received from the Multilateral System (incorporation requirement). The second requirement is that compulsory payments are due only if the «Product» is not freely available for further research and breeding (access restriction requirement). The third requirement is that the product must be commercialized «on the open market.»⁶⁷ Thus, Article 6.7 of the SMTA not only may seem to legitimize the patenting of seeds that incorporate materials accessed from the MLS, but also creates a strong link between benefit-sharing and the patenting of PGRFA products and processes.⁶⁸

To conclude, it seems that under the ITPGRFA the existence of IPRs, which restrict access to a product that incorporates a PGRFA received from the Multilateral System, is a precondition for the sharing of monetary benefits arising from the commercialization of such product. However, interpretative problems may arise because the SMTA prohibits recipients from claiming «any intellectual or other property rights that limit the facilitated access to the Material ... or its genetic parts or components, in the form received from the Multilateral System.»⁶⁹

⁶⁷ Article 2 of the SMTA states that such «commercialization shall not include any form of transfer of [PGRFA] under development.» This means that if a recipient licenses PGRFA under development and attaches «additional conditions» to their transfer, «[...] including the payment of monetary consideration» such revenues will not be subject to mandatory benefit sharing payments.

⁶⁸ Article 6.7 of the SMTA states:
In the case that the Recipient commercializes a Product that is a [PGRFA] and that incorporates Material [received from the Multilateral System], and where such Product is not available without restriction to others for further research and breeding, the Recipient shall pay 1.1 per cent [less 30% to allow for sale cost recovery] of the Sales of the commercialized Product.

⁶⁹ See Article 6.2 of the SMTA. C. Chiarolla (2008), 'Plant Patenting, Benefit Sharing and the Law Applicable to the FAO Standard Material Transfer

2.2.2. Relevant Decision of the Governing Body

At its third meeting in 2009, the Governing Body decided:⁷⁰

- «[...] to again review the level of payments, with a view to achieving fair and equitable sharing of benefits, at its Fourth Session; [and]
- [...] to postpone the review of whether the mandatory payment requirement shall also apply in cases where commercialized products are available without restriction to others for further research and breeding to its Fourth Session.»

2.2.3. Considerations on legal and technological restrictions under the ITPGRFA

It was noted above that the expression «available without restriction» means that a PGRFA is available for research and breeding «without any legal or contractual obligations, or technological restrictions, that would preclude using it in the manner specified in the Treaty.» Therefore, the concepts that underpin the notion of «access restrictions» that identify the product base on which benefit-sharing payments should be calculated deserve further elaboration. The following options provide categories of products, whose commercialization could be (separately or cumulatively) considered to trigger benefit-sharing payments under a revised SMTA, namely:

- 1) cytoplasmic male sterile (CMS) varieties;
- 2) hybrid varieties;
- 3) PVP protected varieties under 1991 UPOV-type legislation;
- 4) varieties covered by patent claims, regardless of the possible existence, and scope of, the research exemption; and

Agreement', *The Journal of World Intellectual Property*, 11 (1), 1-28.

⁷⁰ See Resolution 4/2009, part III, in IT/GB-3/09Report

- 5) varieties that incorporate genetic use restriction technologies (already covered under the current SMTA).⁷¹

The first two sub-options and option 5 are based on the general idea that all non-reproductive seeds (or seeds with a human-induced limited reproductive capacity – e.g. hybrids) do entail some form of access restrictions for breeders, in particular, farmer breeders with limited scientific and technological capacity, especially in developing countries. Besides, to various degrees non-reproductive seeds limit agrobiodiversity in the fields and the possibility to undertake on-farm selection for adaptation to specific environments. Therefore, a broader interpretation of what may constitute an «access restriction» should be considered to identify a more economically viable, equitable and ethically-sound product base for the calculation of benefit-sharing under the Treaty.

The ensuing sections provide an in-depth analysis of legal and technological restrictions on access to PGRFA and of their potential impact on farming, research and breeding *vis-à-vis* the ABS obligations of the FAO Multilateral System. The final part of this study then builds on this analysis by undertaking a comparison of the above options in order to suggest ways to broaden the product base for benefit-sharing, and draws some final conclusions.

2.2.4. Hybrid and cytoplasmic male sterile (CMS) varieties

Conventional hybrids are generally deemed not to restrict access for research and breeding, because, in theory, their genetic composition is freely available. However, if a breeder does not have access to the parental

lines, it is very complicated to use hybrids as the basis for further development. Thus, hybrids limit on-farm breeding and effectively prevent farmers from using the material for selection and breeding and also – to a large extent – from replanting farm-saved seeds.

Box 2. Hybrids

When using hybrids, F1 progeny must be maintained by repeatedly crossing the parent lines, since generative propagation of the F1 defeats the purpose of hybridization. This end-of-the-line nature of hybrids is why some growers and breeders object to their creation and use. Nevertheless, farmers use hybrids because seed-propagating varieties with comparable yields are not (yet) available or because the buyers' demand for uniformity and size can only be met by using hybrids. However, hybrid progeny cannot be generatively propagated (without losing the enhanced hybrid vigor), which thus effectively keeps (commercial) farmers from collecting and replanting hybrid seeds. The use of hybrids in organic agriculture is justified when: comparable seed-propagating varieties are not available; homozygous lines still have enough vigor to be propagated in organic growing conditions (thus, allowing to some extent subsistence farming); and the F1 is fertile and can be used as a cross parent, i.e. no CMS without restorer lines.

Source: Lammerts van Bueren *et al.* (1999), «Sustainable organic plant breeding: Final report. A vision, choices, consequences and steps», Louis Bolk Instituut Publications.

For the production of hybrid varieties it is important that all the seeds that are harvested originate from cross-breeding with the parent line.⁷² For instance, in maize and tomatoes this is done by physically removing male organs on the mother line

⁷¹ While the commercialization of products that incorporate genetic use restriction technologies (GURTs) are already covered by the mandatory benefit-sharing requirement of the SMTA (i.e. technological restrictions), their release into the environment should not be encouraged given that the CBD has established a moratorium on GURTs at COP 5.

⁷² The authors wish to thank Niels Louwaars for providing explanations and relevant information on hybridization techniques and CMS breeding.

(emasculatation). In crops where this is not feasible (e.g. sunflower, cabbage, etc.) other expedients may be needed, such as cytoplasmic male sterility (CMS) breeding or incompatibility. While cytoplasmic male sterility may naturally occur in some species (e.g. radish), proprietary techniques (e.g. protoplast fusion) have been used to transfer CMS to species where it does not occur naturally and that cannot be hybridized through conventional techniques.⁷³

Cytoplasmic male sterile varieties are the result of a particular type of three-way cross that prevents the female parent from being selfed because it is male sterile (*i.e.* it does not produce functioning pollen). In order to pollinate the female parent, a «restorer» is needed (R), which is genetically the same as the CMS mother, except for the male sterile cytoplasm – *i.e.* the restorer is not sterile and produces viable pollen. The progeny that is obtained as a result of this first cross (F1 generation) is identical to the CMS mother. The cytoplasmic male sterility rests in the cytoplasm – that is to say, under extra nuclear genetic control – and is always inherited from the mother. By further crossing the male sterile plant (F1) with a fertile plant A, a commercial hybrid can be obtained (F2 generation). The result is that access to the parents (F1) of a commercial hybrid (F2) does not allow for recreating commercial hybrid seeds, because the CMS line must be maintained by repeated crossing with the restorer line R.

Therefore, some breeders have argued that the advantages of using CMS hybrids *vis-à-vis* non-CMS hybrids are that: «(1)[...] inbred plants (deviants) do not occur in the field as in the case of non-CMS (sometimes more than 10%); (2) other breeders cannot acquire the mother line by searching for inbred plants because they do not exist; this gives

the breeder who owns the mother line a competitive advantage; (3) and other breeders cannot incorporate any of a CMS hybrid's hereditary characteristics in their breeding material; the breeder of the CMS hybrid has exclusive access to the genepool [...].»⁷⁴ The authors conclude that ultimately, cultural inbreeding of cytoplasmic male sterility will occur and it may lead to genetic erosion: «The free exchange of varieties, hybrid or otherwise, will always form the basis of sustainable breeding. This was one of the primary considerations that led to the establishment of breeder's rights for plants, as an alternative to patenting. If every single variety was patented, breeding would be made impossible. But cytoplasmic male sterility, too, makes breeding impossible. Breeders who work with CMS can use other breeders' non-CMS varieties, but they in turn cannot use the CMS varieties. There is no mutual exchange of benefits or sharing of profits. This one-way breeding is a form of parasitism. Breeders have a responsibility to maintain cultivars because they are part of our cultural heritage, resulting from centuries of cultivation and breeding. These cultivars cannot be maintained without natural reproduction and genetic transfer.»⁷⁵

2.2.5. UPOV 1991-type Plant Variety Protection & the «access restriction» requirement for mandatory benefit-sharing payments under the SMTA

Under UPOV 1991-type plant variety protection (PVP), the objective of exclusive rights in plant varieties are:⁷⁶ the

⁷⁴ Ibid at p. 29.

⁷⁵ Ibid. at p.30.

⁷⁶ Article 1 (vi) of the 1991 UPOV Convention defines the term «variety» as «a plant grouping within a single botanical taxon of the lowest known rank, which grouping, irrespective of whether the conditions for the grant of a plant variety right are fully met, can be: 1) defined by the expression of the characteristics that results from a given genotype or combination of genotypes; 2) distinguished from any other plant grouping by the expression of at least one of the said characteristics; and 3) considered as a unit with regard to its suitability for being propagated unchanged.»

⁷³ Lammerts van Bueren, E.T.; Hulscher, M.; Jongerden, J.; Ruivenkamp, G.T.P.; Haring, M.; van Mansvelt, J.D. and den Nijs, A.M.P. (1999) Sustainable organic plant breeding: Final report - a vision, choices, consequences and steps. Louis Bolk Instituut Publications, G24, available at: <http://orgprints.org/1419/1/g24.pdf>, at pp. 29-30.

propagating material of the protected variety; the harvested material and certain products made directly from it; and essentially derived varieties.⁷⁷ Specific genes or combinations of genes of protected varieties are outside the scope of plant variety protection and they remain available for further research and breeding, as well as the protected variety itself. However, the commercialization of derived varieties may be restricted by the PVP certificate's holder if the re-combination of such genes does not express at least one distinct characteristic from the protected variety. Besides, plant variety rights do not cover technical processes for the production of plants within their subject matter, while such processes could be protected by patents.

Plant breeding is an activity that is incremental in nature: innovations in agriculture necessarily depend on the availability of the widest possible range of germplasm. Because access to both unimproved PGRFA and improved plant varieties is extremely important, PVP systems normally envisage the existence of farmers' and breeders' exemptions. The 1978 UPOV Act contains a broad «breeders' exemption», which allows breeders to use protected varieties as the starting material for breeding new ones, without any authorization or payment of royalties. In particular, Article 5(3) of UPOV 1978, states: «Authorisation by the breeder shall not be required either for the utilisation of the variety as an initial source of variation for the purpose of creating other varieties or for the marketing of such varieties. Such authorisation shall be required, however, when the repeated use of the variety is

necessary for the commercial production of another variety.»

UPOV 1991 narrowed the scope of the breeders' exemption, which now reads as follows: «The breeder's right shall not extend to:

- (i) acts done privately and for non-commercial purposes,
- (ii) acts done for experimental purposes and
- (iii) acts done for the purpose of breeding other varieties, and, except where the provisions of Article 14(5) [on essentially derived varieties] apply acts referred to in Article 14(1) to (4) in respect of such other varieties.»

In the current practice of the CGIAR Centres, the relationship between restrictions on access to PGRFA that derive from UPOV 1991-type legislation and the benefit-sharing provisions of the Treaty is interpreted as follows: «Under the "breeders' exemption" of UPOV-compliant Plant Variety Protection, even protected varieties must be freely available to others for further breeding and research. [If recipients] take out UPOV-style plant varietal protection over the new product that is subject to breeders and research exemptions, [they] should NOT as a general rule be required to make a payment to the international fund [of the Treaty].»⁷⁸ Therefore, it was argued elsewhere, that «[...] because of the breeders' exemption, *sui generis* plant variety protection systems do not generate benefits that can be captured in the form of compulsory payments to the MLS.»⁷⁹

However, although UPOV 1991-type legislation is generally believed not to impose restrictions on access to protected

⁷⁷ See Article 14 on the scope of breeders' rights. The adoption of amendments to the UPOV Convention in 1991 extended the scope of protection beyond the propagating material of protected varieties to include also «essentially derived varieties.» Under Article 14.5 of the 1991 UPOV Act, the exploitation of an essentially derived variety requires the authorization of the title holder, who owns the variety from which the former is derived. The essential derivation criterion is met when the essential characteristics of the first plant are replicated in the second one.

⁷⁸ SGRP (2009), [Guide for the CGIAR Centres' Use of the Standard Material Transfer Agreement](#) (the SMTA Guide), Bioversity International. Rome, Italy, 68 pp., at p. 62.

⁷⁹ C. Chiarolla (2011).

plant varieties in *formal* seed sector's research and breeding, it limits the informal exchange and commercialization of seeds (and other propagating or harvested materials), including those which are essentially derived from protected varieties. Such restrictions may discourage efforts towards crop improvement in the fields by means of on-farm selection and breeding, including participatory plant breeding. This is because breeding in *informal* seed systems cannot be separated from other agricultural activities that contribute to the development of improved plant varieties.⁸⁰

The dichotomy between research and breeding, on the one hand, and conservation and production, on the other, underpins the idea that the commercialization of new varieties that are protected under UPOV 1991-type legislation are generally exempted from payments to the benefit-sharing fund of the Treaty. However, such dichotomy ignores the conditions in which the overwhelming majority of farmers worldwide continue to conserve and develop crop diversity. Thus, the recognition of the distinct realities of formal and informal seed systems calls into question the current interpretation of which «products» can be legitimately be said to be «available [to others] without restrictions for research and breeding,» i.e. «without [...] restrictions that would preclude using [such PGRFA] in the manner specified in the Treaty.»

To conclude, where the effects of protecting new varieties of plants (under UPOV 1991-type legislation) is to restrict research and breeding activities, in particular, those specified in Article 6 of the Treaty,⁸¹ such

legal restrictions can be sufficient to trigger benefit-sharing payments under Article 6.7 of the SMTA.

2.2.6. Potential impact of UPOV 1991-type legislation on farmers' on-farm breeding and selection activities

Under UPOV 1991-type legislation, the holder of a PVP certificate has the right to exclude others from producing or reproducing, conditioning for the purpose of propagation, offering for sale, selling, exporting, importing and stocking propagating material of the protected variety for any of the above-mentioned purposes.⁸² These rights may also cover the harvested material that is obtained through the unauthorized use of propagating material, when the title holder has had no reasonable opportunity to exercise his rights in relation to the propagating material itself.⁸³

The «farmers' privilege» has traditionally allowed farmers to retain seeds for their own use and for non-commercial exchange. Against this backdrop, the 1991 UPOV Act has:

- limited the farmers' privilege to save seeds for replanting,⁸⁴ and

farmers, especially those who generate and use their own varieties and apply ecological principles in maintaining soil fertility and in combating diseases, weeds and pests;

(c) promoting [...] plant breeding efforts which, with the participation of farmers, particularly in developing countries, strengthen the capacity to develop varieties particularly adapted to social, economic and ecological conditions, including in marginal areas;

(d) broadening the genetic base of crops and increasing the range of genetic diversity available to farmers;

(e) promoting [...] the expanded use of local and locally adapted crops, varieties and underutilized species; [and]

(f) supporting [...] the wider use of diversity of varieties and species in on-farm management, conservation and sustainable use of crops and creating strong links to plant breeding and agricultural development in order to reduce crop vulnerability and genetic erosion [...].

⁸² See Article 14(1) of the 1991 UPOV Convention.

⁸³ See Article 14(2) of the 1991 UPOV Convention.

⁸⁴ This entails that there is no farmers' privilege for the propagating material in general, but only for

⁸⁰ By contrast, in *formal* seed systems, the conservation of PGRFA, crop improvement and seed production are carried out by different specialized institutions, namely: gene banks, plant breeders and seed producers.

⁸¹ Under »Sustainable Use of Plant Genetic Resources,« Article 6.2 of the Treaty states: The sustainable use of [PGRFA] may include [inter alia] such measures as: [...] (b) strengthening research which enhances and conserves biological diversity by maximizing intra- and inter-specific variation for the benefit of

- requires farmers to limit the amount of saved seeds or to pay an equitable remuneration to the right holder.⁸⁵
- only allowed to use «the product of the harvest... for propagating purposes» thus excluding farmers' rights to save seeds from all species where it is not the harvest that is used for propagating purposes, like in strawberries, fruit trees, etc.

The informal sale, offer for sale and exchange of protected varieties is outside the scope of such privilege, because plant breeders' rights can only be limited «to permit farmers to use for propagating, on their own holdings, the product of the harvest obtained by planting, on their own holdings, the protected varieties.»⁸⁶

However, farmers traditionally save, exchange, and sell their seeds informally. These practices are still widespread amongst poor farmers in developing countries, where farmers' systems of seed supply and crop improvement are by far the most important sources of seeds, playing a fundamental role in ensuring household food security. Informal systems of seed provision are also important mechanisms by which farmers gain access to the stock of different genes which are necessary to select, improve and conserve traditional varieties that are well adapted to the local environment where they live.

Therefore, to the extent that UPOV 1991-type legislation impedes informal exchange and sale of seeds and other reproductive materials, it reduces opportunities for on-farm breeding, varietal improvement and

selection by farmers.⁸⁷ Thus, UPOV 1991 imposes restrictions on research and breeding that takes place outside the *formal* seed system, where the conservation, development and use of crop diversity and seed production are integrated components of interconnected farming systems.

2.2.7. Patent Protection & the «access restriction» requirement for mandatory benefit-sharing payments under the SMTA

It was noted above that the Treaty and its SMTA prohibit recipients to claim «any intellectual or other property rights that limit the facilitated access to the Material ... or its genetic parts or components, in the form received from the Multilateral System.»⁸⁸ Therefore, the question arises as to what extent access to materials, which are exchanged within the MLS, can be restricted by patents without violating the above prohibition as one of the conditions that may trigger benefit-sharing. In other words, «it is questionable whether patent claims to the 'progeny' and 'unmodified derivatives' of [MLS] materials transferred through the SMTA should be allowed.»⁸⁹

In particular, the meaning of the expression «genetic parts and components» that is used in connection with the words «in the form received» is not clear. In general, gene banks do not provide «genetic parts and components,» but samples of seeds called accessions - i.e. «distinct, uniquely identifiable samples of seeds representing a cultivar, breeding line or a population, which is maintained in storage for

the product of their harvest. Therefore, the farmers' privilege may not cover vegetables, fruit trees and berries, which are excluded.

⁸⁵ The farmers' privilege is allowed at the option of UPOV Member States «within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder.» This means that the farmers' privilege is not mandatory under UPOV. See Article 15 of the 1991 UPOV Act.

⁸⁶ See Article 15.2 of the 1991 UPOV Act.

⁸⁷ See, for instance, C.M. Correa (2000), *Intellectual Property Rights, the WTO and Developing Countries: The TRIPs Agreement and Policy Options*. London and New York: Zed Books, at pp. 195-98.

⁸⁸ Article 6.2 of the SMTA.

⁸⁹ C. Chiarolla (2011), *Intellectual Property, Agriculture and Global Food Security: The Privatisation of Crop Diversity*. Edward Elgar.

conservation and use.»⁹⁰ Thus, a reasonable interpretation is that the expression «genetic parts and components, in the form received» should correspond to the well-known concept of «unmodified derivatives,» which are normally understood as «all substances created by the recipient that constitute an unmodified functional subunit or product not changed in form or character and expressed by the provided material.» Thus, «unmodified derivatives» may include genetic components or gene sequences obtained from MLS materials through isolation and purification.

It was argued elsewhere that restrictions on access to a «product» that incorporates PGRFA from the Multilateral System may be legally allowed (in order to meet the benefit-sharing requirement concerning the existence of research and breeding restrictions), only if such restrictions derive from the fact that such product *also* incorporates, or makes use of, patented materials or technologies that are outside the Multilateral System.⁹¹ In other words, this means that such access restrictions to the final PGRFA product arise as a result of using patented materials (accessed from sources other than the MLS) in conjunction with MLS materials, which *per se* should not be patented.

If a patented trait is used to breed a new variety, which incorporates background materials received from the MLS, the protection afforded by the patent may extend to the new variety as a whole. For instance, in the EU when a patented DNA sequence is introduced into a plant variety «the protection conferred by a patent on a product containing or consisting of genetic information shall extend to all material [...] in which the product is incorporated and in which the genetic information is contained

and performs its function.»⁹² Plant varieties may also fall within the scope of patent claims when they are the direct product of a patented non-biological process, for example, a process patent that claims a non-essentially biological process for the production of plants.

In all the above examples, the research and breeding on PGRFA received from the Multilateral System is coupled with the use of other patented materials or is undertaken through the application of patented non-biological processes. Therefore, such research and breeding may result in a «product» whose access is restricted by pre-existing patents and may give rise to benefit-sharing when the product is commercialized.

To conclude, this kind of restrictions on access to PGRFA does not violate the Treaty's norm that prohibits recipients to claim «any intellectual or other property rights» on materials within Multilateral Systems. By contrast, it is contended that the SMTA does not allow recipients to claim in a patent application any genetic components of PGRFA received from the Multilateral System «in the form received,» which may include both their «unmodified derivatives» and their «progeny.»⁹³

However, the guidance, which is made available to the CGIAR Centres on the use of the SMTA, does not address the critical distinction between restrictions that may derive from the patenting of MLS materials *per se*, which in our view violate the SMTA, and all other patent-related restrictions that can trigger benefit-sharing.⁹⁴ Besides, there is

⁹⁰ Rao *et al.* (2006), *Manual of Seed Handling in Gene banks*, Handbooks for Gene banks No. 8, (Rome, Italy: Bioversity International).

⁹¹ C. Chiarolla (2011).

⁹² See Article 9 of the Biotechnology Directive 98/44/EC.

⁹³ The concept of «progeny» normally covers «all unmodified descendants from the material.»

⁹⁴ The SMTA Guide states:

Where a variety or gene is protected by certain forms of patent, the material may not be available without specific authorization from the breeder.' If recipients '[...] use germplasm of crops listed in Annex 1 of the Treaty [...] AND [...] breed a new PGRFA product AND [...] commercialize that product, AND [...] take out a patent on that product that restricts the further use of that product by

no guidance on how to implement Article 6.2 of the SMTA, which increases the risk that the recipients may not comply with it.

2.2.8. Requirements for recipients who have patented products to pay benefit sharing

Besides the above considerations on the patentability of materials in the Multilateral System, the current political discussion on patents should address the question of whether patents generally restrict access⁹⁵ (and therefore may automatically trigger benefit-sharing when all other requirements are met) *vis-à-vis* the need to assess on a case-by-case basis the scope of relevant patent-related research exemptions. The current practice of the CGIAR Centers seems to have endorsed the second option whereby recipients of materials distributed by the CGIAR are given the advice to assess on a case-by-case basis whether they should make payments depending on the scope of the research exemption in the various jurisdictions where they may have been granted patents on PGRFA products.⁹⁶

others for research or breeding, or otherwise take legal or technological measures that restrict the further use of that product by others for research or breeding, then [those recipients] will be required to make a payment to the international fund established by the Treaty.'

SGRP (2009), Guide for the CGIAR Centres' Use of the Standard Material Transfer Agreement, Bioversity International. Rome, Italy, 68 pp., at p. 62.

⁹⁵ See: Royal Society (2003), «Keeping Science Open: the Effects of IP Policy on the Conduct of Science», which states: «It would be conducive to the development of science if the position of scientific work under the exemptions was clearer. A case in point is the difficulties plant breeders face in breeding a non-patent infringing variety from a patented parent.»

⁹⁶ SGRP (2009), at p.63-64. Recipients «may have to make payments if [they] commercialize a variety that has been patented. This will depend on whether the patent protection restricts availability of the product for further research and breeding in the sense used in the SMTA. [...] Patent protection differs from country to country. [Recipients] will need to seek legal advice on the situation in the country where patents are granted. [...] just patenting a variety will not trigger mandatory payments. The trigger is when the variety is

To conclude, the current situation seems to be that recipients are required to self-assess whether the scope of relevant patent-related research exemptions would be broad enough to exempt them from payments to the benefit-sharing fund of the Treaty. However, this situation is problematic because whatever the adopted mechanisms to monitor compliance with the SMTA's obligations, such a task would be elusive, since it relies on the somehow discretionary assessment of recipients.

2.2.9. Options to design patent exemptions for research and breeding under IP law

Niels Louwaars et al. (2009) have identified four main options to improve the availability of plant genetic resources through patent law reform.⁹⁷ They are:

1. «Exemption of patentability of plant traits. Patent protection of technological processes in support of plant breeding is possible but should not stretch to plants and their genetic traits. [⁹⁸]
2. Introduction of a full breeder's exemption in patent legislation, i.e. an exemption in the use in plant breeding of genetic material falling under the scope of the patent, and also of the commercialization of the new varieties (plant propagation material) originating from such breeding.[⁹⁹]

commercialized and the availability of the product for further research and breeding is restricted.»

⁹⁷ Niels Louwaars et al. (2009), Breeding Business – The future of plant breeding in the light of developments in patent rights and plant breeders' rights, CGN Report 2009-14, Wageningen University, at pp. 57-58.

⁹⁸ Save the existence of other non-IP related access restrictions, recipients who commercialize their products in countries that would choose this option would not be required to make benefit-sharing payments under the current system, because the patentability of plants and traits would not be allowed.

⁹⁹ There would also be no benefit-sharing payments under this option, because the free access, including for commercialization, would be guaranteed.

3. Introduction of a restricted breeder's exemption in patent legislation, i.e. an exemption of the use of genetic material for plant breeding, but not for the commercialization of the varieties originating from this activity when these varieties carry [a] patented trait.
4. Introduction in patent legislation of the possibility to allow breeders to cross with varieties that carry the patented traits but only with the intention to remove the patented traits from these varieties so that only the genetic background may be used for further breeding.»

A fifth possible situation, which is the prevailing one in the US legal framework, is to provide virtually no exemption for research and breeding.¹⁰⁰ Recipients who commercialize their products in countries where patent law does not provide for a research and/or breeding exemption would certainly trigger benefit-sharing payments under the Multilateral System.

The authors of the above study conclude that options 1 and 2 should be preferred because they allow the restoration of «the freedom to operate in plant breeding which stimulates the necessary innovation.» In particular, they argue for the «reestablishment of the exemption of plant varieties as formulated in the European Patent Convention, which is now ineffective as a result of the patenting of plants and traits.»¹⁰¹ On the other hand, they discard option 3 and 4, because in such

¹⁰⁰ «The US jurisprudence has crafted a common law defence in extremely narrow terms in the wake of the leading case *Madey v. Duke University*. [...] The experimental use exemption can hardly be invoked against the alleged infringement of patent rights over germplasm used in breeding programs, regardless of their public or private nature. Thus, in the US, a licence agreement with the patentee is in any case required for gaining access to proprietary germplasm protected by a patent.» C. Chiarolla (2006), 'Commodifying Agricultural Biodiversity and Development-Related Issues', *The Journal of World Intellectual Property*, 9 (1), 25-60. See also Eisenberg S. R. (2003), 'Patent Swords and Shields', *Science*, Vol. 299; 64 USPQ2d 1737 (Fed. Cir. 2002).

¹⁰¹ Louwaars et al. (2009), p.57.

cases only «those parts of the genome that have not been altered by the innovation» would become available to breeders.

2.2.10. How to reduce ambiguity? Discussion of patent and PVP- related policy options

The above review has highlighted the remarkable degree of ambiguity that would be introduced in the Multilateral System if the judgement of whether access to a PGRFA is restricted is to be carried out by recipients on a case-by-case basis in each relevant jurisdiction. In particular, given the disparity of legal solutions, which can be found in different jurisdictions, if the Governing Body decides that the mandatory payment requirement shall not apply «in cases where commercialized products are available without restriction,» it may decide to establish a set of criteria or indicators to be used for assessing when the recipients, who have commercialized patented products in countries that have chosen options 3 to 5, shall make mandatory payments to the Benefit-Sharing Fund. However, such a solution would not be the optimal one from the point of view of clarity, transparency, legal certainty, equity and justice.

Relevant interpretative arguments have been put forward that when facilitated access to PGRFA is provided for «the purpose of utilization and conservation for research breeding and training for food and agriculture»¹⁰² under the Treaty, the subsequent commercialization of plant varieties derived from the Multilateral System is allowed (without reservations), even though the term «commercialization» is not expressly referred to among the purposes for which facilitated access shall be provided. For the sake of consistency, the factual analysis of whether access to a PGRFA is freely available for research and breeding or, on the contrary, is restricted by IPR claims, should be based on interpreting the same terms in the same way when they

¹⁰² Article 12.3(a) of the Treaty.

appear in different provisions of the Treaty. That is to say that even where patent law provides for a research exemption, if a breeder (or a farmer-breeder) is not allowed to commercialize a plant variety that he or she has bred by making use of patent-protected materials (that incorporate PGRFA from the Multilateral System), then the holder of the protected materials should incur benefit-sharing payments under the SMTA. *Mutatis mutandis* the same considerations should also apply to PGRFA that are protected under a *sui generis* plant variety protection system that follows the 1991 UPOV Act. In accordance with such line of arguments, all kinds of current IPR-related restrictions should incur benefit-sharing payments. This proposed solution would simplify monitoring compliance with the benefit-sharing requirement of the Treaty and broaden the amount of resources which could be made available through the Benefit-Sharing Fund.¹⁰³

A key related policy question is whether there is a need to change or clarify the definition of «available without restrictions» in SMTA. On the one hand, if the Governing Body decides that «[...] the mandatory payment requirement shall also apply in cases where commercialized products are available without restriction to others for further research and breeding,» the definition of products «available without restrictions» is no longer necessary and could be removed from the SMTA.

On the other hand, if the Governing Body decides to further postpone the above decision, a change to the definition of «available without restriction» may not be necessary. However, the Governing Body should consider clarifying the meaning of certain terms that are used in the definition and provide guidance on their practical application. In particular, a broad definition of «research and breeding» could be adopted to encompass all the relevant activities specified in Article 6 of the Treaty,

including farmers' breeding activities and the subsequent commercialization. This could promote the uniform interpretation of the SMTA across individuals and institutions that operate within the Multilateral System and increase legal certainty for users and providers of PGRFA.

Besides, in relation to the interpretation of the «access restriction» requirement for mandatory benefit-sharing payments under the SMTA, a future decision by the Governing Body should:

- clarify the application of relevant SMTA provisions and fence off the public domain status of materials in the Multilateral System;
- spell out the critical distinction between restrictions that may derive from the patenting of MLS materials *per se*, which in our view violate the SMTA, and all other patent-related restrictions that can trigger benefit-sharing;
- clarify that patents that cover PGRFA products under most current IP laws should be presumed to restrict access for research and breeding and fulfil the relevant benefit-sharing requirement of the SMTA.

¹⁰³ See options II.3 and II.4 at the end of the study.

2.3. How could compliance with the duties to pay benefit-sharing (and not to claim IPRs on the Material) be monitored and enforced in the Multilateral System?¹⁰⁴

2.3.1. Context

The parties of the ITPGRFA have agreed that they should not be directly responsible for enforcing the provisions of the SMTA. Providers of PGRFA «may have neither the capacity nor the willingness to monitor and/or enforce compliance by recipients with the terms of the Standard Material Transfer Agreement.»¹⁰⁵ This is not surprising because benefits flow to the Multilateral System rather than to the source of the material (i.e. the provider). Moreover, recipients may subsequently transfer PGRFA to third parties who will not have a contractual link with the initial source.

In the current System, the FAO is the legal person who represents the Governing Body (as the Third Party Beneficiary under the SMTA) and can act on its behalf in the context of dispute settlement.¹⁰⁶ Therefore, the FAO is empowered with legal standing (i.e. the right to act or being heard as a litigant) and monitoring rights to protect the interests of the Multilateral System.¹⁰⁷ In the case of a dispute over the interpretation of a particular SMTA, the dispute settlement process is set out in the various sub-options under Article 8.4 of the SMTA. Such a process involves a number of sequential steps. Failing amicable dispute settlement and mediation procedures, any dispute

concerning the terms of an SMTA may be submitted to an international arbitral tribunal and «[...] the result of such arbitration shall be binding.»¹⁰⁸

2.3.2. The Third Party Beneficiary

At its third meeting, the Governing Body adopted the Procedures for the Operation of the Third party Beneficiary (TPB).¹⁰⁹ In particular, under Article 4 of the TPB Procedures the Governing Body shall make available to the Third Party Beneficiary the information provided to it, in accordance with the provisions of the SMTA.¹¹⁰ The TPB may receive information on possible non-compliance with the obligations of the provider and recipient under a SMTA from the parties under the SMTA or any other natural or legal persons. However, no party and no natural or legal person has the duty to monitor compliance with the SMTA and, therefore, no entity is expected to do so. Thus, an effective and systematic monitoring of compliance by users with key SMTA provisions is unlikely to be undertaken, since no entity has a duty to do so. Besides, experts' opinions have provided conclusive evidence that even if NGOs were willing to undertake such a task, they would have no access to the information that would be required to undertake it.

In general, the information received by the TPB through the Governing Body shall only be used for the purposes of initiating dispute settlement procedures under the SMTA. The TPB has the right to request that the appropriate information, including samples as necessary, be made available by the

¹⁰⁴ Another duty that needs to be monitored and complied with regards possible instances of change of intent and the prohibition to use PGRFA received under an SMTA in research and development concerning chemical, pharmaceutical and other non-food/feed uses. This would include biofuels research on crops such as corn and rapeseed canola for biodiesel and sugar cane for ethanol.

¹⁰⁵ FAO (2006), 'Third Party Beneficiary, including in the Context of Arbitration', CGRFA/IC/CG-SMTA-2/06/Inf.4, Alnarp, Sweden, (24-28 April 2006).

¹⁰⁶ Articles 8.1 and 8.2 of the SMTA.

¹⁰⁷ Article 8.3 of the SMTA.

¹⁰⁸ Article 8.4(c) of the SMTA.

¹⁰⁹ Resolution 5/2009, IT/GB-3/09/Report, Appendix A at p. 28.

¹¹⁰ Article 4.1 of the TPB Procedures. The formal recipient of notifications (to be made by the providers and recipients of PGRFA) is the Governing Body. Thus, the GB receives notifications through the reports that are prepared the Secretariat of the Treaty. Therefore, such information would need to be subsequently transmitted to the TPB by the GB in order to initiate the envisaged non-compliance procedures.

parties to the SMTA. Except as may be required in the settlement of disputes and for the purposes specified in Article 9 of these procedures, information received by the TPB shall be treated as confidential. Further details on information to be provided to the Governing Body by the parties to the SMTA are specified in Annex 2, Part III of the TPB procedures.

Besides, Article 9 of the TPB procedures provides that the Third Party Beneficiary shall submit to the Governing Body, at each of its regular sessions, a report setting forth, *inter alia*: (a) the number, and a summary, of cases where it received information regarding non-compliance with the terms and conditions of a SMTA; (b) the number, and a summary, of cases where it initiated dispute settlement; (c) the number, and a summary, of disputes settled through amicable dispute settlement, mediation or arbitration; (d) the number, and a summary, of pending disputes; (e) and any legal questions that appeared in the context of dispute settlement and that may require the attention of the Governing Body.

To date, the work of the *Ad hoc* TPB Committee has focused on institutional aspects of the above-described monitoring and enforcement system, i.e. on finalizing the draft Mediation Rules under the TPB for their adoption by the GB at its fourth meeting, and on considering the application of the TPB Procedures to transactions related to non-Annex 1 materials transferred with the SMTA. The analysis of available documents and information shows that no cases of non-compliance were brought to the attention of the Third Party Beneficiary at the time of writing.

2.3.3. No disclosure of origin obligation under the MLS and the question of access from outside sources

The role of the Standard Material Transfer Agreement and «the way it can be used to keep track of transfers of materials and to

link their use to benefit-sharing is a very useful precedent.»¹¹¹ For instance, the CGIAR Centres have suggested that «the SMTA functions as a certificate of source, with the source or origin of the PGRFA being the Multilateral System itself.»¹¹² Thus, the SMTA may function as a certificate of source or compliance with the ITPGRFA.

While the issue of documentary evidence of the provenance of PGRFA can be resolved by presenting a copy of the SMTA to relevant checkpoints, the Treaty *per se* does not oblige parties to establish such checkpoints. By contrast, the Nagoya Protocol on ABS provides that: «To support compliance, each Party shall take measures, as appropriate, to monitor and to enhance transparency about the utilization of genetic resources. Such measures shall include: The designation of one or more checkpoints [...].»¹¹³ This

¹¹¹ SGRP (2007), 'A de facto Certificate of Source: the Standard Material Transfer Agreement under the International Treaty', at p. 3.

¹¹² CGIAR (2007), 'Submission by the International Agriculture Research Centres of the Consultative Group on International Agriculture Research to the Group of Technical Experts on an Internationally Recognized Certificate of Origin/Source/Legal Provenance (Addendum)', UNEP/CBD/GTE-ABS/1/3/ADD2, Lima, Peru, (22-25 January), at p. 3.

¹¹³ Article 13 of the Protocol. This article continues by stating that:
Designated checkpoints would collect or receive, as appropriate, relevant information related to prior informed consent, to the source of the genetic resource, to the establishment of mutually agreed terms, and/or to the utilization of genetic resources, as appropriate.
Each Party shall, as appropriate and depending on the particular characteristics of a designated checkpoint, require users of genetic resources to provide the information specified in the above paragraph at a designated checkpoint. Each Party shall take appropriate, effective and proportionate measures to address situations of non-compliance. Such information, including from internationally recognized certificates of compliance where they are available, will, without prejudice to the protection of confidential information, be provided to relevant national authorities, to the Party providing prior informed consent and to the Access and Benefit-sharing Clearing-House, as appropriate.
Check points must be effective and should have functions relevant to implementation of this subparagraph (a). They should be relevant to the utilization of genetic resources, or to the collection of relevant information at, *inter alia*, any stage of research, development, innovation, pre-commercialization or commercialization.

provision also states that: «A permit or its equivalent [...] made available to the [ABS] Clearing-House, shall constitute an internationally recognized certificate of compliance. [Such] certificate [...] shall serve as evidence that the genetic resource which it covers has been accessed in accordance with prior informed consent and that mutually agreed terms have been established, as required by the domestic access and benefit-sharing legislation or regulatory requirements of the Party providing prior informed consent.»

However, the Contracting Parties enjoy a great deal of flexibility in establishing checkpoints under the Nagoya Protocol on ABS as well as in choosing the types of information to be requested at such checkpoint or checkpoints. Therefore, a possible way to enhance transparency and the mutual supportiveness between the Nagoya Protocol and the ITPGRFA would be to amend the SMTA in order to request recipients to disclose, at plant variety protection and patent offices, that the materials for which protection is sought have been obtained from the Multilateral System and to inform the Governing Body accordingly. The disclosure of legal access from the MLS and related notifications should include a quote of accessions' unique identifier numbers. To conclude, parties, who endeavor to implement the Treaty and the Nagoya Protocol in a mutually-supportive manner, may envisage using the SMTA as an internationally-recognized certificate of compliance to be presented by resource users at all relevant checkpoints.

In general, documentation practices are well established in accordance with the SMTA's obligations to provide information and relevant notifications to the Governing Body, and the mechanism that is established to promote compliance by users with the SMTA (through the possible intervention of the Third Party Beneficiary) is sophisticated. However, on the one hand, many

stakeholders in the private sector feel that it is over-bureaucratic and too burdensome to handle documentation of huge numbers of SMTAs both as recipients and as providers of PGRFA. On the other hand, some outstanding concerns need to be addressed. Such concerns include the fact that no physical or legal person is given the duty to monitor compliance by recipients of PGRFA with their duty:

- to provide the requested information and/or to verify whether the provided information is correct;
- to monitor compliance with their duties to pay benefit-sharing;
- not to claim IP rights on the material in the form received; and
- not to use the material for other purposes than feed and food breeding and research.

Therefore, one may argue that if there is no active monitoring, no checkpoints and no tracking, there is a gap in the compliance mechanisms of the Treaty, despite the comprehensive documentation provisions of the SMTA.

Besides, it is not clear whether the TPB would be empowered to exercise its duties and responsibilities in relation to alleged Treaty violations, whose subject matter concern materials accessed through sources outside the MLS.¹¹⁴ In other words, this case would occur when a user acquires PGRFA in the MLS from an intermediary source that does not require such user to enter into an SMTA as prescribed by the Treaty. Such cases may occur:

when an intermediary holds or receives from a source outside the MLS duplicate PGRFA materials that others may have included into the MLS as Annex 1 collections; or

in violation of the obligation to enter into a new SMTA as the provider, when a recipient

¹¹⁴ See, for instance, the *Case study on in-trust germplasm use and exchange by the CGIAR and US Sorghum Collections* in Box 1.

of PGRFA further transfers the material. (This issue also links back to the issues of how to effectively monitor compliance with such SMTA obligation).

Besides the highlighted general limitations of the mechanism to promote compliance by users in the MLS, these examples show that the contractual nature of the monitoring and legal standing rights of the Third Party Beneficiary may also present limitations in all those cases where the use of PGRFA can possibly take place in the absence of an SMTA between a provider and a recipient of such resources.

2.3.4. Does the Treaty and its SMTA allow tracking?

Article 12.3(b) of the Treaty states that: «access shall be accorded expeditiously, without the need to track individual accessions and free of charge, or, when a fee is charged, it shall not exceed the minimal cost involved.» In particular, the tracking requirement of this provision needs to be interpreted in conjunction with Article 12.4, which envisages the use of standard material transfer agreements for any transfer of PGRFA within the MLS.¹¹⁵ These provisions indicate that the ITPGRFA does not require a burdensome mechanism to track individual accessions, as providers of PGRFA do not have the obligation to keep track of all subsequent transfers of the material. However, the conclusion of SMTAs will be automatically recorded to ensure that some benefits flow back to the Multilateral System when a product based on MLS materials is commercialized on the market.¹¹⁶ Therefore,

¹¹⁵ Article 12.4 of the ITPGRFA states that: «facilitated access [...] shall be provided pursuant to a standard material transfer agreement, which shall [...] contain the [...] the benefit-sharing provisions set forth in Article 13.2(d)(ii) and other relevant provisions of this Treaty, and the provision that the recipient of the [PGRFA] shall require that the conditions of the MTA shall apply to the transfer of [PGRFA] to another person or entity, as well as to any subsequent transfers of those [PGRFA].»

¹¹⁶ Besides, in the case of non-compliance by recipients with the SMTA, the latter provides for

the SMTA is the instrument that would enable the Governing Body to follow the chain of transfers between individual providers and recipients of PGRFA.

The SMTA requires recipients to send the following notifications to the Governing Body:¹¹⁷ recipients of PGRFA «must inform the Governing Body once every two calendar years about all SMTAs in which [they] are the Provider of germplasm, including transfers to a third party of material [they] previously received under an SMTA, and also including transfers of PGRFA under Development. The information to be provided is to include the following:

- A copy of the completed SMTA; or
- In the event that the Provider does not transmit a copy of the SMTA
 - i. ensuring that the completed SMTA is at the disposal of the Third Party Beneficiary as and when needed;
 - ii. stating where the SMTA in question is stored, and how it may be obtained; and
 - iii. providing the following information:
 - a) The identifying symbol or number attributed to the SMTA by the Provider;
 - b) The name and address of the Provider;
 - c) The date on which the Provider agreed to or accepted the Standard Material Transfer Agreement, and in the case of shrink-wrap, the date on which the shipment was sent;

binding international arbitration and confers upon the FAO so-called third party beneficiary's rights to represent the interests of the Multilateral System.

¹¹⁷ This information is based on SGRP (2009), at page 69, which provides a compendium of the recipients' obligations regarding the notifications that are required under the SMTA. See also IT/GB-4/11/12, appendix 1: Draft Updated Standard Material Transfer Agreement.

- d) The name and address of the Recipient, and in the case of a shrink-wrap agreement, the name of the person to whom the shipment was made; [and]
- e) The identification of each accession in Annex 1 to the SMTA, and of the crop to which it belongs.

If recipients of PGRFA «become liable to make payments to the Governing Body on commercializing a product, [they] must submit annual reports together with [their] annual payments.» If recipients of PGRFA «opt for the alternative form of financial liability, [they] must do so by signing Annex 4 [of the SMTA] and returning it to the Governing Body.»

However, against this backdrop, we have to be aware that most biopiracy cases under the CBD have been disclosed by NGOs. Therefore, an important question is the following: are SMTA visible for the public? Have NGOs a hypothetical possibility to track PGRFA transfers through the SMTA? The website www.singer.cgiar.org seems to offer the possibility to see at least some accessions in the Multilateral System. Further questions regard whether the further implementation of the information technology tools of the ITPGRFA will allow some degree of transparency for all seed banks which have included their collections into the MLS as well as whether the information that can be made publicly available could allow monitoring PGRFA transfers from a first recipient to a second one. At present, there are indications from experts that most of the information that would need to be made publicly available in order to allow monitoring PGRFA transfers in a diffuse and decentralized manner will be treated as confidential information.

Therefore, even if the information technology tools of the Treaty could potentially play a very important role in

enhancing transparency in the Multilateral System, the confidential nature of great part of the information that can be collected through the SMTA, as well as information on the additional conditions regarding the further transfer of PGRFA under development, would not be visible outside the system. This is to say that little relevant information can be expected to be made available to the public – aside from information that would be presented to the Governing Body through the consolidated reports that are prepared by the Treaty’s Secretariat. To conclude, while the types of information that can be made publicly available are (and will be) subject to *closed* decision-making in the context of the ongoing work on establishing appropriate information technology tools for the Treaty, it is apparent that the alleged confidential nature of most information, which is required to effectively monitor compliance would not be made available outside the Treaty’s system. This will hamper the ability of external third parties, which may hold legitimate interests in the correct functioning of the MLS, to monitor compliance and to bring alleged cases of non-compliance to the attention of competent authorities, including the Governing Body and the Third Party Beneficiary.

2.3.5. The Ad hoc Working Group on Procedures and Operational Mechanisms to Promote Compliance

«By Resolution 2/2009, the Governing Body established an *Ad hoc* working group to negotiate and finalize the procedures and operational mechanisms to promote compliance and address issues of non-compliance [...].»¹¹⁸ The Working Group met twice, in February 2010 and in January 2011, and will submit the above draft procedure and operational mechanism and a draft resolution, including transitional

¹¹⁸ IT/AHWG-C 1/10/Report, available at: ftp://ftp.fao.org/ag/agp/planttreaty/gb4/ahwgc1/ahwgc1_repe.pdf

arrangements for the commencement of the work of the Compliance Committee, for their adoption by the Governing Body at its fourth session.

However, it shall be noted that such procedures and measures apply only to compliance by the Contracting Parties with the Treaty's provisions – not to compliance by users of PGRFA with the obligation to pay benefit-sharing. Therefore, they are logically distinct from the procedures and mechanism, which are predisposed for monitoring and enforcing compliance by providers and recipients of PGRFA with the benefit-sharing terms and conditions of the SMTA (see, *inter alia*, the below section).

2.3.6. CGIAR practice

The Multilateral System also includes the *ex situ* collections of Consultative Group on International Agricultural Research, which are supporting components of the Treaty. Eleven CGIAR Centres and the Tropical Agricultural Research and Higher Educational Center (CATIE) have signed agreements with the Governing Body, whereby they have placed their collections within the Multilateral System.¹¹⁹

Article 2 (b) (iv) of the Agreement between the CGIAR and the Governing Body provides that «Centres are to take appropriate measures, in accordance with their capacities, to maintain effective compliance with the conditions of the MTAs for non-Annex 1 material, and shall promptly inform the Governing Body of cases of non-compliance. [...] Centres have volunteered to take similar measures for Annex 1 material.»¹²⁰

However, the Centres have made a 'Statement' setting out that they undertake to

¹¹⁹ The Agreements between FAO, acting on behalf of the Governing Body of the ITPGRFA, and the Centres of the CGIAR, which were signed on 1 January 2007, available at: <http://www.planttreaty.org/art15_en.htm>, [accessed on 25 February 2009].

¹²⁰ SGRP (2010), SMTA Guide at p. 16.

take the following steps when faced with instances of non-compliance:¹²¹

- to request a written explanation and notification to the recipient that a violation is thought to have occurred;
- to inform the Governing Body of the perceived violation;
- to notify the IPR-granting authority in the relevant country of the possibility that the MTA has been violated, and to bring to their attention the fact that the grant of IPRs may have been inappropriate;
- to cooperate with the Secretariat of the Governing Body of the Treaty; and
- to present reports concerning perceived violations of the MTA to the Governing Body at its regular sessions.

To conclude, while a set of actions will be undertaken by the CG Centres to address all the alleged cases of non-compliance *that are brought to their attention*, there seems to be an important loophole in the systems regarding the lack of effective mechanisms and procedures to monitor whether or not instances of non-compliance may have occurred.

2.3.7. Concluding remarks

The above review of the Treaty's mechanisms to monitor and enforce compliance with the recipients' duty to pay benefit-sharing and other duties shows that the Treaty can arguably be said to have established a comprehensive institutional

¹²¹ This wording indicates that CG Centres will not be tracking or monitoring the use and exchange of accessions, but they wait that «somebody» will inform them regarding alleged situations of non-compliance with the terms and conditions of the SMTA. Therefore, the above paragraph, which speaks about «appropriate measures to maintain effective compliance» with the SMTA, appears to be weak, including because no third party would have access to the information that is required to undertake such monitoring activities.

mechanism that aims to promote compliance with the Treaty's ABS obligations. Such mechanism comprises *inter alia*: dispute settlement procedures and mandatory international arbitration; third party beneficiary's rights under the SMTA; a complex system of notifications between the parties to an SMTA, the Governing Body and the TPB; the establishment of information technology tools; and the CGIAR Centres' commitment to address instances of non-compliance through established procedures. However, notwithstanding its administrative and institutional complexity, the Treaty's mechanisms to monitor and enforce compliance appear to rely on the assumption that all recipients will act in compliance with the SMTA and perform their notification duties under the SMTA. However, one may assume that recipients, who are not in compliance with the duty to pay benefit-sharing (or with the prohibition to patent materials in the form received from the MLS), are likely to hide information that would trigger the available remedies and procedure. For such cases, the above described mechanism appears inadequate to effectively monitor and enforce compliance. The fact that the Treaty's system neither provides for nor enables third parties, who may have legitimate interests in the proper functioning of the MLS, to undertake some subsidiary monitoring functions (because of the alleged commercial and/or confidential nature of SMTA-related information) may only worsen the above identified transparency problem in the Multilateral System.

Besides, it must be emphasized that the above mechanism and its different operational elements have never been tested against reality – *i.e.* no cases of misappropriation or other instances of non-compliance have been considered or resolved through the above procedures and institutional mechanisms. Therefore, the monitoring and compliance system of the Treaty needs to be kept under review once it becomes fully operational. Such review,

including its external review, which can provide a measure of the overall transparency of the system, may eventually show the emerging bottlenecks that due to its complexity as well as the loopholes that are not currently covered by the newly-established compliance and monitoring framework. However, if such framework is not fundamentally improved in order to allow a transparent, diffuse, decentralized monitoring of ABS obligations under the Treaty (or by other appropriate means), it is highly questionable that it will ever ensure compliance. Besides these institutional remarks, the following concluding sections will elaborate further some options to improve the benefit-sharing mechanism of the Treaty.

2.4. Comparison of options to broaden the product-base on which benefits-sharing payments are to be calculated *vis-à-vis* the need to improve the feasibility to monitor and enforce compliance with SMTA obligations

2.4.1. Context

Aside from the potential effectiveness of the monitoring and enforcement mechanism under the SMTA of the Treaty, whether or not monetary benefits will accrue to the benefit-sharing Fund ultimately depends on the rules that establish when the users of PGRFA are required to make such payments. In other words, to date, the fact that no user has made such payments depends, in first instance, on the fact that allegedly no user has triggered all the cumulative requirements that must be fulfilled before one can legitimately be said to owe benefit sharing to the Treaty's Fund. This raises the question of whether the mandatory payment requirements of the SMTA need to be revised to allow broadening the product base on which benefits-sharing payments are to be calculated in order to increase the

potential volume of truly additional contributions to the Benefit-Sharing Fund.¹²²

2.4.2. Options to reform the requirements for annual payments on a product-by-product basis under Article 6.7 of the SMTA

In order to increase the amount of resources that can be made available through the Benefit-Sharing Fund of the Treaty and, in particular, contributions by commercial users of the Multilateral Systems, the following two options can be envisaged:

OPTION I: to change the requirements to make annual payments on a product-by-product basis (Article 6.7 of the SMTA) by requiring that such payments be made for all commercialized products that incorporate MLS materials regardless of whether such ‘products’ are available without restrictions;¹²³ or

OPTION II: to develop an interpretation of the concepts underlying the notion of «access restrictions» that would broaden the product base on which benefit-sharing payments may be calculated. The following sub-options provide categories of products, whose commercialization may be (separately or cumulatively) considered to trigger benefit-sharing payments under a revised SMTA, namely:¹²⁴

- 1) cytoplasmic male sterile (CMS) varieties;
- 2) hybrid varieties;
- 3) PVP protected varieties under 1991 UPOV-type legislation;

- 4) varieties covered by patent claims, regardless of the possible existence, and scope of, the research exemption; and
- 5) varieties that incorporate genetic use restriction technologies (already covered under the current SMTA).

2.4.3. Comparison of proposed options and conclusions

The difference between CMS hybrids and non CMS-hybrids in terms of broadening the potential product base for benefit sharing under the Treaty is that CMS-hybrids (option II.1) do entail a stronger form of restriction on access for research and breeding than non-CMS hybrids would do.¹²⁵ However, since CMS-hybrids are a particular type of three-way cross hybrids, if the Contracting Parties were to decide that all hybrids should be subject to benefit sharing payments (option II.2), CMS-hybrids would also be comprised within the relevant product base, which would be remarkably larger.

It was suggested above that the access restriction requirement could be interpreted to trigger benefit sharing payments for all UPOV 91 protected varieties (option II.3). Under this option, the relevant restrictions on access would be legal in nature (and would not derive from the plants’ mode of reproduction as for CMS breeding and other hybridization techniques). Some farmers, civil society groups and a few Contracting Parties have opposed benefit-sharing from the Multilateral System because benefits under the current systems are generated through patents. Agro-biotechnology patents have been criticized for being inappropriate to promote suitable agriculture and plant breeding, because of *inter alia* their overreaching claims and the absence of the

¹²² Article 19.3(f) of the ITPGRFA.

¹²³ See Article 13.2(d)(ii) of the ITPGRFA. This option presents the advantages of providing a level playing field – i.e. the same situation for all users of PGRFA in the MLS. This would also make the users’ obligations easier to monitor and situations of non-compliance easier to be detected.

¹²⁴ For an in-depth analysis of these sub-options, see above sections 2.2.3 to 2.2.10.

¹²⁵ Trade secrecy of the CMS mother and restorer lines essentially provides absolute protection of the entire germplasm. However, certain types of CMS-hybrids are known to be prone to environmentally induced fertility restoration.

breeders' exemption and the farmers' privilege.¹²⁶ Therefore, the adoption of a broad interpretation of the access restriction requirement, which would not make benefit sharing exclusively reliant on the patenting of MLS-derived products, would increase the legitimacy of the Multilateral System overall, especially in light of the dilemmas arising out of the different perceptions and criticisms of stakeholders on seed and crop patenting policies of companies.

Finally, Option II.4 simply suggests that all the varieties that are covered by patent claims, when commercialized, should trigger the benefit-sharing obligations of the Treaty, regardless of the possible existence, and scope of, the research exemption under patent law in the concerned jurisdictions – *i.e.* those in which the patent is valid and the commercialization of the patented variety has take place. In comparison with the first three options, this one is obviously the narrowest in terms of its potential product-base coverage. Still, it would improve the current situation in terms of legal clarity, transparency and increased feasibility of an effective monitoring and enforcement system to promote compliance by users.¹²⁷

It shall also be noted options II.1 and II.2 may operate independently from, or cumulatively with, option II.3 and II.4. This is because hybrid varieties may or may not be protected by PVP or patents and vice versa. Therefore, the most comprehensive modality to implement option II would be to combine option II.2 with option II.3 and II.4, namely by qualifying as access restrictions that trigger benefit sharing all hybrid varieties, including those not protected by PVP (*i.e.* kept as trade secrets) as well as all PVP and patent protected varieties. This would also improve the feasibility to

monitor and enforce compliance with SMTA obligations.

All the above modalities to implement options II would present the advantages of increasing the product base for benefit sharing payments, while at the same time providing legal clarity and transparency. Such increased clarity and transparency hinges upon distinguishing the products that are subject to benefits sharing from those which are not subject to it on the basis of agreed normative assumptions on how to interpret «access restrictions.»

Besides the above set of alternative modalities to implement option II, it was already highlighted that, at its third meeting, the Governing Body had decided to postpone the review under Article 13.2(d)(ii) of Treaty to its fourth meeting.¹²⁸ Aside from the discussion on whether 1.1% (less 30%) of sales (*i.e.* gross incomes from commercialization) is the most appropriate level of payments to be made to the benefit-sharing Fund of the Treaty,¹²⁹ it would improve indeed the current situation if Parties could agree on removing the so-called access restriction requirement under the SMTA in accordance with the proposed option I (see above). The consequence would be that the Treaty's benefit-sharing mechanisms would become generally applicable to all sales of products derived from the Multilateral System (*vis-à-vis* the present situation where only a not-well-identified share of transactions concerning MLS-derived patented seeds, GURTs and other PGRFA subject to licensing restrictions are subject to mandatory payments).

Therefore, the proposed measure not only would make immediately available a larger amount of additional resources for

¹²⁶ See, for instance, Tansey, G. and Rajotte, T. (eds.) (2007), *The Future Control of Food. A Guide to International Negotiations and Rules on Intellectual Property, Biodiversity and Food Security*, (London, UK: Earthscan).

¹²⁷ See above sections 1.5.1 and 1.6.

¹²⁸ This section is based in part on the following forthcoming book: C. Chiarolla (2011), *Intellectual Property, Agriculture and Global Food Security: The Privatisation of Crop Diversity*. Edward Elgar.

¹²⁹ Article 13.2 (d) (ii) of the Treaty states that «[...] the Governing Body [...] may, from time to time, review the levels of payment with a view to achieving fair and equitable sharing of benefits [...]»

supporting crop development projects and participatory plant breeding, implementing Farmers' Rights and protecting agricultural TK, but would also increase transparency and legal certainty in the Multilateral System. In addition, the level of mandatory benefit sharing under the Treaty is relatively low, for instance, in comparison with an average VAT tax that for the decade 1996-2006 was above 19% in EU 25 Countries.¹³⁰ Such percentage corresponds to the level of payments that all of European citizens make on the sales of any products that they buy in the EU, including seeds.

Against this backdrop, the proposed option I may not seriously be said to prejudice the financial viability of seed industries, breeders and consumers alike, while it would show their solidarity and commitment to sustainability, development and international equity. Besides, whenever the proposed revision of the benefit sharing conditions of the SMTA might lead to inequitable outcomes, the Governing Body has the power «to establish different levels of payment for various categories of recipients who commercialize such products [and ...] to exempt from such payments small farmers in developing countries and in countries with economies in transition.»¹³¹ These safeguard measures, which are explicitly envisaged under the Treaty, should persuade all stakeholders to finally drop their reservations to the urgently needed revision of the Treaty's benefit-sharing conditions to ensure it can meet its goals in a mutually-supportive way with the CBD and the Nagoya Protocol on ABS.

¹³⁰ European Commission (2006), *VAT Rates Applied in the Member States of the European Community*.

¹³¹ Article 13.2(d)(ii), second paragraph, of the ITPGRFA.