

The Role of the Global Crop Commons in Supporting Livelihoods and Food Security in Developing Countries

Louvain-la-Neuve, 13 September 2012

Improving lives through biodiversity research



Who is Bioversity International?

Bioversity is a non profit organization with offices in 20 countries and working on projects in over 100 countries with about 300 research partners.

Bioversity is the world's largest international research organization dedicated solely to the conservation and use of agricultural biodiversity.

Bioversity undertakes scientific research on the sustainable use of agricultural biodiversity - benefiting people in the developing world being at the centre of our work.



Where we work:

A staff of around 360 operating from 16 locations around the world



Bioversity Vision & Purpose

Our Vision:

A world in which smallholder farming communities in developing countries are thriving and sustainable

Our Purpose:

To investigate and promote the use and conservation of agricultural biodiversity in order to achieve better nutrition, improve smallholders' livelihoods and enhance agricultural sustainability





Bioversity Strategic Priorities

Use of biodiversity by smallholder farmers

Demonstrate how smallholder farming communities can significantly improve their livelihood and nutrition, and ensure more sustainable and resilient agricultural systems through the improved use of biodiversity with the potential to benefit 320 million people.

Conservation and availability of plant diversity



Support the development of an innovative operational global programme of *in situ* conservation of plant diversity, tested and applied on at least 30 crops and their wild relatives, and 100 priority forest tree species on three continents.



Significantly improve the availability of plant genetic resources through conservation, information management and a supporting policy environment.



The importance of agricultural biodiversity

Three key global challenges for agriculture

- Hunger and malnutrition
- Rural poverty
- Environmental degradation

The potential of agricultural biodiversity

- Nutritional health gains
- Improving rural livelihoods
- System sustainability and resilience
- Improved ecosystem services

Access to genetic resources is key!



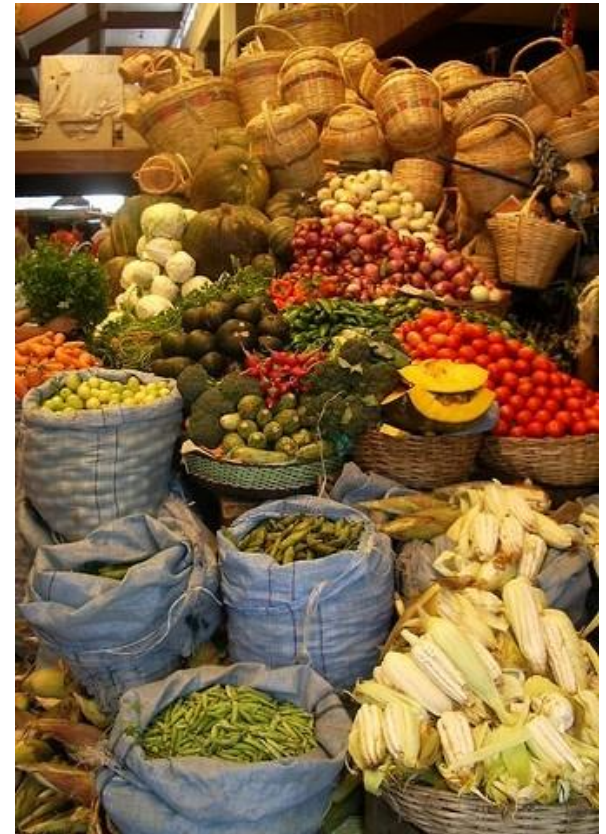
Exacerbating factors

- Climate change
- Population growth
- Water scarcity
- Market dynamics



International 'slow-down' in availability of PGRFA

- Since mid-1980s, the world has been engaged in protracted discussions on how to control, manage, use and share benefits from genetic resources.
- Period marked by high levels of political and legal uncertainty at organizational, national and international level.
- The impact on how countries, companies, universities treat GR has been profound, increasingly careful, restrictive approaches.
- Widespread phenomenon of research and conservation efforts being frustrated due to inability to get access to PGRFA.



1983: The International Undertaking on Plant Genetic Resources

- **Past: Free exchange** of material among countries
- PGRFA are the **common heritage of humankind**
- But different interpretations



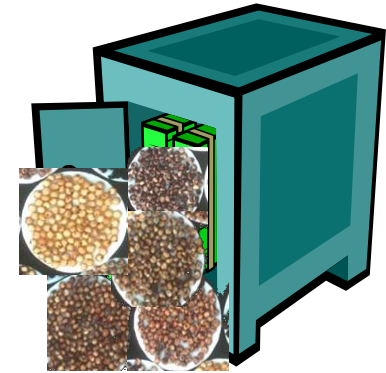
Commission on Plant Genetic Resources for Food & Agric.



A paradigm shift

From **public domain/common heritage of humankind** to **'hyperownership'**

- Increased use of intellectual property rights
- Assertion of sovereign rights over genetic resources



Negotiation phase

- 1992: Convention on Biological Diversity (CBD)
 - 1994: World Trade Organization and the TRIPS Agreement
- 1994-2001: Negotiation of a binding instrument to replace the International Undertaking:
- Long and difficult negotiations
 - North – South divide
 - Introduction of notion of ‘multilateral system’



Why are things so complicated?

From ‘common heritage of human kind’ to ‘national sovereignty’ and private forms of control: a confluence of factors:

- Rise of biotechnology creating possibilities for private sector investment in plant breeding
- Concomitant pressures to globalize IPR protection
- Relative lack of capacity of most developing countries to take advantage of these technologies and IPRs
- Dramatically increased levels of private sector investment in agriculture and drastic decreases in public investment
- Both real and alleged accounts of unfair takings, or “biopiracy”
- Counter assertions of sovereign rights of control over genetic resources
- High levels of political controversy and legal uncertainty



Key questions

1. Who is the owner of the material held in the genebanks? The country of provenance? The country where the collection is located (often developed countries)? The farmers that selected the varieties? Humanity?
2. If new varieties are the result of applying technology to some genetic material, why the rights of the material provided are not recognized in the final product?



Why do PGRFA deserve a special regime of ABS?

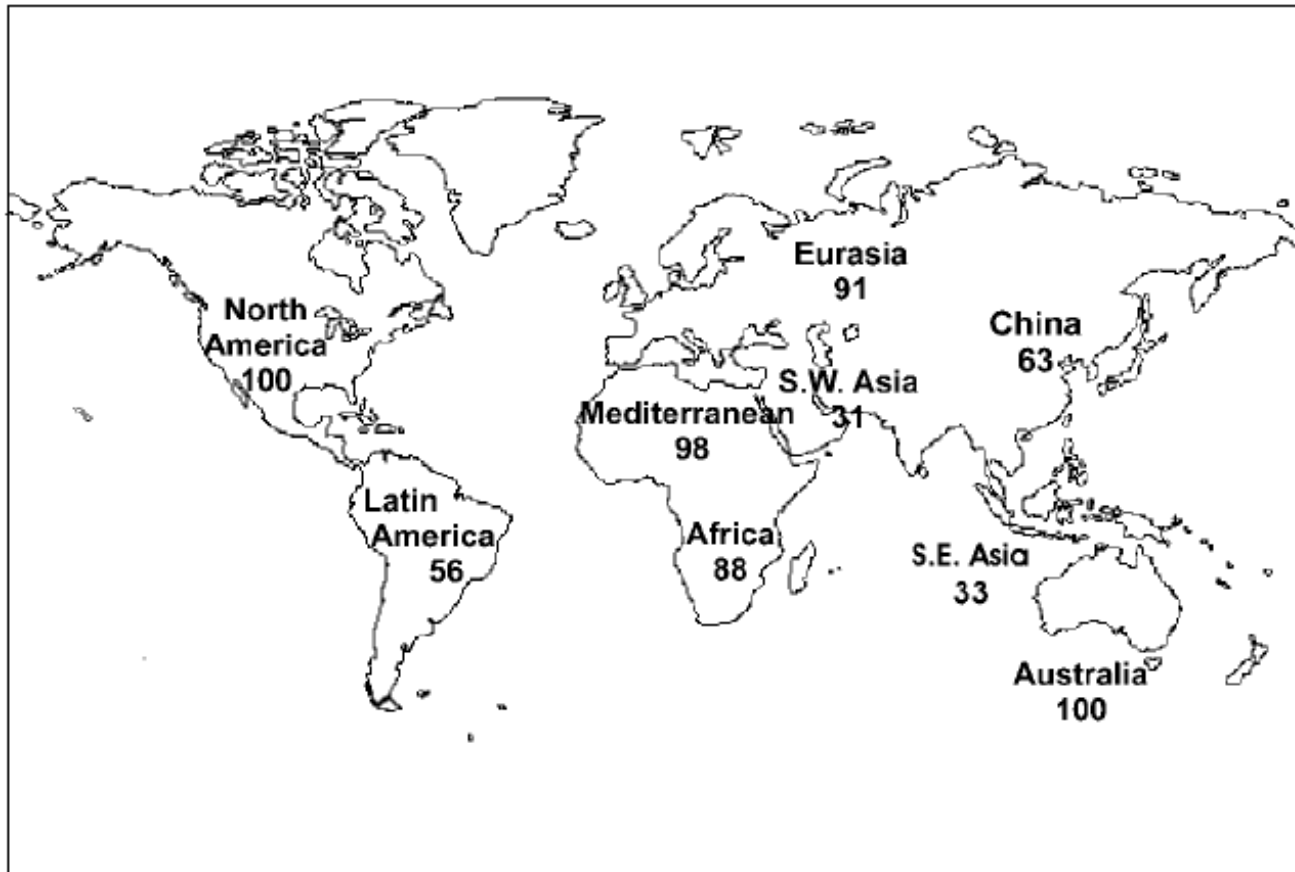
Differences between PGRFA and Wild PGR

PGRFA	Wild PGR
Valued for intra-specific diversity	Less knowledge on intra-specific diversity
Are essentially products of human selection and depend upon farmers for their continued survival	Are products of natural selection and sustain themselves
PGRFA diversity concentrated around centres of origin and diversity of cultivated plants and their wild relatives	Distribution of wild PGR diversity largely independent of human activities (though limited and displaced by human activities)
Extensive 'movement' and breeding of crop diversity due to farmers exchanging seed and cross breeding with exotic material to maintain/increase productivity	Evolution of wild PGR is dependent on natural forces of selection
Global access is required for the continued agricultural development	Global access is an issue for wild relatives of crops and species of potential economic use, including potential pharmaceutical use



Why do PGRFA deserve a special regime?

Countries are interdependent on PGRFA



RESULT:

2001: The International Treaty (IT)






- Adoption of a binding instrument on the basis of the International Undertaking but compatible with the Convention on Biological Diversity



The International Treaty
ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE



The Treaty in a nutshell

-  **Entered into force** in June 2004
-  **Today:** Signed and ratified by 127 countries & the EU
-  **Scope:** Plant genetic resources for food and agriculture under the control of the Contracting Party and in the Public Domain
-  **Objectives:** 1) Conservation and sustainable use of plant genetic resources for food and agriculture
2) Equitable sharing of benefits arising out of their use, in harmony with the CBD
-  **Structure**
 - Introduction
 - General Provisions
 - Farmers' rights
 - The Multilateral System of Access and Benefit-Sharing
 - Supporting Components
 - Financial Provisions
 - Institutional Provisions



The Multilateral System (MS)

Access

- Common pool of plant genetic resources for food and agriculture for the most important crops for the purpose of research, breeding and training.
- Access to all materials in the multilateral system is facilitated for all parties to the Treaty.



and Benefit Sharing

- A percentage of the benefits gained through commercialization go to a common fund managed by the Governing Body of the Treaty.



Instrument: The Standard Material Transfer Agreement (SMTA)

- **No intellectual property rights over the material in the form received**
Benefit sharing: when the new product is commercialized subject to restrictions for research and breeding
- Modality 1: 1.1% of the sales of the product
- Modality 2: 0.5% of the sales of any product of the same crop

The SMTA is a template. It cannot be changed!!

But: Additional conditions for PGRFA under development



When to use the Standard Material Transfer Agreement

In the following cases:

1. When there is a real transfer
2. When the material is a PGRFA
3. When the purpose is research, breeding or training
4. When it is for food and feed purposes



The Multilateral System

ABS under the multilateral system of the Treaty	ABS in an average national regime inspired by the CBD
No prior informed consent, materials are available.	Prior informed consent from the holder of genetic resources is required
Free, or only administrative costs	Costly procedures + up-front payments
A standard material transfer agreement contains all conditions for access, use and benefit-sharing	Bilateral agreement between provider and recipient of the resources, according to the mutually agreed terms
The material is transferred expeditiously, no need to track each transfer	Continuous reports about the use and movement of the resources are required
A percentage of the benefits from commercialization go to a common fund and, from that fund, mainly to farmers and conservation programmes in developing countries	When agreed, a percentage of the benefits flow back to the provider of the material



Focus on access and benefit sharing

The Nagoya Protocol on access and benefit sharing

- Threatened to erase gains of the Treaty
- Recognizes the ITPGRFA
- It is the framework for determining rules for all GRFA not under the Treaty



The current state of ABS

Significant *de jure* progress, but many issues still to address.

Wavering levels of commitment.
Low levels of follow-through on the Treaty.

Additional work is required to get architecture of overall ABS systems finalized, working, and self-justifying



Obstacles to success

- Lack of implementation of the International Treaty
- Lack of legal certainty with generally acceptable conditions
- Reluctance of private sector to access material

This requires action both:

- ✓ At national level
- ✓ At international level



The Joint Programme on Treaty Implementation

- In 2005, the Treaty Secretariat, Bioversity International and FAO started discussions of Joint Programme to work with countries implementing the Treaty
- Main focus is on the national implementation of the multilateral system of access and benefit sharing
 - Technical legal and administrative issues
 - Supportive documentation/information technology assistance



The Joint Programme on Treaty Implementation (cont'd)

- Support national stakeholders/experts to:
 - identify/analyse factors to be addressed for the country to participate in the multilateral system
 - draft policies, laws and or administrative decisions/procedures
 - hold workshops to consider options, develop drafts, raise awareness



Research and advocacy

- Understanding the benefits, costs and barriers to participating in internationally coordinated systems of conservation and use of GRFA
- Analyzing options for ABS policies to support optimal cooperation

May 2009 IT/GB-3/09/Inf.15



The International Treaty
ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

THIRD SESSION OF THE GOVERNING BODY

Tunis, Tunisia, 1 – 5 June 2009

EXPERIENCE OF THE INTERNATIONAL AGRICULTURAL RESEARCH CENTRES OF THE CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH WITH THE IMPLEMENTATION OF THE AGREEMENTS WITH THE GOVERNING BODY, WITH PARTICULAR REFERENCE TO THE USE OF THE STANDARD MATERIAL TRANSFER AGREEMENT FOR ANNEX I AND NON-ANNEX I CROPS.

Introduction

1. At its Second Session, the Governing Body endorsed the use of the Standard Material Transfer Agreement by the International Agricultural Research Centres, for plant genetic resources for food and agriculture other than those listed in Annex I of this Treaty and collected before its entry into force, with an interpretative footnote or series of footnotes that indicated that certain of its provisions should not be interpreted as precluding such use of the SMTA.¹ It also decided that it would review these measures during its consideration of the Standard Material Transfer Agreement at its current session.²
2. Pursuant to the decision of the Governing Body, and in accordance with the Agreement between the Governing Body and the International Agricultural Research Centres (IARCs) of the Consultative Group on International Agricultural Research (CGIAR), the Secretary held consultations with Bioversity International, on behalf of the IARCs, to seek their views and input to assist the Governing Body in its review of the said measures.
3. Following the consultations, the Secretary received a report from Bioversity International on behalf of the IARCs of the CGIAR, based on system-wide consultations and describing their experiences in the use of the Standard Material Transfer Agreement for both Annex I and non-Annex I crops. The Report is contained in the Appendix to this document, in the form received from Bioversity International on behalf of the IARCs of the CGIAR.
4. The report submitted by the CGIAR Centres highlighted that the "Centres still have only limited experience with the use of the SMTA to date" and that "the impression of the Centres is

¹ Paragraph 68, IT/GB-2/07-Report.

² Ibid.

For reasons of economy, this document is produced as a limited number of copies. Delegates and observers are kindly requested to bring it to the meetings and to refrain from asking for additional copies, unless strictly indispensable. Meeting documents are available on-line at <http://www.bioversityinternational.org>



November 2010

The Impact of Climate Change on Countries' Interdependence on Genetic Resources for Food and Agriculture

An Executive Summary

The System-wide Genetic Resources Programme (SGRP) of the CGIAR coordinated the development of a Background Study Paper entitled "The Impact of Climate Change on Countries' Interdependence on Genetic Resources for Food and Agriculture" for the Twelfth Session of the FAO Commission on Genetic Resources for Food and Agriculture. The purpose of the paper was to contribute to the Commission's consideration of policies and arrangements for access and benefit-sharing for genetic resources for food and agriculture. This document is an executive summary of that paper. The table of contents and authors are reproduced in Box 1.

Introduction

This paper investigates the impact that climate change will have on countries' interdependence on genetic resources for food and agriculture. The extent of countries' interdependence on categories or sources of genetic resources is an important consideration when evaluating and/or developing policies and norms oriented to the conservation, management, access to and use of such resources.

Climate change

With respect to climate change, the most relevant prediction for this study is that, on average, global temperatures will likely increase worldwide by 3.2 degrees per decade. There will be both increases and decreases in precipitation. Droughts and floods will increase (IPCC 2007). The areas with climates that are now suited to a particular suite of crops, forages, livestock, trees, microbes, and aquaculture will shift in ways that are more favourable to a minority of countries and less favourable to the majority.

Climate modelling indicates that growing season temperatures in the tropics and subtropics by 2050 will be greater than the extremes recorded from 1950 to 2006. The hottest season to be recorded in the temperate regions will become the norm in many places. Extreme seasonal heat will severely lower the output of production systems (Barnett and Nayler 2005).

Looking ahead to 2050, the effects of global warming for maize, millet, and sorghum in Africa, for example, will be disastrous and will require concerted regional crop breeding and the conservation of crop genetic resources.

The majority of African countries will have novel climates over at least half of their current crop area by 2050. Of these countries, 75 percent will have novel climates with analogs in the current climate of at least five other countries, suggesting that international movement of germplasm will be necessary for adaptation. A more troubling set of countries – largely the former Soviet Union countries – will have climates with few analogs for any crop (... countries, such as Sudan, Cameroon and Nigeria, whose current crop areas are analogs to many future climates but that are poorly represented in major gene banks – [provide] promising locations in which to focus future genetic resource conservation efforts (Burke et al. 2009)."

Climate change will be highly variable around the world. According to current models some countries/regions will actually benefit as a result of having more, longer growing days as well as increased rainfall. These countries are in the minority. Most countries will experience climate change that work to their disadvantage, with temperature increases, longer droughts, and increasingly frequent, violent storms. The challenges that have already been challenging their agricultural production systems. Based on existing models, it is reasonable to predict that as all countries' climates change, many countries' climate will become more similar to one another, with only a few countries, climates, becoming, relative to the situation today, more different from most other countries' climates. As such, many countries may be headed towards common future conditions, having relatively fewer countries that can provide the genetic resources for needed food system adaptation to climate change in the future.



ISSUES IN AGRICULTURAL BIODIVERSITY



Crop Genetic Resources as a Global Commons

CHALLENGES IN INTERNATIONAL LAW AND GOVERNANCE

EDITED BY


Michael Halewood, Isabel López Noriega and Selim Louafi



Collaboration and Capacity building

Includes updated FAQs (Appendix 7), August 2019

Prepared by the System-wide Genetic Resources Programme (SGRP) of the Consultative Group on International Agricultural Research (CGIAR)



Booklet of CGIAR Centre Policy Instruments, Guidelines and Statements on Genetic Resources, Biotechnology and Intellectual Property Rights

Version III

Updated to include policy instruments and guidelines related to the management of PGRFA under the framework of the International Treaty on Plant Genetic Resources for Food and Agriculture

Rome, August 2010



Produced by the System-wide Genetic Resources Programme of the CGIAR Genetic Resources Policy Committee

Document to be cited as: SGRP, 2010. Booklet of CGIAR Centre Policy Instruments, Guidelines, Statements on Genetic Resources, Biotechnology and Intellectual Property Rights. Version 4. System-wide Genetic Resources Programme (SGRP) for Agriculture, CGIAR Genetic Resources Policy Committee (SGRPC). Bioversity International, Rome. URL: http://www.cgiar.org/cgicr/related/Policy_Instruments_Version3.pdf

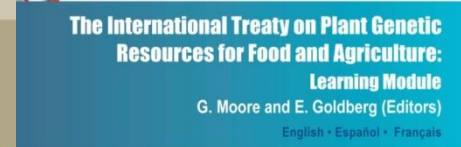
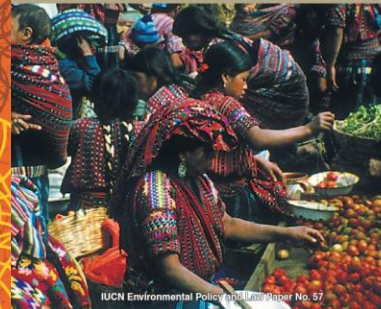
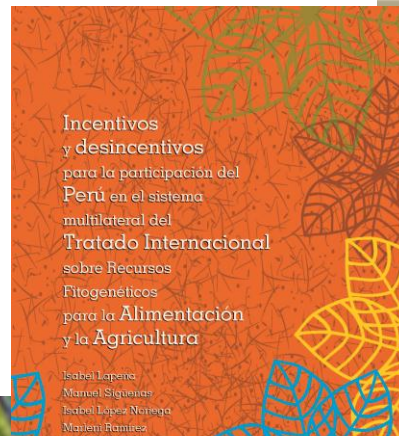
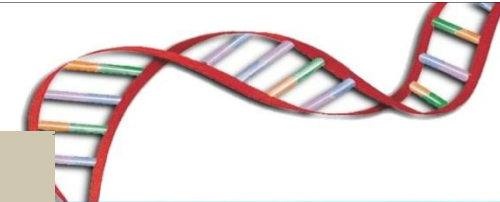
Note: This is a "living document" which will be updated on a continuous basis. It is available at http://www.cgiar.org/cgicr/related/Policy_Instruments_Version3.pdf. Document to be cited as: SGRP, 2010. Guide for the CGIAR Centres' Use of the Standard Material Transfer Agreement. Bioversity International, Rome, Italy.

Collaboration

Identifying options for CGIAR system-wide approaches to implementing international legal obligations, addressing grey areas

Capacity building

Supporting partners in national programmes and regional organizations to implement policy and address grey areas



Supporting use through information systems

- What material is available
- Passport, characterization, evaluation data
- Climate data, geographic data
- Allowing them to request materials easily
- Generating information for easy reporting to the office of the Third Party Beneficiary
- Global Information on Germplasm Accessions building on SINGER, EURISCO, GRIN





EURISCO
Network



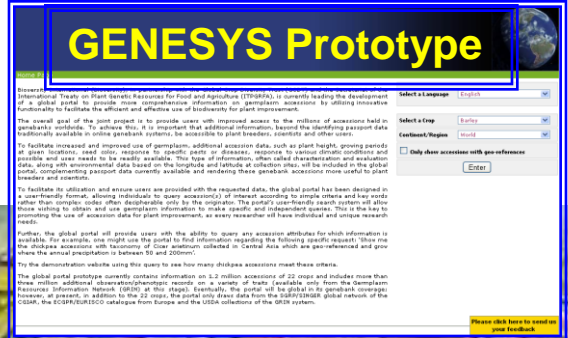
USDA-ARS (GRIN)
National genebanks
Etc.

GRIN-Global,
etc

GENESYS
Data
Repository

SINGER
Network

SINGER Knowledge makes
the difference




Supporting use through pre-breeding

These kinds of internationally organized projects generate information about materials in the MLS and, in some cases, lead to new value-added PGRFA to be included in the MLS

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A CGIAR CHALLENGE PROGRAMME



Generation Challenge Programme
CULTIVATING PLANT DIVERSITY FOR THE RESOURCE POOR

- GCP news
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Science for better crops in the tropics

While farmers in the developing world face agricultural challenges largely similar to their counterparts in industrialised countries, access to resources for mitigation or the majority of crop farmers in the developing world, low soil fertility, crop pests and diseases are often beyond their reach.

a critical tipping point between healthy and hungry

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GCP socio-economic studies now online

Results from a series of GCP-commissioned socio-economic studies are now available online. The studies were designed to complement ongoing ... [link](#)

GSS proposals: Invitation for re-submission and extended deadline

Following on from our recent announcement on GCP's 3rd Call for GCP Genotyping Support Service proposals, we wish to update you on thr... [link](#)

GCP's GSS launches 3rd call for proposals

Deadline for application For the GCP's GSS call, proposal submission is between 1st November 2009 and 15th December 2009. ... [link](#)

2009 ARM materials now online

From 20–23 September 2009, GCP

ular biology and harnessing the rich global stocks of Generation Challenge Programme (GCP) of the **National Agricultural Research (CGIAR)** aims to bridge **programmes**, GCP creates and provides a new **et farmer needs**, as reflected in our **mission, vision and amework**.

arming systems

vanced plant science to improve crops for greater food Id.

have the **tools to breed crops in marginal environments**

search...



GIPB GLOBAL PARTNERSHIP INITIATIVE FOR PLANT BREEDING CAPACITY BUILDING
harnessing plant genetic resources for development

a platform facilitated by FAO 

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global plant breeding clinic | e-journal club | growth network | questions & answers | blogs | PBForum

PBBC

- organizations & networks
- literature & views
- databases & tools
- e-learning
- multimedia
- people



apb-sabrao
keynote addresses from the August 2009 Conference

Genotyping Support Service: 3rd call for proposals



Genotyping Support Service: 3rd call for proposals by the Generation Challenge Programme (GCP)

GSS aims to help spread the benefits of marker technology in the developing world through:

- * Technology access: facilitating developing world researchers' access to top molecular marker technologies for germplasm analysis;
- * Capacity-building: training researchers in data analysis and knowledge application; and,
- * Sustainability and spread: to build a core of researchers who can continue to use the technology, independent of GCP support.

This call is being launched in conjunction with a call from the Global Crop Diversity Trust, which focuses on supporting the evaluation of crop genetic resources. Together, these coordinated and complementary calls widen the support that plant scientists can obtain. The GSS is offered to plant breeding programmes and germplasm collections in the developing world to facilitate their access to molecular marker technologies for the analysis of germplasm. GSS hires high-throughput, cost-effective genotyping facilities; beneficiaries of the service will send their samples there for analysis, with the GSS covering the costs. GSS is not



Technology co-development and transfer platform

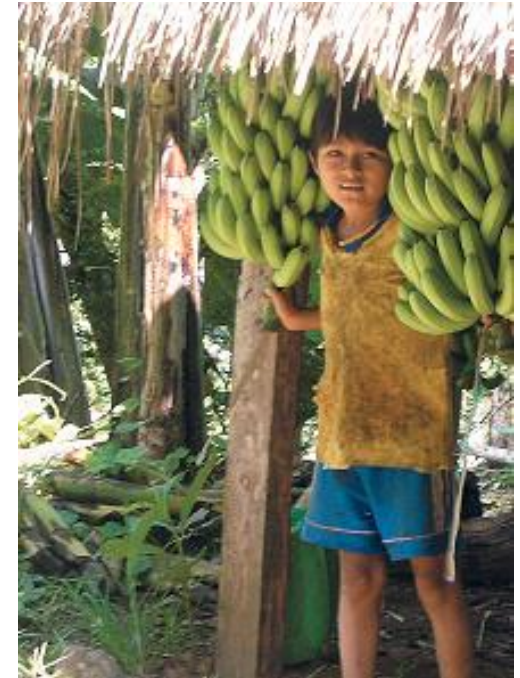
- Rio six-point action plan recommended building a technology transfer Platform
- For the benefit of small scale farmers in developing countries
- Platform operates within the Funding Strategy of the Treaty
- International and national institutions with skills and experience in agricultural technologies, in the public and the private sector



What is at risk?

Lack of access will prevent addressing the challenges of food and nutrition security and climate change because:

- Access to GR is essential to productivity increases and adaptation to changed conditions
- Important diversity is still not available to breeders and needs to be accessed from *in situ* conditions or collections located in different countries from where they will be needed in the future



Conclusions

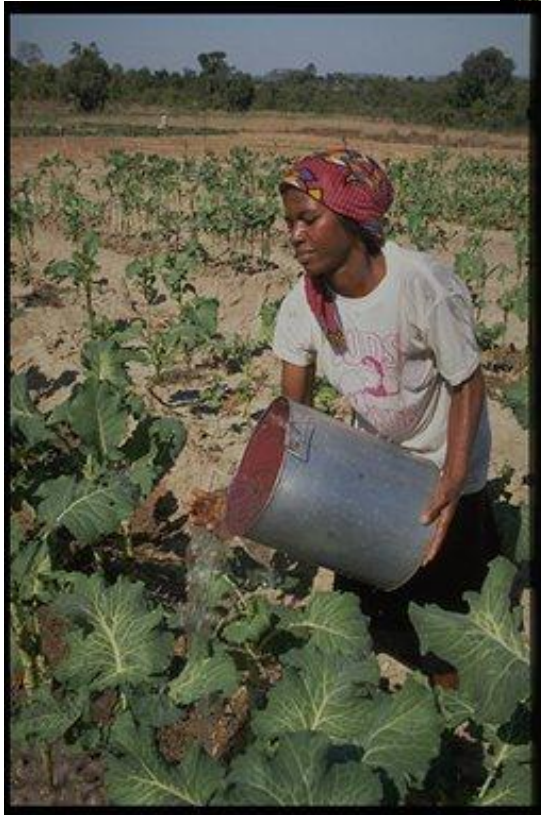
Important steps have been taken

- ✓ **Legal framework: The Treaty**
- ✓ **Global Crop Diversity Trust**
- ✓ **Steps towards conservation strategies**
- ✓ **Building a global information system**
- ✓ **Safety duplication...**

But a lot needs to be strengthened

- **Collaboration for rational conservation**
- **Collaboration for utilization**
- **Capacity building in conservation and breeding**
- **National implementation of the Treaty**





THANK YOU!

