

# Towards a rational Hemispheric Conservation Strategy for plant genetic resources for food and agriculture in the Americas



*A working document prepared by the six sub-regional networks in the Americas*

January 2008

## Disclaimer

This document has been developed by the regional plant genetic resources networks in the Americas, namely the Caribbean Plant Genetic Resources Network (CAPGERNet), the Plant Genetic Resources Network for North America (NORGEN), the Andean Network on Plant Genetic Resources (REDARFIT), PROCISUR's Sub-program for Plant Genetic Resources (REGENSUR), the Mesoamerican Network on Plant Genetic Resources (REMERFI) and the Amazonian Network on Plant Genetic Resources (TROIPIGEN). For more information about the Networks, contact the regional focal person mentioned in the document

The objective of this Strategy is to provide a framework for the efficient and effective *ex situ* conservation of the most important crop diversity collections in the Americas region, and to promote the availability of these plant genetic resources for food and agriculture.

The Global Crop Diversity Trust (the Trust) provided support towards this initiative and considers the document, particularly those portions pertaining directly to the Trust's mandated areas of interest, to be an important input to the Trust's own planning and work. We expect the Strategy to continue to evolve, as appropriate, and for the Networks to lead this on-going process.

The Regional Strategy is the strategy of the region. The Trust does not take responsibility for its contents or for the accuracy or completeness of the information contained in the document. Please direct specific questions and comments to the regional focal person mentioned in the document.

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# Towards a rational Hemispheric Conservation Strategy for plant genetic resources for food and agriculture in the Americas

## Summary

Plant genetic resources for food and agriculture (PGRFA) in the Americas and globally are threatened. The lack of capacity and coordination to rationally conserve and optimally use these resources weakens all efforts toward food security and sustainable development in the Americas. In view of these constraints, PGRFA national programs and networks were created in most American countries aiming at the conservation and utilization of PGRFA for improved crop varieties and food security.

The Global Crop Diversity Trust (the Trust) aims to support the long-term maintenance of an efficient and effective arrangement for the ex situ conservation of the most important crop collections around the world. A first filter for eligibility is provided by the eligibility principles of the Trust. Meeting these principles is the minimum requirement for a collection to be eligible for support:

- The plant genetic resources are of crops included in Annex 1 or referred to in Article 15.1 (b) of the International Treaty
- The plant genetic resources are accessible under the internationally agreed terms of access and benefit sharing provided for in the multilateral system as set out in the International Treaty
- Each holder of plant genetic resources for food and agriculture commits to its long term conservation and availability
- Each recipient of funds from the Trust shall undertake to work in partnership with the aim of developing an efficient and effective global conservation system.

To help achieve this goal, the Trust is supporting the development of conservation strategies that will guide the allocation of resources to the most important and needy crop diversity collections, assisting them to meet the criteria required for long term conservation funding. The conservation strategies are identifying the collections and conservation service providers that will be of highest priority for support by the Trust. The strategies are identifying appropriate roles for the holders of these collections as well as for other individuals and institutions concerned with the conservation, regeneration, documentation and distribution of crop diversity.

Meetings of representatives of the six sub-regional networks in the Americas took place between 2004 and 2007 to discuss and develop a hemispheric strategy and analyze the framework and opportunities offered by the Global Crop Diversity Trust. Network representatives, together with international partners, formed a Hemispheric Strategy Coordination Group, i.e. a task force to provide leadership in the formulation of the hemispheric strategy. Metadata, reflecting the priority allocated to crops by countries and the current state-of-the-art of both *ex situ* collections and genebanks throughout the Americas were collected and analyzed during the Fifth SIRGEALC (Montevideo, Uruguay; November 2005). The planning process in the Americas finished in May 2007 with a multi-stakeholder workshop in Trinidad and Tobago, where CAPGERNet (the Caribbean network) generated the data and outputs needed to complete the strategy. At the VI SIRGEALC (Mexico city, November 2007), the Plant Genetic Resources Network representatives and their regional and international partners met to further prioritize the threatened crops and collections suitable for regeneration by the programme sponsored by the Trust.

***The America's Strategy goal aims to foster the development of cooperation and collaboration amongst all members of the America's, strives for the conservation and sustainable utilization of all crop genetic diversity in the America's and fosters the development of a rational and efficient long-term development plan for conservation and sustainable use of PGRFA.***

The agreed objectives of the Hemispheric Strategy are as follows:

- **Objective 1:** *A PGRFA Hemispheric Information System (PGR-HIS) with diversity characterized and rationalized - To foster cooperation at the hemispheric level while recognizing sub-regional and national needs, i.e. supporting national collections through an information platform in the context of the hemispheric strategy.*
- **Objective 2:** *The safe storage and exchange of germplasm - To foster the development of national and regional capacity for safe storage and exchange of germplasm through national, regional and hemispheric efforts and networks.*
- **Objective 3:** *Conservation of PGRFA in perpetuity - To furnish high priority to the safeguarding of unique and valuable diversity comprised in ex situ collections of PGRFA in the Americas.*
- **Objective 4:** *Promoting PGRFA use - To foster innovation by promoting the identification of useful materials for direct use, enhancement or plant breeding programs.*

Some important and relevant outputs of the America's Strategy include:

- An assessment of the most important crops and collections in the hemisphere echoing the basic principles and funding criteria for eligibility by the Trust;
- A framework for the ex-situ conservation in perpetuity of National and Regional collections;
- Promotion of collaborative arrangements throughout the hemisphere for the rationalization and management of the prioritized PGRFA;
- Strengthening communication and coordination within and among the countries;
- Promoting the use of germplasm to researchers, breeders and ultimately farmers, and,
- Building institutional and individual PGR capacity throughout the hemisphere.
- The development of consortia and project-based arrangements as an essential mechanism to help increase the probability of success

*The hemispheric conservation strategy is a document that can and should be updated and modified by the PGR constituency and will help guide conservation and use of PGR for years to come*

# 1. Introduction

The Hemispheric Strategy is a flexible, concept based document covering plant genetic resources (PGR) conservation for the Americas. The development of an efficient and effective conservations strategy required a team based approach from a large number of stakeholders as no one country or collection can do it all. One of the major goals of the Strategy is to help establish a framework for cooperation and collaboration on PGR activities throughout the Hemisphere. In approaching the major issues and challenges, crops including those beyond the species lists of the International Treaty on Plant Genetic Resources (ITPGRFA) Annex 1 and important collections were considered at Network and Hemispheric meetings. Further development, refinement and review is required, thus the Strategy should be viewed as a dynamic one.

The agreed on “Guiding Principles” for the Hemispheric Strategy include the “Development of an efficient and effective conservation and utilization strategy for the America’s plant genetic resources and the identification of important (high priority) collections and crops within the Hemisphere. The goals include outlining key future work plan elements including:

1. Identification of important collections for the long term conservation of PGR
2. Identification of important crops in the hemisphere
3. Identifying preliminary upgrading and capacity building needs.
4. Fostering cooperation and collaboration and development of forward looking plans

Capacity building in the context of the genebanks collaboration and cooperation is critical. Security of the collections varies considerably from ultra-modern to those barely able to survive. Limited “back-up” of the collections is taking place and this was highlighted in many of the activity lists. There is much room to cooperate and collaborate amongst ourselves as well as other interested groups around the world. That said, team members recognized that there may be overlap in the collections from country to country and growing region to growing region. This remains a challenge for genebank managers.

As computerization of data increases, genebank managers will be better equipped to share information, identify overlaps and duplication and help to develop a more rational approach to conservation efforts. Other major areas for joint work include characterization and rejuvenation. Many collections have relatively small datasets and many are in need of re-invigorating prior to the loss of important materials. Hemispheric wide projects could be developed so genebanks can share the workload and provide benefits for many. Both, the crop approach, as well as the collection approach were used to help define the future direction for the hemispheric strategy, and are detailed below.

## Where are the materials?

Agreed on criteria for preliminary assessment of the relevance (importance) of the collections:

1. Wild species
2. Local genetic diversity
3. Conservation of genes
4. Landraces
5. Uniqueness
6. Complementarities
7. Centers of origin
8. Importance for food and agriculture
9. Relevance for indigenous and local communities
10. Local adaptation to specific agro-ecological growing conditions.

Criteria for preliminary assessment of important crops include a combination of economic and botanical considerations. During the Montevideo Network meeting (November 2005) members agreed to score or rank each key crop to help delineate crops with a broad acceptance as important for the hemisphere. While this ranking is far from complete, it provides an initial starting point for further development and integration of new information as it becomes available.

## 2. Hemispheric strategy overview

<b>Strategy title:</b>	<i>A rational hemispheric conservation strategy for plant genetic resources for food and agriculture in the Americas</i>
<b>Contact details</b>	
<b>Name of regional focal person:</b>	<b>Dr. Campbell Davidson</b>
Position:	Research Manager
Name of organization:	Semiarid Prairie Agricultural Research Centre; Agriculture and Agri-Food Canada
Full address:	Box 1030, Swift Current, Saskatchewan, S9H 3X2, Canada
Telephone, fax and e-mail:	(+306) 778 7270; (+306) 778 3186; <a href="mailto:cdavidson@agr.gc.ca">cdavidson@agr.gc.ca</a>
<b>Name of facilitator:</b>	<b>Brigitte Laliberté</b>
Position:	Scientist
Name of organization:	Global Crop Diversity Trust
Full address:	c/o Bioversity International and FAO; Via dei Tre Denari 472/a, 00057 Maccaresse, Italy
Telephone, fax and e-mail:	(+39) 06 611 8291; (+39) 06 619 79661; <a href="mailto:info@croptrust.org">info@croptrust.org</a>
<b>Countries and sub-regional networks involved</b>	
<b>Countries:</b>	Member countries of the six sub-regional networks in the Americas
<b>Sub-regional networks:</b>	<b>CAPGERNet</b> (The Caribbean Plant Genetic Resources Network) <b>NORGEN</b> (The Plant Genetic Resources Network for North America) <b>REDARFIT</b> (The Andean Network on Plant Genetic Resources) <b>REGENSUR</b> (PROCISUR's Sub-program for Plant Genetic Resources) <b>REMERFI</b> (The Mesoamerican Network on Plant Genetic Resources) <b>TROPIGEN</b> (The Amazonian Network on Plant Genetic Resources)
<b>Goal: An overarching statement</b>	
<p>The America's Strategy aims to foster the development of cooperation and collaboration amongst all members in the continent, strives for the conservation and sustainable utilization of all crop genetic diversity in the Americas, and fosters the development of a rational long-term development plan for conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA).</p>	
<b>Objectives</b>	
<p>The objectives of the Hemispheric Strategy, listed as per the priority assigned by network members, are as follows:</p> <p><b>Objective 1:</b> <i>A PGRFA hemispheric information system with diversity characterized and rationalized</i> - To foster cooperation at the hemispheric level while recognizing sub-regional and national needs, i.e. supporting national collections through an information platform in the context of the hemispheric strategy.</p> <p><b>Objective 2:</b> <i>The safe storage and exchange of germplasm</i> - To foster the development of national and regional capacity for safe storage and exchange of germplasm through national, regional and hemispheric efforts and networks.</p> <p><b>Objective 3:</b> <i>Conservation of PGRFA in perpetuity</i> - To furnish high priority to the safeguarding of unique and valuable diversity comprised in <i>ex situ</i> collections of PGRFA in the Americas.</p> <p><b>Objective 4:</b> <i>Promoting PGRFA use</i> - To foster innovation by promoting the identification of useful materials for direct use, enhancement or plant breeding programs.</p>	
<b>Methods and outputs</b>	
<p>Meetings of representatives of the six sub-regional networks in the Americas took place between 2004 and 2007 to discuss and develop a hemispheric strategy and analyze the framework and opportunities offered by the Global Crop Diversity Trust. Network representatives, together with international partners, formed a Hemispheric Strategy Coordination Group, i.e. a task force to provide leadership in the formulation of the hemispheric strategy. Metadata, reflecting the priority allocated to crops by countries and the current state-of-the-art of both <i>ex situ</i> collections and genebanks throughout the Americas were collected and analyzed during the Fifth SIRGALC (Montevideo, Uruguay; November 2005). The planning process in the Americas finished in May 2007 with a multi-stakeholder workshop in Trinidad and Tobago, where CAPGERNet (the Caribbean network) generated the data and outputs needed to complete the strategy.</p> <p>The hemispheric strategy will be implemented by the national PGRFA programs and sub-regional network members with backstopping from the CG centers in the region (Bioversity International, CIAT, CIP and CIMMYT), sub-regional centers (CATIE and CARDI) and IICA/PROCs/SICTA (the agency of the Inter-American System to strengthen agricultural development and well-being for rural populations).</p> <p>The most relevant outputs of the America's Strategy are:</p> <ul style="list-style-type: none"> <li>- An assessment of the most important crops and collections in the hemisphere echoing the basic principles and funding criteria for eligibility by the Trust;</li> <li>- National and regional collections conserved <i>ex situ</i> in perpetuity;</li> <li>- promotion of collaborative arrangements throughout the hemisphere for the rationalization and management of the prioritized PGRFA;</li> <li>- Strengthening communication and coordination within and among the countries;</li> <li>- Promoting use of germplasm to researchers, breeders and ultimately farmers; and,</li> <li>- Building institutional and individual PGR capacity throughout the hemisphere.</li> <li>- The development of consortia and project-based arrangements as an essential mechanism to help increase the probability of success.</li> </ul>	
<b>Crops involved:</b>	Crops (genera and species prioritized during the network meetings) listed in Tables 1 and 2 of this document.
<b>Date of completion:</b>	October 2007

### 3. The Planning Process of the Hemispheric Strategy in the Americas

Meetings of representatives of the six sub-regional networks in the Americas took place between 2004 and 2007 to discuss and develop a hemispheric strategy and analyze the framework and opportunities offered by the Global Crop Diversity Trust. Network representatives, together with international partners, formed a Hemispheric Strategy Coordination Group, i.e. a task force to provide leadership in the formulation of the hemispheric strategy. Metadata, reflecting the priority allocated to crops by countries and the current state-of-the-art of both *ex situ* collections and genebanks throughout the Americas were collected and analyzed during the Fifth SIRGEALC (Montevideo, Uruguay; November 2005). The planning process in the Americas finished in May 2007 with a multi-stakeholder workshop in Trinidad and Tobago, where CAPGERNet (the Caribbean network) generated the data and outputs needed to complete the strategy. Further details of the planning process are in Appendix 1.

### 4. Strengths, Weaknesses, Opportunities and Threats

The need and rationale for a hemispheric strategy was further supported during a SWOT analysis carried out by network members as shown in Box 1.

#### Box 1. The Americas' PGRFA world: A SWOT analysis.

##### Strengths

- Large number of genebanks with ample diversity of crops and wild relatives in established collections.
- Great range of new genetic materials with many crops and relatives native to the hemisphere.
- Major international agriculture research centers to partner with – Bioversity International (based in Colombia), CIP (Peru), CIAT (Colombia) and CIMMYT (Mexico), as well as important regional centers – CATIE (Costa Rica) and CARDI (Trinidad and Tobago).
- Large well established PGRFA programs in conservation and sustainable utilization in several countries (e.g. USA, Brazil and Canada).
- IICA – an important agricultural cooperation organization in the Americas with a well established backbone through the entire continent.

##### Weaknesses

- Communication difficulties – issues related to language, infrastructure, documentation systems, geographical access, logistics, etc.
- Vast geographical areas from the Antarctic to the Arctic – temperate to tropical; low elevation to high elevation.
- Limited knowledge and public awareness of genetic diversity of many crops, especially in the tropical areas.
- Differences in policy approaches (e.g. Decision 391 of the Andean Community of Nations, ABS Protocol for Central America) and the involvement in, or ratification of, international agreements and instruments (ITPGR, CBD, FAO, etc.).
- Political stability and related issues.
- Not all countries are Parties to the ITPGR and thus may not be eligible for funding without agreeing to a “solemn undertaking”.
- Limited human resources.
- Inadequate enhancement efforts of under-utilized or neglected crops.

##### Opportunities

- Large number of partnerships possible – bilateral and multilateral.
- Well established sub-regional networks, but with varying degree of operation and coordination.
- Many potential ‘new’ crops for direct and indirect use in markets, communities, farmers’ groups, etc.
- Creative skills of Members in solving problems.
- Commitment to common goals, particularly as they relate to the goals of the GPA and the Global Crop Diversity Trust.

##### Threats

- Shortage of financial resources – un-sustainability.
- Range in development of technical expertise - variable levels between countries and sub-regions.
- Range of infrastructure development - many of which require substantial input and/or investment.
- Environmental variables, e.g. hurricanes, flooding, extreme cold and heat, extreme wet and dry conditions, etc.
- Rapid genetic erosion, especially in small island states.
- Safe storage of duplicates (back-ups) is not complete.

## 5. Goal of the Hemispheric Conservation Strategy

*The **Hemispheric Conservation Strategy in the Americas** aims to foster the development of cooperation and collaboration amongst all members in the continent, strives for the conservation and sustainable utilization of all crop genetic diversity in the Americas, and fosters the development of a rational long-term development plan for conservation and sustainable use of plant genetic resources for food and agriculture.*

The Hemispheric Conservation Strategy in the Americas is divided amongst four major operational elements and four objectives to bring together key players in the PGRFA area in the continent as a firm attempt to develop an effective and efficient network of genetic resource conservation efforts. The overarching statement of the strategy complements the relevant priority activities of FAO's Global Plan of Action (GPA), the International Treaty on PGRFA and is in line with the objectives of the Global Crop Diversity Trust<sup>1</sup>. It is important to recognize that resources are being contributed from multiple sources including national, regional and international governments, and organizations such as the GCDT.

### The strategy's operational elements

- 1 Organizational and Structural
  - Developing different ways and means to implement effective and efficient conservation programs
  - Design/implement effective cooperation mechanisms
- 2 Scientific and Technical
  - Strengthen/Establish research linkages with a variety of stakeholders to streamline operational aspects of genebank management
  - Characterization of critical germplasm
  - Sharing of technical information
- 3 Resources - Financial - Human
  - Identification of resource requirements
- 4 Policy – Legal
  - Understanding national and regional policy initiatives
  - Sharing information on national laws and obligations

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### Organizational and Structural elements

National programs are the foundation of the Regional and Global efforts to promote international cooperation, access to and transfer of PGRFA and the related technology, and mutual capacity building. Effective national programs provide a strong link between in-country activities and those at the regional (and global) level. By establishing and fostering linkages from the conservation and management to the development and utilization of PGRFA through the six sub-regional networks, the strategy can promote exchange of materials and related technologies while enhancing the utilization of germplasm. In addition, the multi-lateral cooperation mechanisms established in the context of the America's Strategy can serve to help set priorities for action, review policy, and provide means whereby crop-specific and regional views can be presented to various organizations and institutions.

### Scientific and Technical elements

*Ex situ* collections should enable users to respond to new challenges and opportunities. Typically, most accessions have not been well characterized and evaluated, which generally leads to the under-utilization of collections and failure to identify their full value. During the networks' discussions, lack of characterization and evaluation was indicated as a major limitation to use PGRFA in breeding programs. Lack of access to materials and variable research linkages can isolate scientists and institutions. In this context, the America's Strategy aims at facilitating innovative research in plant breeding through the

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<sup>1</sup> Information related to the Trust can be found in Appendix 2 and at [www.croptrust.org](http://www.croptrust.org).

identification of accessions for introduction into genetic enhancement and plant breeding programs. Promoting coordination and linkages is a crucial task between conservation and improvement activities by targeting collecting expeditions, optimizing sampling strategies and regeneration methodologies, identifying gaps in collections, forming core collections, and to make such material available to as broad a range of users as possible. Some examples of enhanced cooperation in the scientific and technical areas include:

- Characterization and evaluation of critical germplasm to promote plant breeding which results in higher levels of genetic diversity in crops and agricultural systems.
- Research linkages to streamline operational aspects of genebank management.
- Identification of germplasm of potential value for direct use by farmers or in on-farm programs.
- Sharing of useful technical information, for instance, through a reliable and accurate data exchange network and user-friendly databases and protocols.

### **Financial and Human Resource elements**

The importance of properly trained personnel to achieve improvements in PGRFA conservation and use is undisputable. At a time when financial support to many national programs is threatened, funding for human resources and training has become limited. The lack of trained scientific and technical personnel in many developing countries remains a real challenge. Programs which combine technical training with exposure to the many disciplines, including management, policy and legal fields, appear limited. The participation of countries with limited national capacity in such PGRFA training programs (e.g. many of the least developed countries and Small Island states in the Americas) is particularly important, as it gives them access to information, technology and materials. In view of this, the building of a Hemispheric Strategy requires not only technical and scientific elements, but substantial support to human resources. Some examples include:

- Identification of human resource requirements.
- National commitment to provide sustainable funding for national programs and projects, with regional or international support seen as a complement to domestic efforts.
- Development of regional capacity through training and establishment of effective collaborative arrangements between relevant institutions in developing and developed countries.

### **Policy and legal elements**

Policy, legal and institutional issues are increasingly confronting PGR workers and national programs. Some issues include: phytosanitary issues on transboundary movement of PGRFA, plant breeders rights and related intellectual property rights issues, exchange, and transfers under new PGRFA international frameworks. As a result capacity building becomes ever more important to provide national programs with tools to address these issues.

Some National programs in the Americas have developed policy and legal elements to meet national conservation and development goals, and related international obligations but refining, strengthening or implementation of such policies is still a challenge. Many countries in the Americas have signed, and ratified or adhered to, the new International Treaty on Plant Genetic Resources for Food and Agriculture (see Appendix 3 for detailed status). In view of this, governments should review and reinforce access, quarantine and other regulations regarding the import and export of genetic materials for food and agriculture. The Hemispheric Strategy planning process has provided an opportunity for exchange of experiences and information sharing about the potential for harmonization of these legal and policy topics. Some examples include:

- Understanding national, regional and international policy initiatives and agreements especially for those countries not Party to the International treaty
- Sharing information on national laws and obligations.
- Exploring the harmonization, when/if possible, of policy frameworks including those relating to access.
- Opportunities for National genebanks in Countries that have not acceded to the ITPGRFA.

## 6. Objectives

The objectives of the Hemispheric Strategy, listed as per the priority assigned by network members, are as follows:

### ***Objective 1: Plant Genetic Resource Hemispheric Information System (PGR-HIS) with diversity characterized and rationalized***

- Fostering cooperation at the hemispheric level while recognizing regional and national needs (supporting national collections through the regional and hemispheric networks). Strengthen/develop strategic multilateral alliances conducive to shared facilities, resources and information with the intent to achieve a rational system of conservation.
  - Information will be entered into a PGR Hemispheric Information System (PGR-HIS) and distributed via a web interface
  - Developing an assessment method for key collections in the hemisphere and building a database of where these collections are, what are their strengths and weaknesses, importance on a national and regional and hemispheric basis.
    - Computerization of key records and making information available
    - Identification of duplication in collections while examining the potential for back up of key collections
    - Conducting regular updates of information on collections, progress made on characterization and rejuvenation. Importance of the collection: value, uniqueness, range of diversity within the collection and in the wider gene pool;
- The Possible Elements
  - Implement a documentation system that allows for the rapid and efficient exchange of information
  - Develop ways and means of reporting on status of important - critical collections
  - Documenting the capacity for germplasm conservation and management:
    - Identification of necessary human resources, facilities and genebank management systems required to maintain the crop-PGR diversity.
- The Challenge
  - Understanding the need for safety duplication and back-up while avoiding unneeded, cost ineffective duplication and fragmentation framed within national or regional laws/policies.
  - To find or develop an effective information sharing mechanism that is simple, practical, efficient and cost effective.
    - Such a mechanism would take into account issues raised at the following fora:
      - FAO - Commission on Genetic Resources and the related Global Plan of Action (GPA),
      - The International Treaty on Plant Genetic Resources for Food and Agriculture,
      - The Convention on Biological Diversity and in particular the Access and Benefit Sharing (ABS) discussions,
      - IICA and other relevant international and or regional dialogues (non duplicative).

### ***Objective 2: Safe storage and exchange of germplasm***

- Fostering development of National and Regional capacity for safe storage and exchange of germplasm through National, Regional and Hemispheric networks and efforts
- Sharing expertise on best practices leading to effective and efficient genebank management
- Legal status of collections recognized by country's authorities which are able to meet the Trust's eligibility principles of access and benefit-sharing (Trust's Eligibility Criteria)
- The Possible Elements
  - Promote the development of regional research approaches to improve the efficiency and efficacy of conservation
  - Status of storage facilities:

- Documenting recognized established National facilities
    - Determining which facilities are most adequate to ensure long-term conservation and conform to agreed scientific and technical standards of management (accepted standards)
    - Developing plans to improve national facilities with unique collections that meet these criteria
    - Monitoring of the viability of the conserved collections on a long term basis
  - Sharing best practices to develop guidelines for operation of genebanks and safe movement of germplasm
 

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    - Drawing on established expertise in genebank management such as the CG system (e.g. Bioversity)
    - Adopt and/or develop rapid techniques for the identification of seed borne diseases and their treatment
  - Sharing and/or development of accession distribution policies including those impacted by plant health issues
- The Challenge
 

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  - Developing a better understanding of best genebank management practices for a wide diversity of crops and growing conditions including the various phytosanitary - regulatory systems in the America's

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### **Objective 3: Conservation in perpetuity**

- Commitment to long-term conservation of germplasm at the National and Regional level
  - Assessment of successes on a long term basis including for those crop-species identified under the eligibility criteria of the Trust
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- The Possible Elements
 

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    - Developing and implementing long term indicators or measurement of performance that can be applied at the (local), national, regional and hemispheric level.
    - Assess the potential of alternative options to cryopreservation (-18°C)
    - Rejuvenation and regeneration of both seed and plant collection on a regular basis according to scientific principles (e.g. germination testing)
    - Safety duplication and backup
 

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      - Long term conservation "Cryopreservation"
      - Medium term conservation in appropriate conditions
      - Field living (clonal) collections
  - The Challenge
 

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    - Understanding and applying indicators
    - Indicators may be new or existing but should be tailored to meet the needs of the members while avoiding a fragmented approach
    - Understanding where comparative advantages can be gained

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### **Objective 4: Promoting PGR use**

- Developing effective tools for enhancing usage of PGR and improving communication to expanded user communities including the development of strategies for collective actions linking conservation and use.
- The Possible Elements
 

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  - Effective characterization and evaluation of germplasm collections to enhance utility in food security programs
  - Review and revise existing/established descriptors to better define a basic set of descriptors
 

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    - Match morphological and molecular descriptors for a basic set of descriptors

- Enhanced linkages to user communities and promote strong links to farmers, breeders, researchers and other users (e.g. distribution policies)
  - Close collaboration among national, regional and international partners (research and technical cooperation)
  - Creating an effective environment for communication amongst genebank managers
- 

- **The Challenge**

- Sharing experiences and expertise in mutual problem solving on an eco-geographical basis as well as policy development/sharing
  - Discussing hemispheric policy initiatives in an open and transparent process addressing key PGR issues such as:
    - Sub-optimal usage - access for annex 1 and non-annex one crops
    - Benefit sharing arising from the use of the PGR such as outlined in the standard Material Transfer Agreement of the ITPGR
    - Capacity building and technology transfer.
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## 7. Outputs of the Hemispheric Conservation Strategy

A Hemispheric Conservation Strategy in the Americas developed with the participation of sub-regional network members, institutional partners and key stakeholders, to sustain an efficient goal-oriented, economically effective and sustainable *ex situ* conservation system in the region. The initial outputs of the development process of the America's Strategy are:

- A preliminary evaluation and assessment of the most important crops and PGRFA collections in the continent was completed, in consultation with representatives of the six sub-regional networks, collaborators and other stakeholders. Crops and collections were identified based on jointly agreed sets of criteria reflecting socio-economic importance, centers of origin, food security factors and the principles of interdependence among countries.
- A list of prioritized collections of crops, identified as the most important in the Americas and based on rankings assigned by sub-regional network members and stakeholders during the preparatory process of the strategy. Rankings were prepared using agreed criteria sets to reflect priority action in terms of quantity and quality of the collections, as well as to echo the four basic principles and six funding criteria for eligibility by the Global Crop Diversity Trust.

The expected outputs during the implementation of the America's Strategy are:

- PGRFA collections conserved *ex situ* on a long-term, sustainable basis and with appropriate safety duplication in other national programs or in the CG centers in the region.
- Enhanced collaborative arrangements throughout the hemisphere for the rationalization of the prioritized PGRFA collections and their management through partnerships and the sharing of activities, responsibilities and facilities.
- Sharing agreed genebank management standards for the establishment or safeguarding of important reference collections (a term used by the Trust to indicate collections that meet international guidelines for conservation and distribution).
- Development and implementation of proposals to strengthen coordination and operations within and among the countries in the Americas, with emphasis on *ex situ* topics.
- Germplasm with desirable genetic traits identified for usage by farmers, researchers, breeders and other users quickly and efficiently.

- Institutional and individual capacity strengthened throughout the Americas.

## 8. Criteria used to prioritize crops and collections

The following sets or 'levels' of criteria were prepared during the several working sessions of the network coordinators and other stakeholders to prioritize crops and collections:

### Criteria based on the principles of the Trust

1. PGRFA to be considered in the America's Strategy are of crops included in Annex 1, or referred to in Article 15.1(b) of the International Treaty.
2. Those PGRFA are accessible under the internationally agreed terms of access and benefit sharing described in the Multilateral System of the International Treaty.
3. Each holder of PGRFA commits to its long term conservation and availability.
4. As potential recipients of funds from the Trust, work in partnership is one of the main pillars of the Hemispheric Strategy aiming at a contribution to develop a rational global conservation system.

### Criteria used to define important crops

1. Food security and nutrition (regional and global levels).
2. Inter-dependence among countries.
3. Income generation (at national and regional levels) for the poor.
4. Economic importance of a crop.
5. Material should represent a wide range of genetic diversity coverage, cultural values, earning potential of the crop, non-monetary and aesthetic values, etc.
6. Higher priority for regional, 'shared' crops (e.g. for the purposes of quarantine, health, distribution, adaptation, enhancement, etc.).

### Criteria for assessment of the importance of the collections

1. Wild species (potential use in genetic enhancement)
2. The collection represents local genetic diversity.
3. Conservation of genes or valuable gene pools.
4. Landraces.
5. Uniqueness.
6. Complementarities (i.e. fosters cooperation and collaboration).
7. Collection comes from a center of origin.
8. Importance for food and agriculture.
9. Relevance for indigenous and local communities.
10. Local adaptation to specific agro-ecological growing conditions.

### Criteria for assessment of the quality of collections

1. Assessment of the collections (where is the information; is it available).
2. Vulnerability of *ex situ* collections.
3. Genetic erosion information.
4. Collection size, uniqueness (genetic diversity/uniqueness), original varieties, value of material for markets, cultural values, etc.
5. Basic information needs and availability - breeding value.
6. Importance of wild relatives and landraces as sources of 'new' genes.
7. High preference for monoculture and intense use of hybrids for the market (with an obvious pressure on diversity in the field and farmer developed varieties).

## Scoring and ranking – the identification of important crops and collections

During the ‘All-networks meeting’ in Uruguay (November 2005) approximately 30 representatives of the sub-regional networks, their coordinators and institutional partners agreed to score and rank each key crop to help delineate those with a broad acceptance as important for the hemisphere. By using the four sets of criteria described above, each time a sub-regional network rated the crop as ‘critical’ it got 10 points, ‘important’ it got 7.5 points, and ‘average’ 5 points. The totals for each crop were summed up to arrive at the temporary adjusted total (see Table 1). A crop that has utmost importance in the Americas would have a total of 60, i.e. six sub-regions assigning it the highest possible amount of 10 points. This ranking was considered by network members as highly participatory, although far from complete; however, it provided an initial starting point for the definition of important crops in the continent while leaving open possibilities for further development and integration of new information as it becomes available.

Similarly, based on the exercise of identification of important crops, network members scored and ranked each key germplasm collections. Again, the sets of criteria above were considered during this process. Members identified collections as high, average and low priority with scores of ‘1’, ‘2’ and ‘3’, respectively. The results of this scoring process are shown in Table 2.

Regional and international collections held by CARDI, CATIE, CIAT, CIMMYT and CIP, as well as other CG Centers, were considered important, but were not included in this ranking analysis. It is envisaged that the proposed conservation strategy, based on its main capital, i.e. important crops and collections for the Americas, has a broad buy-in and support from key stakeholders and promotes the rationalization of conservation efforts at hemispheric and global levels. This is achieved through encouraging partnerships and the sharing of conservation responsibilities, facilities and tasks, and by promoting links with other regional crop conservation strategies that have been developed lately in the framework of the Trust.

## 9. Important Crops

The range of views on crop importance in the continent is considerable. Given the Americas stretch from the southern tip of Argentina to the northern edge of Canada and Alaska, in combination with altitudinal variations, it is no wonder there is a great diversity of crops. The range of edaphic, topographical and climatic conditions is remarkable – from the highest reaches of the snow top mountains to the hot humid rainforests common in the tropics. (see Appendix 4)

In developing a list of important crops, the six sub-regional networks ranked the relative importance of the crops in their respective geographical areas using the sets of criteria listed in Section 8 of this strategy. The weighted scoring system used was developed by members to help identify the important crops in the broad geographical region of the Americas. This assessment is far from a solid scientific process; nonetheless, it provides a useful entry point for prioritization and a reference milestone for future discussions. Results of the crops prioritization are shown in Table 1.

Based on this analysis, the top 20 crops in order of the weighted scores were: *Phaseolus*, *Capsicum*, *Zea*, *Manihot esculenta*, *Arachis*, *Glycine*, *Lycopersicon*, *Theobroma*, *Musa*, *Citrus*, *Solanum*, *Oryza*, *Ipomoea*, *Coffea*, *Vigna*, *Triticum et al.*, *Passiflora*, *Hordeum*, *Sorghum* and *Bactris*. Details of their status relative to FAO’s International Treaty and the relative scores are presented in Table 1 along with the other crops species that representatives of the hemispheric group discussed.

It is important to note that workshop participants of CAPGERNet in Trinidad and Tobago (May 2007) identified a total of 13 important crops in addition to those listed in Table 1. These are: *Leucaena*, *Cynodon*, *Glyricidia*, *Pangola*, *Brachiaria*, *Digitaria*, *Sapodilla*, *Abelmoschus*, *Desmodium*, *Trichantera*, *Morus*, *Melicoccus* and *Acerola*. However, as these were genera that were not considered important by the overall consensus of network participants, those have not been included in Table 1, and are listed here only for reporting purposes.

**Table 1. Important crops in the Hemisphere**

IT Status	French name	Spanish name	English name	Genus/species	Temp. Adjust. totals
Annex 1	Haricot	Frijol, fréjol	Bean	<i>Phaseolus</i>	60
Article 15	Piment	Ají, chile	Pepper	<i>Capsicum</i>	60
Annex 1	Maïs	Maíz	Maize	<i>Zea</i>	57.5
Annex 1	Manioc	Yuca, casaba, mandioca	Cassava	<i>Manihot esculenta</i>	50
Non Annex	Arachide	Maní	Peanut	<i>Arachis</i>	45
Non Annex	Soja	Soya, soja	Soybean	<i>Glycine</i>	35
Article 15	Tomate	Tomate	Tomato	<i>Lycopersicon</i>	35
Article 15	Cacao	Cacao	Cocoa	<i>Theobroma</i>	45
Annex 1	Banane	Banano, plátano	Banana, plantain	<i>Musa</i>	45
Annex 1	Agrumes	Cítricos	Citrus	<i>Citrus</i>	45
Annex 1	Pomme de terre (& aubergine)	Papa, patata	Potato	<i>Solanum</i>	42.5
Annex 1	Riz	Arroz	Rice	<i>Oryza</i>	42.5
Annex 1	Patate douce	Camote, patata dulce, batata	Sweet potato	<i>Ipomoea</i>	40
Article 15	Café	Café	Coffee	<i>Coffea</i>	40
Annex 1	Niébé <i>et al.</i>	Caupí (judía)	Cowpea <i>et al.</i>	<i>Vigna</i>	40
Annex 1	Blé	Trigo	Wheat	<i>Triticum et al.</i>	27.5
Non Annex	Grenadille	Granadilla, maracuyá	Passion fruit	<i>Passiflora</i>	27.5
Annex 1	Orge	Cebada	Barley	<i>Hordeum</i>	25
Annex 1	Sorgho	Sorgo, zahína	Sorghum	<i>Sorghum</i>	25
Article 15	Palmier pêche	Chontaduro, pupunha, pejibaye	Peach palm	<i>Bactris</i>	22.5
Annex 1	Fève, vesce	Haba	Faba bean, vetch	<i>Vicia</i>	22.5
Annex 1	Igname	Ñames	Yam	<i>Dioscorea</i>	30
Annex 1	Lentille	Lenteja	Lentil	<i>Lens</i>	20
Article 15	Gourde, Citrouille	Calabaza, zapallo	Squash, pumpkin	<i>Cucurbita</i>	30
Non Annex	Ananas	Piña (ananás)	Pineapple	<i>Ananas</i>	30
Non Annex	Quinoa	Quinoa	Quinoa	<i>Quinoa</i>	17.5
Non Annex	Raisin	Vid	Grape	<i>Vitis</i>	17.5
Non Annex	Anacardier	Marañón	Cashew nut	<i>Anacardium</i>	17.5
Non Annex		Cocona	Peach tomato	<i>Solanum sessiliflorum</i>	15
Non Annex	Bromus	Bromo	Brome	<i>Bromus</i>	15
Annex 1	Avoine	Avena	Oat	<i>Avena</i>	15
Annex 1	Noix de coco	Coco	Coconut	<i>Cocos</i>	25
Annex 1	Fraise	Fresa, frutilla	Strawberry	<i>Fragaria</i>	15
Annex 1	Pomme	Manzana	Apple	<i>Malus</i>	15
Non Annex	Oignon	Cebolla	Onion	<i>Allium</i>	15
Non Annex	Avocat	Aguacate, palta	Avocado	<i>Persea</i>	25
Non Annex	Canne a sucre	Caña de azúcar	Sugarcane	<i>Saccharum</i>	25
Annex 1	Lotus	Loto	Lotus	<i>Lotus</i>	15
Article 15	Corossol	Chirimoya, guanábana	Sops, custard apple	<i>Annona</i>	15
Non Annex	Agave	Agaváceas, penco, agave	Agave (century plant)	<i>Agave</i>	12.5
Non Annex	Yerba maté	Yerba mate	Guarani tea	<i>Ilex</i>	12.5
Non Annex	Framboise	Mora	Raspberry	<i>Rubus</i>	12.5
Non Annex	Tomate d'arbre	Tomate de árbol	Tree tomato, tamarillo	<i>Solanum betaceum</i>	12.5

Non Annex		Lulo, naranjilla	Lulo	<i>Solanum quitoense</i>	12.5
Non Annex	Ulluca	Olluco, melloco, papa lisa	Ullucus	<i>Ullucus</i>	12.5
Annex 1	Pois	Arveja	Pea	<i>Pisum</i>	10
Non Annex	Indigo	Añil	Indigo	<i>Indigofera suffruticosa</i>	10
Non Annex		Sacha inchi	Conophor	<i>Plukenetia</i>	10
Non Annex	Arracacha	Arracacha, zanahoria blanca	Arracacha, white carrot	<i>Arracacia</i>	10
Non Annex		Camu camu	Camu camu	<i>Myrciaria</i>	10
Article 15		Zapote, mamey	Sapote	<i>Pouteria sapota</i>	10
Article 15	Goyave	Guayaba	Guava	<i>Psidium</i>	20
Annex 1	Complexe des Brassica	Complejo Brassica	Brassica complex	<i>Brassica complex</i>	17.5
Annex 1	Pois chiche	Garbanzo	Chickpea	<i>Cicer</i>	7.5
Annex 1	Tournesol	Girasol	Sunflower	<i>Helianthus</i>	7.5
Annex 1	Seigle	Centeno	Rye	<i>Secale</i>	7.5
Non Annex	Amarante	Amaranto	Amaranth	<i>Amaranthus</i>	17.5
Non Annex	Papaye	Papaya, lechosa	Papaya	<i>Carica</i>	17.5
Non Annex	Coton	Algodón	Cotton	<i>Gossypium</i>	7.5
Non Annex	Lupin	Chocho, tarwi	Lupin	<i>Lupinus</i>	7.5
Non Annex	Oca du Pérou	Oca	Oca	<i>Oxalis</i>	7.5
Non Annex	Physalis	Tomatillo, uvilla	Ground cherry	<i>Physalis</i>	7.5
Non Annex	Cerise, Prune, Pêche	Cereza, capulí	Cherry/plum/peach, etc.	<i>Prunus</i>	7.5
Non Annex		Yacón, jícama	Yacon	<i>Smallanthus</i>	7.5
Non Annex		Paspalum	Paspalum	<i>Paspalum</i>	7.5
Annex 1	Arbre à pain	Árbol de pan, fruta de pan	Breadfruit (only)	<i>Artocarpus</i>	15
Annex 1	Betterave	Remolacha	Beet	<i>Beta</i>	5
Annex 1	Cajan	Guisante de paloma, fréjol de palo	Pigeon pea	<i>Cajanus</i>	15
Annex 1	Carotte	Zanahoria	Carrot	<i>Daucus</i>	5
Annex 1	Millet éleusine	Coracán, ragi, millo africano	Finger millet	<i>Eleusine</i>	5
Annex 1	Gesse, pois carré	Guisante de hierba	Grass pea	<i>Lathyrus</i>	5
Annex 1	Taro	Aráceas	Major aroids	<i>Major aroids</i>	15
Annex 1	Mil à chandelle	Millo de perla	Pearl Millet	<i>Pennisetum</i>	15
Annex 1	Triticale	Triticale	Triticale	<i>Triticosecale</i>	5
Annex 1	Haricot Jack	Poroto gigante	Jack bean	<i>Canavalia ensiformis</i>	5
Annex 1	Luzerne	Alfalfa	Alfalfa	<i>Medicago</i>	5
Annex 1	Trèfles	Trébol	Clover	<i>Trifolium</i>	5
Non Annex		Crotalaria	Crotalaria	<i>Crotalaria</i>	15
Non Annex		Loroco	Loroco	<i>Fernaldia pandurata</i>	5
Non Annex	Noyer	Tocte, nuez	Walnut	<i>Juglans</i>	5
Non Annex	Lin	Lino	Flax	<i>Linum</i>	5
Non Annex	Manque	Mango	Mango	<i>Mangifera</i>	15
Non Annex	Opuntia	Tuna	Pear prickly	<i>Opuntia</i>	5
Non Annex	Prunier mombin	Jocote, obito	Hog plum	<i>Spondias</i>	15
Non Annex		Stylosanthes	Stylo	<i>Stylosanthes</i>	5

**Source:** Metadata gathered by network coordinators, national coordinators and genebanks. This table augmented with the data generated during CAPGERNet's workshop in Trinidad and Tobago (May 2007).

It is important to note that many of these crops are been introduced to the region over time. Conversely, many crops have their roots located in the American soil, but have equally travelled the world as other farmers or societies have adopted the ‘new’ crops. Team members made a conscious decision to examine as many new species as possible in their review and prioritization of important crops in the hemisphere, and thus did not limit themselves to Annex 1 crops of the ITPGR, under the consideration that the hemisphere is particularly rich in plant diversity with demonstrated importance for food security. Furthermore, participants felt for the America’s Strategy to be fully functional, all crops in the region should be noted. This is a useful illustration of the inter-dependence of all peoples for important food and cash crops as also noted in the Treaty.

The area of new crops or new potential crops is equally exciting. There are many plant genetic resources that researchers are just now learning more about and offer a stimulating new opportunity to expand production and income for the years to come. That said conservation of these resources is ever more important due to a variety of threats occurring to the “natural capital” of the hemisphere.

## 10. Important Collections

Equally challenging was the gathering of information on the major collections in the hemisphere. No less than 193 crop specific collections were listed by members. This was the result of the compilation of lists of collections (as produced by the networks) and its analysis during the SIRGEALC in Montevideo. A master list was compiled by a small working group, shared during the networks’ plenary and used for the scoring process. Of those classified by members as high priority (a score of ‘1’), there were 69 collections with 17 different crops represented, as shown in Table 2. Regional and international collections held by CATIE, CARDI, CIAT, CIMMYT and CIP, as well as other CG Centers were considered important, but were not included in this prioritization analysis.

Many countries in the hemisphere identified some of their collections for the selected crops assessed as important global resources, although it should be noted that not all countries are party to the International Treaty (a list of member countries is presented in Appendix 3). Some of the major crops included or identified in this assessment were: *Arachis*, *Avena*, *Capsicum*, *Cucurbita*, *Glycine*, *Hordeum*, *Ipomoea*, *Linum*, *Lycopersicon*, *Malus*, *Manihot esculenta*, *Musa*, *Oryza*, *Phaseolus*, *Solanum*, *Triticum et al.*, and *Zea*.

There was considerable overlap between the important crops and the important collections species list, but they were not entirely duplicative. The crop collections represent important genetic resources for the world as well as for the hemisphere. The “Important collections” scoring focused primarily on food crops. Further discussions would be needed for forage crops. It should also be noted that additional data were added shortly after the Uruguay meeting and hence the column “Reviewed at meeting” was added. It is expected that these revisions would continue over time as collections and circumstances change (i.e. an open-ended work reflected in the America’s Strategy).

**Table 2. Important food crop collections defined by sub-regional networks and sorted by crop species.**

IT status	Crop (Spanish)	Crop (English)	Scientific name	Current holder(s)/ institute	Country	Collection importance (1, 2, 3)*	Network
Non-Annex I	Maní	Peanut	<i>Arachis</i>	INTA	Argentina	1	REGENSUR
Non-Annex I	Maní	Peanut	<i>Arachis</i>		Bolivia	1	REGENSUR
Non-Annex I	Maní	Peanut	<i>Arachis</i>	IAC, EMBRAPA	Brazil	1	REGENSUR
Non-Annex I	Maní	Peanut	<i>Arachis</i>	DIA	Paraguay	1	REGENSUR
Non-Annex I	Maní	Peanut	<i>Arachis</i>	Fac. Agronomía	Uruguay	1	REGENSUR
Non-Annex I	Maní	Peanut	<i>Arachis</i>	USDA	USA	1	NORGEN

Non-Annex I	Maní	Peanut	<i>Arachis</i>	Several	N/A	1	CAPGERNet*
Annex I	Avena	Oat	<i>Avena</i>	AAFC	Canada	1	NORGEN
Annex I	Avena	Oat	<i>Avena</i>	INIFAP	Mexico	1	NORGEN
Annex I	Avena	Oat	<i>Avena</i>	INIA	Uruguay	1	REGENSUR
Annex I	Avena	Oat	<i>Avena</i>	USDA	USA	1	NORGEN
Article 15	Aji, chile	Pepper	<i>Capsicum</i>	CATIE	CATIE	1	REMERFI
Article 15	Aji, chile	Pepper	<i>Capsicum</i>	University West Indies / CARDI	Trinidad and Tobago	1	CAPGERNet*
Article 15	Aji, chile	Pepper	<i>Capsicum</i>	UCR	Costa Rica	1	REMERFI
Article 15	Aji, chile	Pepper	<i>Capsicum</i>	ICTA + FAUSAC	Guatemala	1	REMERFI
Article 15	Aji, chile	Pepper	<i>Capsicum</i>	INIFAP	Mexico	1	REMERFI
Article 15	Aji, chile	Pepper	<i>Capsicum</i>	IDIAP	Panama	1	REMERFI
Article 15	Aji, chile	Pepper	<i>Capsicum</i>	USDA	USA	1	NORGEN
Article 15	Calabaza, zapallo	Squash	<i>Cucurbita</i>	CATIE	CATIE	1	REMERFI
Article 15	Calabaza, zapallo	Squash	<i>Cucurbita</i>	University Puerto Rico	Pto. Rico, USA	1	CAPGERNet*
Article 15	Calabaza, zapallo	Squash	<i>Cucurbita</i>	INIFAP	Mexico	1	REMERFI
Non-Annex I	Soya	Soybean	<i>Glycine</i>	AAFC	Canada	1	NORGEN
Non-Annex I	Soya	Soybean	<i>Glycine</i>	INIFAP	Mexico	1	NORGEN
Non-Annex I	Soya	Soybean	<i>Glycine</i>	USDA	USA	1	NORGEN
Annex I	Cebada	Barley	<i>Hordeum</i>	AAFC	Canada	1	NORGEN
Annex I	Cebada	Barley	<i>Hordeum</i>	INIA	Uruguay	1	REGENSUR
Annex I	Cebada	Barley	<i>Hordeum</i>	USDA	USA	1	NORGEN
Annex I	Batata, camote	Sweet potato	<i>Ipomoea</i>	INIA-CIP	Peru	1	REDARFIT
Annex I	Batata, camote	Sweet potato	<i>Ipomoea</i>	INIFAT MoA	Cuba Trinidad and Tobago	1	CAPGERNet*
Annex I	Batata, camote	Sweet potato	<i>Ipomoea</i>	INIA	Venezuela	1	REDARFIT TROIPIGEN
Non-Annex I	Lino	Flax	<i>Linum</i>	AAFC	Canada	1	NORGEN
Non-Annex I	Lino	Flax	<i>Linum</i>	USDA	USA	1	NORGEN
Article 15	Tomate	Tomato	<i>Lycopersicon</i>	CATIE	CATIE	1	REMERFI
Non-Annex I	Tomate	Tomato	<i>Lycopersicon</i>	INIFAP	Mexico	1	REMERFI

Non-Annex I	Tomate	Tomato	<i>Lycopersicon</i>	IDIAP	Panama	1	REMERFI
Non-Annex I	Manzana	Apple	<i>Malus</i>	USDA	USA	1	NORGEN
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	El Vallecito	Bolivia	1	TROPIGEN REDARFIT REGENSUR
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	Several	N/A	1	CAPGERNet*
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	EMBRAPA	Brazil	1	TROPIGEN REGENSUR
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	IAC	Brazil	1	TROPIGEN
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	IPAGRO	Brazil	1	TROPIGEN
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	CORPOICA – CIAT	Colombia	1	REDARFIT TROPIGEN
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	DIA	Paraguay	1	REGENSUR
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	INIA	Peru	1	REDARFIT TROPIGEN
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	INIA	Venezuela	1	REDARFIT TROPIGEN
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	UCV-FAGRO	Venezuela	1	TROPIGEN
Annex I	Yuca	Cassava	<i>Manihot esculenta</i> (only)	DIA	Paraguay	1	REGENSUR
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	EMBRAPA	Brazil	1	TROPIGEN
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	INRA/ CIRAD	French West Indies	1	CAPGERNet*
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	CORPOICA	Colombia	1	TROPIGEN
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	CORBANA	Costa Rica	1	REMERFI
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	INIAP	Ecuador	1	TROPIGEN
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	FHIA	Honduras	1	REMERFI
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	INIA	Peru	1	TROPIGEN
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	INIA	Venezuela	1	TROPIGEN
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	INIA	Peru	1	REDARFIT
Annex I	Banano / plátano	Banana / plantain	<i>Musa</i> except <i>M. textilis</i>	INIA	Venezuela	1	REDARFIT
Annex I	Arroz	Rice	<i>Oryza</i>	INIFAP	Mexico	1	REMERFI

Annex I	Arroz	Rice	<i>Oryza</i>	Several	N/A	1	CAPGERNet*
Annex I	Arroz	Rice	<i>Oryza</i>	ADRON	Suriname	1	TROPIGEN
Annex I	Frijol	Bean	<i>Phaseolus</i>	INTA	Argentina	1	REGENSUR
Annex I	Frijol	Bean	<i>Phaseolus</i>	INIFAT	Cuba	1	CAPGERNet*
Annex I	Frijol	Bean	<i>Phaseolus</i>	Pairumani	Bolivia	1	REDARFIT TROPIGEN REGENSUR
Annex I	Frijol	Bean	<i>Phaseolus</i>	AAFC	Canada	1	NORGEN
Annex I	Frijol	Bean	<i>Phaseolus</i>	INIA	Chile	1	REGENSUR
Annex I	Frijol	Bean	<i>Phaseolus</i>	CORPOICA	Colombia	1	REDARFIT
Annex I	Frijol	Bean	<i>Phaseolus</i>	INIAP	Ecuador	1	REDARFIT TROPIGEN
Annex I	Frijol	Bean	<i>Phaseolus</i>	INIFAP	Mexico	1	REMERFI NORGEN
Annex I	Frijol	Bean	<i>Phaseolus</i>	REGEN	Nicaragua	1	REMERFI
Annex I	Frijol	Bean	<i>Phaseolus</i>	INIA	Peru	1	REDARFIT TROPIGEN
Annex I	Frijol	Bean	<i>Phaseolus</i>	USDA	USA	1	NORGEN
Annex I	Frijol	Bean	<i>Phaseolus</i>	INIA	Venezuela	1	TROPIGEN REDARFIT
Annex I	Frijol	Bean	<i>Phaseolus</i>	UCV-FAGRO	Venezuela	1	TROPIGEN
Annex I	Papa, patata	Potato	<i>Solanum</i>	INTA	Argentina	1	REGENSUR
Annex I	Berenjena	Eggplant	<i>Solanum Melongena (only)</i>	Several	Several	1	CAPGERNet*
Annex I	Papa, patata	Potato	<i>Solanum</i>	PROINPA	Bolivia	1	REDARFIT REGENSUR
Annex I	Papa, patata	Potato	<i>Solanum</i>	UACH	Chile	1	REGENSUR
Annex I	Papa, patata	Potato	<i>Solanum</i>	CORPOICA	Colombia	1	REDARFIT
Annex I	Papa, patata	Potato	<i>Solanum</i>	INIAP - CIP	Ecuador	1	REDARFIT
Annex I	Papa, patata	Potato	<i>Solanum</i>	INIA - CIP	Peru	1	REDARFIT
Annex I	Papa, patata	Potato	<i>Solanum</i>	INIA	Venezuela	1	REDARFIT
Annex 1	Sorgo	Sorghum	<i>Sorghum</i>	INTA	Argentina	1	REGENSUR
Annex I	Trigo	Wheat	<i>Triticum et al.</i>	INTA	Argentina	1	REGENSUR

Annex I	Trigo	Wheat	<i>Triticum et al.</i>	AAFC	Canada	1	NORGEN
Annex I	Trigo	Wheat	<i>Triticum et al.</i>	INIA	Chile	1	REGENSUR
Annex I	Trigo	Wheat	<i>Triticum et al.</i>	INIFAP	Mexico	1	NORGEN
Annex I	Trigo	Wheat	<i>Triticum et al.</i>	INIA	Uruguay	1	REGENSUR
Annex I	Trigo	Wheat	<i>Triticum et al.</i>	USDA	USA	1	NORGEN
Annex I	Maíz	Maize, corn	<i>Zea</i>	INTA	Argentina	1	REGENSUR
Annex I	Maíz	Maize, corn	<i>Zea</i>	Several	N/A	1	CAPGERNet*
Annex I	Maíz	Maize, corn	<i>Zea</i>	Pairumani	Bolivia	1	REDARFIT TROIPIGEN REGENSUR
Annex I	Maíz	Maize, corn	<i>Zea</i>	AAFC	Canada	1	NORGEN
Annex I	Maíz	Maize, corn	<i>Zea</i>	CATIE	Costa Rica	1	REMERFI
Annex I	Maíz	Maize, corn	<i>Zea</i>	INIA	Chile	1	REGENSUR
Annex I	Maíz	Maize, corn	<i>Zea</i>	CORPOICA	Colombia	1	REDARFIT TROIPIGEN
Annex I	Maíz	Maize, corn	<i>Zea</i>	INIAP	Ecuador	1	REDARFIT
Annex I	Maíz	Maize, corn	<i>Zea</i>	ICTA	Guatemala	1	REMERFI
Annex I	Maíz	Maize, corn	<i>Zea</i>	INIFAP	Mexico	1	REMERFI NORGEN
Annex I	Maíz	Maize, corn	<i>Zea</i>	REGEN	Nicaragua	1	REMERFI
Annex I	Maíz	Maize, corn	<i>Zea</i>	DIA	Paraguay	1	REGENSUR
Annex I	Maíz	Maize, corn	<i>Zea</i>	UNALM	Peru	1	REDARFIT
Annex I	Maíz	Maize, corn	<i>Zea</i>	INIA	Uruguay	1	REGENSUR
Annex I	Maíz	Maize, corn	<i>Zea</i>	USDA	USA	1	NORGEN
Annex I	Maíz	Maize, corn	<i>Zea</i>	INIA	Venezuela	1	REDARFIT TROIPIGEN

**Source:** Metadata gathered by network coordinators, national coordinators and genebanks. Only those collections scored as '1' (= high priority) are included in this table, as agreed by network members. Information was further processed as described in Section 9. This table has been completed with the data generated during CAPGERNet's workshop in Trinidad and Tobago (May 2007 proceedings); Caribbean data are included in the rows marked with CAPGERNet\*.

It is important to note that workshop participants of CAPGERNet in Trinidad and Tobago (May 2007) identified a total of 32 important crops/genera in addition to those listed in Table 2. These are: *Aroids*, *Cajanus*, *Citrus*, *Vigna*, *Artrocarpus*, *Cocos*, *Pennisetum*, *Brassica*, *Theobroma*, *Mangifera*, *Saccharum*, *Ananas*, *Coffea*, *Carica*, *Persea*, *Amaranthus*, *Leucaena*, *Cynodon*, *Psidium*, *Glyricidia*, *Pangola*,

*Brachiaria*, *Digitaria*, *Sapodilla*, *Abelmoschus*, *Desmodium*, *Spondias*, *Trichantera*, *Morus*, *Melicoccus*, *Crotalaria* and *Acerola*. However, as these were crops/genera that were not considered important by the overall consensus of network participants, those have not been included in Table 2, and are listed here only for reporting purposes.

The availability of these materials for other breeders and researchers remains an important issue. Those countries who are party to the International Treaty have agreed to the concept of facilitated access. Countries in the Americas, that are not parties at this time (approximately 18), would need to agree to a “solemn undertaking” (as defined by the Trust) to adhere to the same facilitated access policies, and to be potentially eligible for funding via the Trust. Furthermore, it is evident that the Trust cannot fund everyone and everything. The development of consortia and project-based proposals will be an essential ingredient to help increase the possibility of success.

## 11. Collaboration for a rational hemispheric strategy in the Americas

### Hemispheric contact person

**Campbell Davidson** (past NORGEN Coordinator, Chair)  
 Research Manager  
 Semiarid Prairie Agricultural Research Centre  
 Agriculture and Agri-Food Canada  
 Box 1030, Swift Current, Saskatchewan  
 S9H 3X2, Canada  
 Telephone: (+306) 778 7270  
 Fax: (+306) 778 3186  
 E-mail: [cdavidson@agr.gc.ca](mailto:cdavidson@agr.gc.ca)  
 Internet: <http://www.agr.gc.ca/>

### Regional Hemispheric Conservation Strategy participation

- **CAPGERNet:** The Caribbean Plant Genetic Resources Network (Coordinator: Herman Adams; CARDI, Trinidad and Tobago).
- **NORGEN:** The Plant Genetic Resources Network for North America (Coordinator: Francisco Ibarra; INIFAP, Mexico).
- **REDARFIT:** The Andean Network on Plant Genetic Resources (Coordinator: Llermé Ríos; INIA, Peru).
- **REGENSUR:** PROCISUR’s Sub-program for Plant Genetic Resources (Coordinator: Ana Berretta; INIA, Uruguay).
- **REMERFI:** The Mesoamerican Network on Plant Genetic Resources (Coordinator: Nevio A. Bonilla Morales; INITTA, Costa Rica).
- **TROPIGEN:** The Amazonian Network on Plant Genetic Resources (Coordinator: Magaly da Silva Wetzel; CENARGEN, Brazil).

### Institutional partners

- International Agriculture Research Centres: Bioversity International (Italy and Colombia Offices), CIAT (Colombia), CIMMYT (Mexico) and CIP (Peru).
- Regional centers: CATIE (Costa Rica) and CARDI (Trinidad and Tobago).
- IICA, its PROCIs and SICTA
- FAO and the
- Global Crop Diversity Trust.

Additional information related to six operational sub-regional networks in the Americas, their objectives and current activities, as well as a detailed listing of the networks’ contact points and some relevant highlights of the institutional partners are presented in Appendix 5.

Further background description about networks included in this section can be obtained from M. Ramirez, 2007. *Redes de Recursos Fitogenéticos en las Américas. En informe Especial del Tratado Internacional sobre Recursos Filogenéticos. Recursos Naturales y Ambiente: 52* (in press) An important foundation for effective regional collaboration is the sharing of conservation activities, expertise and experience. Based on the comparative advantages of network members and partners, their willingness to collaborate, and commitment to the America's Strategy, countries should further discuss collaboration on well-identified and focused areas or activities.

## 12. Capacity building

Meetings during the preparatory and planning process of the America's Strategy made it clear that national capacities, infrastructure and facilities vary greatly from one country to another and many require upgrading. Similarly, human resources need to be developed by way of education and training activities (formal, informal, internships, secondments, exchange programs, etc.) in most of, if not all, the countries.

A small number of countries have developed training programs to train domestic and foreign staff. IICA/PROCs implemented exchange programs in several countries (e.g. the Andean Sub-region) to train staff or enhance national capacities and skills. Bioversity International has been proactive in the organization of training courses and in supporting individual training and workshops at national and sub-regional level. National programs have also offered training in PGRFA topic. However, there is a need for a comprehensive assessment of National and Regional staffing requirements in the area of PGRFA to help, universities researchers and governments better plan on ways and means to meet future demands in the Americas.

Equally, there is a need for a more comprehensive country-by-country needs assessment in the area of infrastructure, more specifically, long-term storage, laboratories and field genebanks. However, it should be emphasized that the America's Strategy is not aiming at encouraging all countries to have full conservation capacity for all crops. In order to understand the potential for effective regional collaboration, it will be important to know who has good capacities in place and what are the strengths and comparative advantages of each country to possibly assume a responsibility or leadership role at the Regional and/or the Hemispheric level.

The following critical areas of capacity building and upgrading have emerged from the deliberations during the strategy process:

### Areas for overall capacity building and upgrading:

- Upgrading of germplasm management/documentation systems.
- Upgrading of infrastructure and related facilities.
- Public awareness.
- Policy and legislation.
- Technical and research capacities.

### Areas for training and education:

- A country needs assessment describing potential commitments, comparative advantages, programmatic contents and approaches, etc.
- Short, medium and/or long-term plans including comparative advantages/commitments from each country.
- Strengthening domestic efforts for training and education (e.g. use of ToT modules, secondments, internships, exchange programs, etc.).

### Areas for upgrading information systems:

- Development of the PGR-HIS, based on the sharing of common components such as descriptors, data standards, protocols on conservation (storage, distribution, genebank management systems, performance monitoring, quality management and good practices).

- Database management and data entry onto PGR-HIS.
- Strengthening links with users through increased availability of information related to *ex situ* collections.

Areas for upgrading infrastructure and facilities:

- General genebank infrastructure (seed storage, low temperature equipment, biotechnology facilities, etc.).
- Support to field genebanks for important crops in the hemisphere.
- Support to *in vitro* collections as safety back-ups.

## 13. Future thinking

Looking to the future and the evolution of the strategy, Hemispheric members felt there was a need to identify emerging or unresolved issues relative to the conservation and sustainable use of plant genetic resources. It became clear that each of the following areas requires further input and development by team members. As indicated earlier in the Strategy some of the issues are structural or operational, while others are more policy driven. The Hemispheric group also developed some suggestions to help facilitate collaboration; these suggestions are captured in Appendix 6.

The list below would be a useful starting point for the future hemispheric meetings and, as such, may serve as a useful agenda for these discussions. In addition, the list may also serve as a guide post for institutional work at the international level.

### 1. Ratification of, or accession to, the ITPGR:

- 1.1 The first meeting of the Governing Body of the ITPGR was held June 12-16<sup>th</sup>, 2006, in Madrid, Spain. All countries were urged to sign on to this international agreement to help build a common approach to PGRFA.
- 1.2 The Global Crop Diversity Trust was identified as an essential element of the funding strategy for the ITPGR.
- 1.3 A list of current countries that are parties to the Treaty is shown in Appendix 3.

### 2. Topics related to the Global Crop Diversity Trust:

- 2.1 To be eligible for support, countries must be party to the Treaty or agree to similar terms and conditions for use and exchange of PGRFA.
- 2.2 Integration of the Hemispheric Strategy with the work of the crop-based and/or other regional strategies.
- 2.3 Enable a broader participation of the *ex situ* constituency (large- and small-scale germplasm banks) in the activities supported by the Trust if they meet the Trust's eligibility criteria.

### 3. Exchange of germplasm within the hemisphere:

- 3.1 At the national level there are several potential legal obstacles to the exchange of germplasm which need to be identified (national reporting and action). There is also a need to consider regional policies that prevent the exchange of germplasm.
- 3.2 To adapt norms to facilitate access.
- 3.3 Consider harmonization of Decision 391 of the Andean Community of Nations (CAN) and/or other regulations in the Americas vis-à-vis the ITPGR.

### 4. Access and benefit sharing issues:

- 4.1 To ratify the ITPGR.
- 4.2 To harmonize national access laws with the ITPGR as well as with the provisions of the Convention on Biological Diversity.
- 4.3 To develop an effective and efficient MTA for the ITPGR.
- 4.4 To promote the ITPGR to various user groups so they understand the terms and conditions of access and benefit sharing.

**5. Human resources - Expertise and staff training:**

- 5.1 Within the region there is a shortage of well trained personnel at the professional and technical level.
- 5.2 Training and upgrading of existing staff as new policies and technologies develop or emerge. There is a great discrepancy among members of the hemisphere in terms of skills and expertise.
- 5.3 Engagement with indigenous and local communities as it relates to PGRFA skills.
- 5.4 Expert staffs retire or move away without being replaced.
- 5.5 Promote capacity development in plant health issues, plant breeding, conservation specialists as well as crop breeders.

**6. Effective communication:**

- 6.1 Lack of effective communication between and among the networks hampers development of mutual understanding and exchange of information, such as information on characterization and evaluation of germplasm.
- 6.2 Development of new tools to help hemispheric-wide communication such as web-based materials developed via IICA or Bioversity International.
- 6.3 Continuation of hemispheric-wide meetings amongst the network coordinators using established meetings as a key focal meeting point (e.g. next SIRGEALCs).

**7. Documentation and information sharing:**

- 7.1 Lack of an integrated database – a common platform for data sharing.
- 7.2 Deficiencies in documentation and in particular electronic data on collections. Adoption of a harmonized system of documentation would be beneficial, but the differing capacities to reach a common level are conspicuous in the region.
- 7.3 Lack of documentation of germplasm shared at international level (who has what materials either locally, nationally or internationally).
- 7.4 Standardization of crop descriptors to facilitate information and germplasm exchange.
- 7.5 Understanding of duplication and overlap of important collections while recognizing the needs of a variety of users at the local and regional level.
- 7.6 Managing variability – how do we gain greater information about our collections – taxonomic classifications through to molecular characterization.

**8. Fostering and promoting use of PGRFA from collections:**

- 8.1 Detailing potential new applications for the use of PGRFA.
- 8.2 To investigate key physical-chemical aspects of the genetic material.
- 8.3 To develop pre-improvement activities (pre-breeding).
- 8.4 Directed characterization and evaluation studies at the sub-regional and hemispheric level.
- 8.5 Support for the standardization of data gathering for crop descriptors and related information (characterization, evaluation, etc.).
- 8.6 Promote the use of PGRFA to enhance food security programs.

**9. Infrastructure issues:**

- 9.1 Inventories of capacities for PGRFA work.
- 9.2 Upgrading of infrastructure and sharing information about new technologies.
- 9.3 Re-vitalization of facilities – identification of requirements.
- 9.4 Limited infrastructure availability in some countries or face limitations as far as maintenance of equipment.

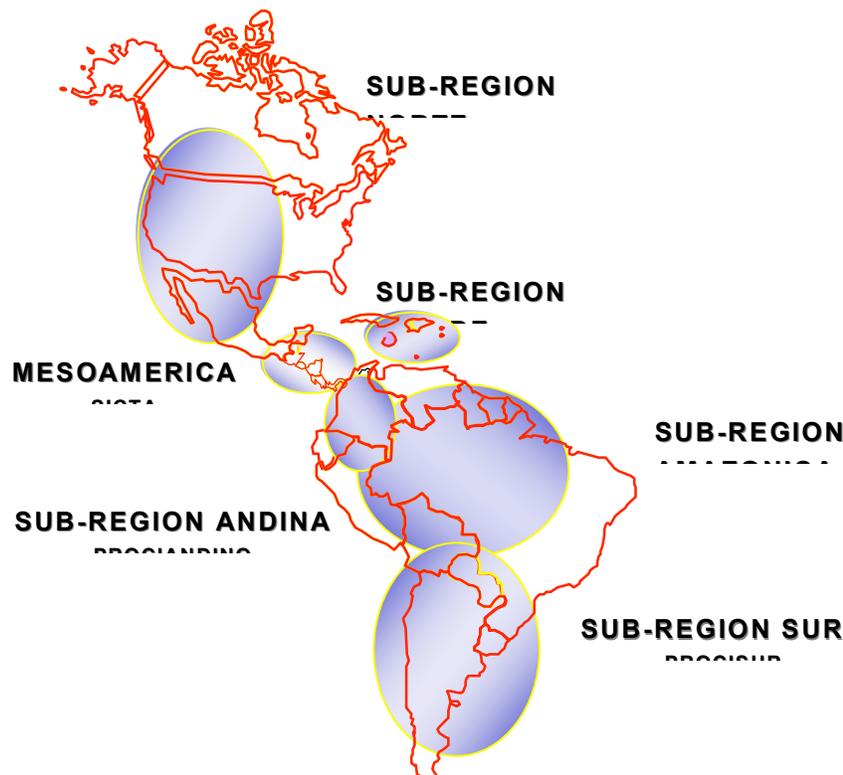
**10. Regeneration:**

- 10.1 Cost requirements are high which reduces capacity to rebuild important collections.
- 10.2 Safety back-ups are often lacking increasing the potential for significant impact of risks on the collections.
- 10.3 High percentage of collections with low viability.
- 10.4 Lack of knowledge for methodologies to regenerate materials.
- 10.5 Location and conditions for regeneration activities.

## Additional information and coordination requirements

While it is admirable to try to develop a 100% comprehensive work plan and hemispheric strategy, it is not always feasible given time and resource constraints, as well as the dynamics of evolution of institutional and operational scenarios. The following describes some of the elements that should be considered in future revisions to the strategy.

- Integration of the various crop and/or regional strategies, with an emphasis on the crops endemic to the region as well as those economically important.
- Enhanced linkage of the Strategy to National programme agendas
- Updating of information on the various collections, especially databases on the actual holdings and seek broad participation of stakeholders
- Additional institutional considerations related to other expertise (CIAT, CIMMYT, CIP, Bioversity International, CATIE, IICA, FAO).



**Figure 1. The Hemispheric Conservation Strategy for PGRFA in the Americas:** Six sub-regional networks are operational in the continent. IICA, the Inter-American Institute for Cooperation on Agriculture has played an important role (i.e. the PROCIs umbrella) by providing a forum for discussion on agriculture issues, in this case plant genetic resources. Bioversity International and FAO have joined these efforts since the inception of the PGR network concept in the Americas.

## 14. Acronyms

AAFC	Agriculture and Agri-Food Canada
ABS	Access and benefit sharing
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung Federal Ministry for Economic Cooperation and Development, Germany
CAC	Consejo Agropecuario Centroamericano
CAN	Comunidad Andina de Naciones
CAPGERNet	Caribbean Plant Genetic Resources Network
CARDI	Caribbean Agricultural Research and Development Institute
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza
CBD	Convention on Biological Diversity
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical
CIMMYT	Centro Internacional para el Mejoramiento del Maíz y Trigo
CIP	Centro Internacional de la Papa
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuaria
FAO	Food and Agriculture Organization of the United Nations
FORAGRO	Foro de las Américas para la Investigación y Desarrollo Tecnológico Agropecuario
GIEWS	Global Information and Early Warning System
GPA	Global Plan of Action
GTZ	Gesellschaft für Technische Zusammenarbeit Society for Technical Cooperation, Germany
IABIN	Inter-American Biodiversity Information Network
IARC	International Agricultural Research Center
IDB	Inter-American Development Bank
IDIAP	Instituto de Investigación Agropecuaria de Panamá
IICA	Instituto Interamericano de Cooperación Agrícola
INIAP	Instituto Nacional Autónomo de Investigaciones Agropecuarias
INIA	Instituto Nacional de Investigación Agraria
INITTA	Instituto Nacional de Innovación y Transferencia de Tecnología Agropecuaria
INTA	Instituto Nacional de Tecnología Agropecuaria
IT	Information technology
ITPGR	International Treaty on Plant Genetic Resources for Food and Agriculture
MoA	Ministry of Agriculture
MTA	Material Transfer Agreement
NAMDEVCO	National Market Development Corporation
NARI	National Agriculture Research Institute
NGO	Non Governmental Organization
NORGEN	North American Network on Plant Genetic Resources
PGRFA	Plant genetic resources for food and agriculture
PGR-HIS	Plant Genetic Resources Hemispheric Information System
PROCI	Programa Cooperativo de Innovación Tecnológica Agropecuaria
REDARFIT	Red Andina de Recursos Fitogenéticos
REGENSUR	Red de Recursos Genéticos del Cono Sur
REMERFI	Red Mesoamericana de Recursos Fitogenéticos
SICTA	Sistema de Integración Centroamericano de Tecnología Agropecuaria
SINGER	System-wide Information Network for Genetic Resources
SIRGEALC	Simposio Internacional de Recursos Genéticos para América Latina y El Caribe
SNITTA	Sistemas Nacionales de Investigación y Transferencia de Tecnología Agropecuaria
SWOT	Strengths, weaknesses, opportunities and threats
ToRs	Terms of reference
ToT	Training of trainers
TROPIGEN	Red Amazónica de Recursos Fitogenéticos
UNEP	United Nations Environmental Program
W W W	World Wide Web

## **15. Appendices**

## Appendix 1. The Process of Developing the America's Hemispheric Conservation Strategy

### Elements of the planning process

The following were some of the key elements considered during the preliminary discussions on the America's strategy. The list is by no means complete but may provide a useful reference for others to consider as well as in reviewing and revising the America's strategy (i.e. a work in progress).

**The challenge:** Development of an overarching, realistic and practical regional strategy for conservation of plant genetic resources for food and agriculture in the Americas.

### **Critical question of why do we need a Hemispheric PGR conservation strategy for the Americas?**

The strategy is a critical document to:

- Help identify regional development goals in the genetic resource area. Focus will be on the crops included in the International Treaty, but should also consider other broader needs ('non-Treaty' crops) in the genetic resource conservation area
- Priorities from the grass roots level
- Interaction with the Global Crop Diversity Trust - potential funding of projects
- Interaction with Bioversity (former IPGRI) and other regional initiatives/entities in the development of mutually supportive projects
- Exchange of experiences and expertise.

### **What might be included in a regional (realistic) strategy?**

Some potential or desired characteristics of a strategy for the Americas, remembering it must be operative and practical, are:

- **Ensuring national interests are met as fully as is feasible**
  - Mirroring national goals and policies (e.g. exchange, acquisition, distribution, etc.).
  - Leading towards food security.
  - Long-term sustainability.
  - National commitment and capacity.
- **Common conservation standards**
  - Long-term conservation – base collections.
  - Active collections to ensure the characterization, evaluation and use of the material, to be located where it is used and distributed - within an overall "crop improvement strategy".
- **Reporting mechanisms - information needs**
  - Effective, efficient and simple monitoring of progress.
  - Meaningful sharing of information.
  - Shared information systems.
  - Accessibility to databases.
  - Sharing result of research and similar activities.
- **Common understanding of capacities**
  - Open and transparent.
  - Physical facilities – location: Contacts, national networks, etc.
  - Human and financial resources.
  - Scientific and technical expertise.
- **Access to and availability of material**
  - Based on trust through participation and transparency.

- Enhanced through the ITPGR and the MLS, but with a need to be inclusive as possible (Treaty parties and non-parties, including IARCs).

### **Process: Some important steps**

- Contact list for sub-regional network coordinators - information sharing, joint development of concepts and ideas.
- Network meetings in the fall/winter period.
- FORAGRO: Focal point for a Global Crop Diversity Trust meeting.

### **Defining important collections**

- Assessment of the collections - Where is the information? Is it available?
- Vulnerability of *ex situ* collections.
- Collection size, uniqueness (genetic diversity/uniqueness), original varieties, value of material for markets, cultural values.
- Basic information needs and availability - breeding value/use.
- Importance of wild relatives and landraces.
- Genetic erosion information.
- Market pressure has put huge pressure on diversity in the field, and farmer developed varieties are dwindling.

### **Defining important crops**

The following criteria were taken into consideration:

- Food and nutrition security (global and regional levels).
- Inter-dependence of countries.
- Income generation (at national and regional levels) for the poor.
- Economic importance of a crop.
- Material represents a wide range of genetic diversity coverage, cultural values, non-monetary, aesthetic values, earning potential of the crop, etc.
- Higher priority for regional crops, e.g. for quarantine, health, distribution and adaptation.

### **Accessibility and availability**

- Access to the collection - distribution policy.
- Health considerations limiting access (form of material made available - clones, seeds, varieties and associated traditional knowledge).
- Adequate quantities of germplasm material for distribution and back-up.
- Access to information - databases and consideration of indigenous knowledge.

## The sequence of meetings

The process of developing a hemispheric conservation strategy for the Americas was initiated in May 2004 with a meeting held in Rome to which network coordinators from around the world were invited to be introduced to the Trust.

Following the Rome meeting, an overview of the Trust was presented by the network coordinators in the Americas at their respective annual coordination meetings. The discussions focused on the main factors that could be considered for prioritizing crops and collections in the region. Most of the introductory meetings with the networks were held in the second semester of 2004. By the end of 2004, some basic tables were designed to collect raw information from each sub-region.

Work plan discussed and agreed at the IICA/PROCI-Trust Planning Meeting San José, Costa Rica (April 7, 2005)

Activities/tasks	Who (task forces) <sup>2</sup>	How	When (2005)
Strategy Advisory Group (or Steering Committee)	Network coordinators for REGENSUR, REDARFIT, TROPIGEN, REMERFI, CAPGERNET, NORGEN, IPGRI-AMS, CIAT, CIMMYT, CIP, FAO, IICA and PROCIs representatives	Meetings and coordination mechanisms	April – end of December 2005
1. Regional Strategy Coordination Group	<u>Ana Berretta</u> , Jamil Macedo, Priscilla Alvarado de Gonzalez, staff of IPGRI-AMS, Campbell Davidson and IICA		April - end of December 2005
2. Metadata gathering	<u>Ana Berretta</u> , Francisco Enciso, Priscilla Alvarado de González, Michael Hermann, IICA	Survey to national coordinators sent by regional coordinators	April - end of May
3. Accession level platform development	<u>Michael Hermann</u> , Campbell Davidson, Carlos Astorga, Magaly Wetzel, Francisco Enciso	In discussion with USDA-GRIN, IPGRI and other PGR information system experts	April - onwards
4. Identification of crop collections most important for the region	<u>Antonio Gandarillas</u> , Andreas Ebert, Daniel Debouck, Willy Roca, Carlos Astorga	Each network coordinator should do a first assessment	June - July
5. Rational systems and/or collaborative arrangements proposals	<u>Suketoshi Taba</u> , Magaly Wetzel, Herman Adams, Ana Berretta	Regional coordinators initiate analysis, and pass on to the task force for consultation	June - August
6. Capacity building needs assessment	All six network coordinators	Some info survey, important collections, inputs from collections at national level on specific needs, in consultation with experts	July - August
7. Strategy's first draft	Coordination group		Beginning of September
8. National consultation	All six network coordinators		September - October
9. Draft revision	Coordination group		Beginning of November
10. V SIRGEALC meeting consultation, (Montevideo, Uruguay)		21 Nov.: All PGR networks meet separately (full network meetings) 22 Nov.: All network coordinators and national coordinators together for half day 26 Nov.: Trust's strategy, Advisory Group meeting	23-25 November 2005
11. Final draft strategy submitted to the Global Crop Diversity Trust	Coordination group		End of December 2005

**Source:** Meeting of sub-regional networks in IICA Headquarters (San José, Costa Rica) in April 2005.

In April 2005, a general meeting of all six of the Americas Network Coordinators, together for the first time, was organized and were joined by representatives from the CGIAR Centers located in the region (CIMMYT, CIAT, CIP and IPGRI), as well as by representatives from CATIE, IICA and FAO (the Advisory

<sup>2</sup> The task forces agreed to lead the activities always in consultation with the network coordinators and the Advisory Group.

Group). The meeting was hosted by IICA and the Trust in San José, Costa Rica. By the end of the week-long meeting, the Advisory Group produced a draft action plan to develop the Hemispheric Conservation Strategy, with a target completion date of November 2005.

A special meeting of all network members was held in Uruguay in November 2005. At this time, participants were asked to review the work done by the coordinators, as well as following up on the proposed work plan, to fully develop the hemispheric strategy. To this end, members outlined the most important collections and crops relative to the GCDT strategy development as well as to identify key elements for the Americas' strategy.

This event was held to coincide with the fifth SIRGEALC meeting in Montevideo, Uruguay, from 21 to 26 November 2005. The following table lists the representatives that attended this "all-networks" meeting:

#### Participants of the "all-networks" meeting in Uruguay (V SIRGEALC; November 2005)

Name	Network/institution	Country
Astorga, Carlos	CATIE	Costa Rica
Alvarado de González, Priscilla	REMERFI	Panama
Avila, Teresa	REGENSUR	Bolivia
Berretta, Ana	REGENSUR	Uruguay
Cadima, Ximena	PROINPA	Bolivia
Condón, Federico	REGENSUR	Uruguay
Correa, Sixto Iman	TROPIGEN	Peru
Davidson, Campbell	NORGEN	Canada
Debouck, Daniel	CIAT	Colombia
de Vicente, Carmen	IPGRI (now Bioversity International) <sup>3</sup>	Americas Office
Ebert, Andreas	CATIE	Costa Rica
Escobar, Carlos Julio	TROPIGEN	Colombia
Ferrer, Marcelo	REGENSUR	Argentina
Fuenmayor, Francia	REDARFIT	Venezuela
Gamiette, Franciane	CAPGERNet	Guadalupe
Gandarillas, Antonio	REDARFIT	Bolivia
Hermann, Michael	IPGRI	Americas Office
Justiniano, Maria Aldete	EMBRAPA	Brazil
Lastra, Ramón	IPGRI	Colombia
León Lobos, Pedro	REGENSUR	Chile
Lobo, Mario	REDARFIT	Colombia
Macedo, Jamil	PROCITROPICOS	Brazil
Maselli, Silvana	REMERFI	Guatemala
Murillo, Rafael	TROPIGEN	Bolivia
Paredes, Nelly	TROPIGEN	Ecuador
Peñaloza, Andrea	REGENSUR	Brazil
Pérez, Delis	REDARFIT	Venezuela
Power, Imana	TROPIGEN	Surinam
Ramírez, Marleni	IPGRI	Americas Office
Ríos, Llermé	REDARFIT	Perú
Rivas, Nelson	PROCIANDINO	Venezuela
Roca, Willy	CIP	Peru
Rosso, Beatriz	REGENSUR	Argentina
Santander, Victor	REGENSUR	Paraguay
Scheldeman, Xavier	IPGRI	Americas Office
Suketoshi, Taba	CIMMYT	Mexico
Tapia, César	REDARFIT	Ecuador
Valls, Francisco	REGENSUR	Brazil
Wetzel, Magaly	TROPIGEN	Brazil
Williams, David	USDA	USA

<sup>3</sup> IPGRI and INIBAP operate under the name Bioversity International since December 2006.

## The workshop in Trinidad and Tobago

Caribbean plant genetic resources (PGR) are under constant threat of genetic erosion from natural and anthropogenic factors. This irreversible loss of single genes or combinations of genes in genotypes is of major concern to the region from a food and agriculture perspective. The relatively recent initiatives of FAO towards the conservation, more effective management and sustainable use of plant genetic resources, e.g. the Global Plan of Action and the International Treaty, were followed by the definition of a framework for the operation of the Global Crop Diversity Trust.

This workshop (Trinidad and Tobago, May 2007) created a forum for key stakeholders and scientists working in the management and use of plant genetic resources to become familiar with these international, intergovernmental initiatives and agreements, as well as to develop guidelines for the development of a strategy for the conservation of the region's invaluable PGR. The specific objectives of the workshop were:

- To identify priority crops for *ex situ* conservation and define the criteria for prioritization in the Caribbean, with a view to contribute with key elements and components to the ongoing process of preparation of a Hemispheric Conservation Strategy for the Americas.
- To identify the constraints and challenges to PGR conservation in the region.
- To determine the possible collaborative arrangements for the efficient conservation of PGR at the regional level.
- To assess the future needs for PGR conservation in the region.

**Participants of the Workshop “Developing the Caribbean and Hemispheric Strategy for PGR Conservation in the Americas” (NAMDEVCO, Macoya Market, Trinidad and Tobago; 14-15 May 2007).**

Name	Network/institution	Country
Adams, Herman	CARDI, CAPGERNet	Trinidad and Tobago
Beekham, Albada	CAPGERNet	Trinidad and Tobago
Brunner, Bryan	CAPGERNet	Puerto Rico
Elibox, Winston	CAPGERNet	Trinidad and Tobago
Fundora, Zoila	CAPGERNet	Cuba
Gamiette, Franciane	CAPGERNet	Guadeloupe
Horry, Jean-Pierre	CAPGERNet	Martinique
Lawrence A., Wilson	CAPGERNet	Trinidad and Tobago
McGlashan, Don	CAPGERNet	Jamaica
Mooleedhar, Vishnarayan	CAPGERNet	Trinidad and Tobago
Musa, Mohamed	CAPGERNet	Trinidad and Tobago
Ramírez, Marleni	Biodiversity International	Americas Office (Colombia)
Rao, Sheshagiri	CAPGERNet	Barbados
Reynoso, Genaro	CAPGERNet	Dominican Republic
Roberts, Cyril	CAPGERNet	Barbados
Roberts-Nkrumah, Laura B.	CAPGERNet	Trinidad and Tobago
Sinha, Anil	CAPGERNet	Belize
Umaharan, Pathmanathan	CAPGERNet	Trinidad and Tobago
Wickham, Lynda D.	CAPGERNet	Trinidad and Tobago

**Source:** Proceedings of the workshop in Trinidad and Tobago (May 2007).

## Appendix 2. The Global Crop Diversity Trust

### General information

The Global Crop Diversity Trust (or the Trust, for simplicity) aims to support the long-term maintenance of an efficient and effective arrangement for the *ex situ* conservation of the most important crop collections around the world. A first filter for eligibility is provided by the Eligibility Principles of the Trust. Meeting these principles is the minimum requirement for a collection to be eligible for support.

To achieve this ultimate goal, the Trust is supporting the development of conservation strategies that will guide the allocation of resources to the most important and needy crop diversity collections, assisting them to meet the criteria required for long-term conservation funding. The conservation strategies are identifying the collections and conservation service providers that will be of highest priority for support by the Trust. The strategies are identifying appropriate roles for the holders of these collections as well as for other individuals and institutions concerned with the conservation, regeneration, documentation and distribution of crop diversity.

The Trust is supporting two complementary and mutually reinforcing approaches to identifying and prioritizing eligible collections for upgrading and long-term conservation funding. One such approach is to identify key *ex situ* collections of globally important crops (Annex 1 of the ITPGRFA) on a region-by-region basis. The other is to prioritize collections on a crop-by-crop basis at the global level. This process brings together the managers of plant genetic resources and other experts to develop and implement the most cost efficient and effective strategies for ensuring the long-term conservation and availability of the crops that are vital to the world's food security.

The crop strategies will identify critically important collections on a crop by crop basis, and assign priority ranking for support by the Trust. The approach is driven by experts and holders of genetic resources of the crop in question. In many cases, existing crop networks are able to serve this purpose; in others, a group of national and international crop experts might need to come together on one or more occasions. The main task is to identify the subset of global holdings of the crop that best represents the range of diversity held *ex situ* around the world trying to minimize unnecessary duplication on a global basis. The strategy should consider the most appropriate approach to managing the eligible collections, given their location and available resources, and the standards they should be expected to fulfill in the management of the given crop. Finally, it will propose a model for sharing responsibilities for certain activities amongst collection holders and service providers, and identify and prioritize collections for long-term conservation support. In addition, they will identify priority needs for upgrading support.

### Background of the Global Crop Diversity Trust

Since the early 1970s, the number of accessions stored in genebanks has exploded from a few hundred thousand to more than 6.5 million, of which 1-2 million are thought to be distinct. The number of genebanks has also increased dramatically. Many institutions and individuals are now involved in conserving plant genetic resources, in researching and developing them, and in making them available. And yet, when reading FAO's State of the World's Plant Genetic Resources, it is clear that conservation of these invaluable resources is far from secured despite all of these efforts. One of the more obvious problems concerns funding for genebanks. Since 1996, genebank budgets have either stagnated or been cut in most countries according to FAO.

The *ex situ* conservation of crop diversity is by its nature a very long-term task, requiring consistent and reliable funding. Uncertainties in funding place collections at risk, and even short-term interruptions or fluctuations can result in total loss of unique materials. Current funding approaches, relying on annual funding from central treasuries, on traditional 3-5 year grants, and on yearly dispersals from aid programs, are evidently failing despite the importance of developing a well-funded and efficiently-functioning system of genebanks worldwide.

While no organization or fund could ever hope to finance all activities associated with plant genetic resources, the international community should have the resources to ensure the permanent conservation of all distinct PGRFA.

Similarly, no organization or fund could ever commit to underwriting the management of an unlimited number of samples of crop genetic resources. National and other interests may lead to the conservation (individually and collectively) of many replicates of a particular accession, for example. The concern of the international community, however, is to ensure that each distinct accession (though not necessarily every replicate of it) is securely conserved.

Many sources of funding exist for different plant genetic resource activities, some national, some bilateral, some from public sources and others from private sources. The Trust neither aspires to nor has the wherewithal to replace such funding. In fact, the Trust depends on and welcomes others providing support for all the valuable work that lies outside its mandate, for example to underpin specific national or private activities or to support *in situ* and on-farm efforts. The Trust's ambitions, while grand, are not all-inclusive, but aim at accomplishing an endeavor that is absolutely essential to the future of agriculture and humanity.

### **Principles for the Trust in helping to identify important collections**

The Trust has developed principles for identifying collections that might be eligible for support. These include the following four key principles:

- The plant genetic resources are of crops included in Annex 1 or referred to in Article 15.1(b) of the International Treaty.
- The plant genetic resources are accessible under the internationally agreed terms of access and benefit sharing provided for in the multilateral system as set out in the International Treaty.
- Each holder of PGRFA commits to its long term conservation and availability.
- Each recipient of funds from the Trust shall undertake to work in partnership with the aim of developing an efficient and effective global conservation system.

In addition the Trust will need to employ more detailed criteria to help prioritize its grant-making among the various eligible collections. These criteria will necessarily lead the Trust in the direction of focusing its attention, in particular, on distinct germplasm, on global needs and requirements, and on the best and most practical and cost-efficient ways of conserving genetic resources and making them available to the widest range of potential users.

Though the Trust is only one of many actors in the field of PGRFA, it occupies a unique niche, being the only one structured as a trust fund with the explicit purpose of providing on-going financial support to conserve the diversity of agricultural crops.

Many sources of funding/support exist for work in this field, but only one – the Trust – has the particular mandate to conserve distinct and valuable plant genetic resources in perpetuity. In 2002, the FAO Commission on Genetic Resources noted that the initiative to establish the Trust was universally appreciated and supported, and appealed to donors to assist in the establishment of the Trust. In its infancy, the Trust is still assembling the requisite funding for the endowment, and formulating its programs.

For more details visit: [www.croptrust.org](http://www.croptrust.org)

## Appendix 3. Ratification/accession status of The International Treaty on Plant Genetic Resources for Food and Agriculture

The following instruments have been deposited on the dates indicated (up-loaded from the ITPGRFA website [[http://www.planttreaty.org/index\\_en.htm](http://www.planttreaty.org/index_en.htm)] in Jan 2008):

Participant	Signature	Ratification	Acceptance	Approval	Accession
Afghanistan					9/11/2006
Algeria					13/12/2002
Angola	10/10/2002	14/3/2006			
Argentina	10/6/2002				
Armenia					20/3/2007
Australia	10/6/2002	12/12/2005			
Austria	6/6/2002	4/11/2005			
Bangladesh	17/10/2002	14/11/2003			
Belgium	6/6/2002	2/10/2007			
Benin					24/2/2006
Bhutan	10/6/2002	2/9/2003			
Brazil	10/6/2002	22/5/2006			
Bulgaria					29/12/2004
Burkina Faso	9/11/2001	5/12/2006			
Burundi	10/6/2002	28/4/2006			
Cambodia	11/6/2002		11/6/2002		
Cameroon	3/9/2002	19/12/2005			
Canada	10/6/2002	10/6/2002			
Cape Verde	16/10/2002				
Central African Republic	9/11/2001	4/8/2003			
Chad	11/6/2002		14/3/2006		
Chile	4/11/2002				
Colombia	30/10/2002				
Congo, Republic of					14/9/2004
Cook Islands					2/12/2004
Costa Rica	10/6/2002	14/11/2006			
Côte d'Ivoire	9/11/2001	25/6/2003			
Cuba	11/10/2002	16/9/2004			
Cyprus	12/6/2002	15/9/2003			
Czech Republic					31/3/2004

Democratic People's Republic of Korea					16/7/2003
Democratic Republic of the Congo					5/6/2003
Denmark	6/6/2002	31/3/2004			
Djibouti					8/5/2006
Dominican Republic	11/6/2002				
Ecuador					7/5/2004
Egypt	29/8/2002	31/3/2004			
El Salvador	10/6/2002	9/7/2003			
Eritrea	10/6/2002	10/6/2002			
Estonia					31/3/2004
Ethiopia	12/6/2002	18/6/2003			
European Community	6/6/2002			31/3/2004	
Finland	6/6/2002	31/3/2004			
France	6/6/2002			11/7/2005	
Gabon	10/6/2002	13/11/2006			
Ghana	28/10/2002	28/10/2002			
Germany	6/6/2002	31/3/2004			
Greece	6/6/2002	31/3/2004			
Guatemala	13/6/2002	1/2/2006			
Guinea	11/6/2002			11/6/2002	
Guinea-Bissau					1/2/2006
Haiti	9/11/2001				
Honduras					14/1/2004
Hungary					4/3/2004
Iceland					7/8/2007
India	10/6/2002	10/6/2002			
Indonesia					10/3/2006
Iran, Islamic Republic of	4/11/2002	28/4/2006			
Ireland	6/6/2002	31/3/2004			
Italy	6/6/2002	18/5/2004			
Jamaica					14/3/2006
Jordan	9/11/2001	30/5/2002			
Kenya					27/5/2003
Kiribati					13/12/2005
Kuwait					2/9/2003
Lao People's Democratic Republic					14/3/2006

Latvia					27/5/2004
Lebanon	4/11/2002	6/5/2004			
Lesotho					21/11/2005
Liberia					25/11/2005
Libyan Arab Jamahiriya					12/4/2005
Lithuania					21/6/2005
Luxembourg	6/6/2002	31/3/2004			
Madagascar	30/10/2002	13/3/2006			
Malawi	10/6/2002	4/7/2002			
Malaysia					5/5/2003
Maldives					2/3/2006
Mali	9/11/2001	5/5/2005			
Malta	10/6/2002				
Marshall Islands	13/6/2002				
Mauritania					11/2/2003
Mauritius					27/3/2003
Morocco	27/3/2002	14/7/2006			
Myanmar					4/12/2002
Namibia	9/11/2001	7/10/2004			
Netherlands	6/6/2002		18/11/2005		
Nicaragua					22/11/2002
Niger	11/6/2002	27/10/2004			
Nigeria	10/6/2002				
Norway	12/6/2002	3/8/2004			
Oman					14/7/2004
Pakistan					2/9/2003
Panama					13/3/2006
Paraguay	24/10/2002		3/1/2003		
Peru	8/10/2002	5/6/2003			
Philippines					28/9/2006
Poland					7/2/2005
Portugal	6/6/2002			7/11/2005	
Republic of Serbia	1/10/2002				
Romania					31/5/2005
Saint Lucia					16/7/2003
Samoa					9/3/2006

Sao Tome and Principe					7/4/2006
Saudi Arabia					17/10/2005
Senegal	9/11/2001	25/10/2006			
Seychelles					30/05/2006
Sierra Leone					20/11/2002
Slovenia					11/1/2006
Spain	6/6/2002	31/3/2004			
Sudan	10/6/2002	10/6/2002			
Swaziland	10/6/2002				
Sweden	6/6/2002	31/3/2004			
Switzerland	28/10/2002	22/11/2004			
Syrian Arab Republic	13/6/2002	26/8/2003			
Thailand	4/11/2002				
The Former Yugoslav Republic of Macedonia	10/6/2002				
Togo	4/11/2002	23 October 2007			
Trinidad and Tobago					27/10/2004
Tunisia	10/6/2002	8/6/2004			
Turkey	4/11/2002	7/6/2007			
Uganda					25/3/2003
United Arab Emirates					16/2/2004
United Kingdom	6/6/2002	31/3/2004			
United Republic of Tanzania					30/4/2004
United States of America	1/11/2002				
Uruguay	10/6/2002	1/3/2006			
Venezuela	11/2/2002	17/5/2005			
Yemen					1/3/2006
Zambia	4/11/2002	13/3/2006			
Zimbabwe	30/10/2002	5/7/2005			

Source: Web site <http://www.fao.org/Legal/treaties/033s-e.htm> - Highlighted countries are located in the Americas.

## Appendix 4. A Short Historical Background on the America's PGR

The Americas region is characterized by huge variability in climate, culture, economic development and genetic resources that presents a complex environment for implementing plant genetic resources activities. The hemisphere comprises 36 independent countries and territories, stretching from Canada to Argentina, and includes the Caribbean. The region encompasses frigid polar climates at the continental extremes, vast temperate regions, mountain ranges, rivers, deserts, savannahs and tropical forests.

The Americas existed in virtual isolation, both culturally and floristically, from the rest of the world until Columbus' arrival, about 500 years ago. Dubbed the 'New World' by early European visitors, the Americas are in fact a region where agriculture and civilization arose thousands of years ago. As prehistoric cradles of civilization, the Mesoamerican and Andean sub-regions prospered as a result of the independent discovery and development of agriculture by Native Americans. With the spread of agriculture throughout the hemisphere, crop species also spread, evolving and adapting according to the conditions and needs of different cultures and climates. The resulting agrobiodiversity, which includes crop landraces, their wild relatives and progenitor species, represents a vast storehouse of genetic resources.

Many crops of global importance were first domesticated in the Americas, including maize, potato, tomato, cotton, cassava, tobacco, beans, squashes, vanilla, cacao, peanut and peppers. Dozens of other crop species were domesticated in the Americas; many of these were important and widespread at the time of European contact, but have since been neglected or displaced by introduced crops.

Some of these crops are grown in only very small areas, persisting mainly because of culinary traditions dating to prehistoric times and cultures – the so called infra-utilized or neglected crops. Many countries, such as Argentina, Bolivia, Brazil, Colombia, Ecuador, Guatemala, Mexico, Paraguay and Peru have large populations of traditional and indigenous peoples who continue to play an important role in the conservation and use of a broad range of native crop varieties and useful wild species.

Despite the great richness of native crop diversity, many exotic species such as sugar cane, banana, rice, soybean, sorghum, coffee, wheat, citrus and forage grasses are now of great economic importance in the Americas and are the agricultural base of many countries in the region. In recent years, rapid population growth, urbanization, degradation of natural ecosystems and the expansion of modern agricultural practices have resulted in a significant degree of genetic change in the agricultural landscape including native crops and their wild relatives. Effective and efficient conservation practices are essential and hopefully will lead the way to benefit the peoples of the region and humanity as a whole.

Many nations in the Americas are among the most active in global genetic resources discussions and fora, such as FAO's Commission on Genetic Resources for Food and Agriculture and the working groups in the context of the CBD. In recent years, several nations in the hemisphere have enacted policies and legislation regulating the access, benefit sharing and exchange of (plant) genetic resources. Some groups of countries, most notably the Andean and Central American nations, have developed (sub-regional) legislation regulating access to genetic resources. In addition to national governments and sub-regional legislation, there are many regional and international organizations operating at a variety of levels in the Americas, including IICA, CATIE, CARDI, IARCs (CIP, CIMMYT, CIAT, and Bioversity International), as well as FAO Branches who assist in providing the technical support for the implementation of strategic approaches.

The International Treaty on Plant Genetic Resources for Food and Agriculture in particular, the Convention on Biological Diversity and the World Summit on Sustainable Development (2002), amongst many other similar declarations and instruments, emphasize that the strategic needs of countries in terms of supporting conservation efforts are often best met by working together. National plant genetic resources programs bring together the full range of experience and knowledge about genetic resources that exist in the country. Furthermore, by integrating these into regional and international strategies we take steps towards the development of a multilateral system. The emergence of the Global Crop

Diversity Trust as a means of providing long-term stable funding for genetic resource programs should provide a new opportunity for all. (Extracted from an IPGRI report, 2000).

## Appendix 5. PGR networks and institutional partners in the Americas

The following provides a list of active sub-regional networks, their objectives and main activities, as well as their points of contact in the Americas:

### REDARFIT - The Andean Network on Plant Genetic Resources

([http://www.iica.int/prociandino/red\\_redarfit.html](http://www.iica.int/prociandino/red_redarfit.html))

**Countries:** Bolivia, Colombia, Ecuador, Peru and Venezuela.

**Contact: Eng. Llermé Ríos Lobo**

Specialist on Genetic Resources

Estación Experimental Agropecuaria *La Molina*, DNIRRG

INIA

Av. La Molina 1981, Apartado Postal 2791

Lima, Peru

Telephone & fax: (+51 1) 3495646

E-mail: [rioslobo@hotmail.com](mailto:rioslobo@hotmail.com)

REDARFIT (after its acronym in Spanish) operates under the aegis of IICA/PROCIANDINO. This network groups the NARIs and some universities of the Andean sub-region (i.e. the five Member countries of CAN, the former Andean Pact). It promotes the exchange of information on traditional food crops and plant genetic resources, stimulates joint activities, organizes workshops and courses on specific subjects and supports professional training.

This network is currently implementing several projects: An initiative on tree tomato jointly carried out by Colombia, Ecuador, Perú and Venezuela (Bolivia might join soon); an INCO supported project on cherimoya; and a project on indigenous potato with support from FONTAGRO. Other initiatives in REDARFIT are, at the time of producing this strategy, in a stage of proposal formulation, i.e. activities on *Passiflora* and *Capsicum*.

### REMERFI – The Mesoamerican Network on Plant Genetic Resources

(<http://www.iica.int/foragro/redes/remerfi.asp>)

**Countries:** Belice, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama.

**Contact: Eng. Nevio A. Bonilla Morales**

President, REMERFI

Instituto Nacional de Innovación y Transferencia de Tecnología Agropecuaria - Costa Rica

Apto. Postal 10094 -1000

San José, Costa Rica

Tel: (506) 296 2495 / (506) 231 33 44 Ext 456

Fax (506) 296 0858

Email: [nbonilla22@yahoo.com](mailto:nbonilla22@yahoo.com)

The network aims at strengthening national capacities for plant genetic resources conservation through regional cooperative activities; it operates through the technical backstopping and support of Bioersity, IICA and CATIE (acting as *pro tempore* Secretariat) with financial contributions of international donors. It sets priorities for crops and activities of importance for the conservation of the sub-region's plant genetic resources and is currently formulating projects for the consideration of donors.

**Objectives:** The network's purpose is to improve the conservation and sustainable use of plant genetic resources by strengthening national plant genetic systems and coordinating implementation of actions at the national and Mesoamerican levels.

**Activities:** (1) Conservation and sustainable use of genetic resources - This component promotes the conservation of PGR, adopting an approach that combines *in situ* and *ex situ* conservation, and places special emphasis on conservation actions implemented at the local level by small farmers and indigenous communities; (2) Training - This component, which includes different types of preparation and instruction, deploys particular importance to short courses on the collection, *in situ* and *ex situ* conservation, characterization and evaluation of germplasm, and on the systematization and exchange of information; and, (3) Capacity building - This component involves the design and analysis of, and support for, the harmonization of important policies related to plant genetic resources, and the formulation and strengthening of institutional models and management and negotiation instruments.

REMERFI is currently implementing a PDF B stage seed project with support of the World Bank and GEF for the full implementation of the project “*Conservation and Sustainable Use of Neotropical Native Crops and their Wild Relatives*”. In addition, the network is also strengthening domestic efforts to form the national commissions on (P)GRFA throughout the sub-region, as well as preparing a sub-regional work plan for the period 2007-2008.

### **TROPIGEN – The Amazonian Network on Plant Genetic Resources**

(<http://www.procitropicos.org.br/index.cfm?saction=conteudo&mod=6A5D514A3E1A0816515F5004&idm od=090B01>)

**Countries:** Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela.

**Contact: Dr. María Magaly da Silva Wetzel**

Area de Conservação de Germoplasma

Centro Nacional de Pesquisa de Recursos Genéticos e Biotec. (CENARGEN)

SAIN Parque Rural, CP 02372, 70770-900 Brasília, DF, Brazil

Tel: (55-61) 3448-4606

Fax: (55-61) 3340-3624

E-mail: [magaly@cenargen.embrapa.br](mailto:magaly@cenargen.embrapa.br)

TROPIGEN (after its acronym in Spanish) operates under the aegis of PROCITROPICOS, a cooperative programme of IICA. The Amazonian network implements activities which include the characterization and promotion of the sustainable use of under-exploited vegetable and fruit crops of sub-regional importance. A list of 46 species of Amazonian food crops has been agreed during TROPIGEN's working sessions. The network seeks to concentrate activities in places with a comparative advantage.

The Amazonian network is currently implementing activities in the following fields: Identification and evaluation of the main collections of genetic resources in the eight member countries; definition of priorities on genetic resources (genus and species levels) for gap collecting and conservation; identification of best practices for the management of PGRFA; policy work on topics related to ABS and economic valuation; formation of regional reference collections; training of human resources; methodologies for exchange of technology and information; proposal formulation on research, development and innovation; and, linkages between genebanks and breeding programs.

### **REGENSUR - PROCISUR's Sub-program for Plant Genetic Resources**

([www.procisur.org.uy/online/regensur.asp](http://www.procisur.org.uy/online/regensur.asp))

**Countries:** Argentina, Bolivia, Brazil, Chile, Paraguay and Uruguay.

**Contact: Dr. Ana Berretta**

INIA, Estación Experimental *La Estanzuela*, Ruta 50, Km. 11

Casilla de correo 39173, 70.000

Colonia, Uruguay

Tel: 598 (057) 48000 - Fax: 598 (057) 48012

E-mail: [aberretta@dn.inia.org.uy](mailto:aberretta@dn.inia.org.uy)

REGENSUR (*Red de Recursos Genéticos del Cono Sur* in Spanish) operates under the aegis of PROCISUR, a cooperative programme of IICA in the southern part of South America. The network implements activities which are common priority for the sub-region. Its mission is to promote the identification, valuation, conservation, characterization, enhancement and sustainable use of PGRFA. REGENSUR's objective is to promote and strengthen technical capacities of the NARS in the member countries.

Some of its specific objectives include support to the development and strengthening of national genetic resources systems, development of joint projects, and the provision of a forum for the discussion of themes of common interest such as access, intellectual property rights, valuation of plant genetic resources, as well as the improvement of the negotiating capacity of the sub region and the promotion of strategic research of areas of common interest.

### **CAPGERNet – The Caribbean Plant Genetic Resources Network**

(<http://www.procicaribe.org/networks/capgernet/index.htm>)

**Countries:** Antigua & Barbuda, Bahamas, Barbados, Belize, Cayman Islands, Cuba, Dominica, the Dominican Republic, French Guiana, Grenada, Guadeloupe, Guyana, Haiti, Jamaica, Martinique, Montserrat, St. Kitts & Nevis, St. Lucia, St. Vincent, Suriname, Trinidad & Tobago, and the Virgin Islands (British and US).

**Contact: Dr. Herman Adams**

C/O Caribbean Agricultural Research and Development Institute, CARDI

Trinidad and Tobago

Tel: 868 645 1505

Fax: 868 645 1208

E-Mail: [hadams@cardi.org](mailto:hadams@cardi.org)

National network coordinators: [www.procicaribe.org/networks/capgernet/ncontacts.htm](http://www.procicaribe.org/networks/capgernet/ncontacts.htm)

In view of this scenario, CAPGERNet was formally established in 1998 as the sub-regional plant genetic resources network under the Caribbean Agricultural Science and Technology Networking System (PROCICARIBE). The network's member countries are national committees that have been set up or are being organized in the Caribbean, under the auspices of CAPGERNet. The Caribbean Agricultural Research and Development Institute (CARDI), IICA, IDB, CTA and Bioversity have provided most of the resources for the establishment and early operation of the network. Other important partners are the CGIAR centers, UWI, INRA (France) and FAO.

Goal: To ensure that there is improvement in the levels of efficiency, impact and coordination in the topics of conservation, management and utilization of PGRFA in the Caribbean sub-region.

Priority areas: The priority areas identified so far by CAPGERNet are institutional capacity building and training, inventory of plant genetic resources, development of information systems and germplasm exchange. At present, no facility exists for long-term sub-regional germplasm conservation within the Caribbean, but this lack, together with research activities, is expected to be addressed by the network in a step-wise approach.

Expected outputs:

- Trained technicians, researchers and farmers in PGRFA management.
- Inventory of PGRFA activities and expertise developed, documented and disseminated.
- Regulations documented and network agreement established on movement of germplasm within the sub-region and other areas of interest (e.g. genetically modified organisms, IPRs, access, etc.).
- Trained personnel in PGRFA documentation.

## **NORGEN – The Plant Genetic Resources Network for North America**

(<http://www.procinorte.org/contenidos/procinortees.htm>)

**Countries:** Canada, Mexico and the USA.

**Contact: Francisco Ibarra**

Director de Intercambio y Cooperación Científica

INIFAP

Av. Progreso No. 5, Col. del Carmen, Delegación Coyoacán,

Mexico DF, 04110, Mexico

Tel.: (+52) 55 3871-8734

E-mail: [ibarra.francisco@inifap.gob.mx](mailto:ibarra.francisco@inifap.gob.mx)

Internet: [www.inifap.gob.mx](http://www.inifap.gob.mx)

NORGEN operates under the aegis of PROCINORTE, a cooperative programme of IICA in North America. The network implements activities which are common priority for the sub-region. Its objectives are:

- To encourage communication and collaboration among personnel involved in national genetic resource systems/programs.
- To identify training and education needs.
- To integrate efforts with other genetic resources networks within the Americas and around the world.
- To develop PGR projects of interest to the three member countries.
- To encourage reciprocal participation of national experts in each country's, operational and advisory committees.
- To establish contact with other task forces of PROCINORTE.
- To support the development of an Integrated Plant Genetic Resources System in Mexico.

### ***International and institutional partners***

#### **The Consultative Group on International Agricultural Research (CGIAR)**

([www.cgiar.org](http://www.cgiar.org))

**Mission:** To achieve sustainable food security and reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, forestry, fisheries, policy, and environment.

The CGIAR, established in 1971, is a strategic partnership of countries, international and regional organizations and private foundations supporting the work of 15 International Agriculture Research Centers (IARCs). In collaboration with national agricultural research systems, civil society and the private sector, the CGIAR fosters sustainable agricultural growth through high-quality science aimed at benefiting the poor through stronger food security, better human nutrition and health, higher incomes and improved management of natural resources. Among others, it is co-sponsored by the Food and Agriculture Organization of the United Nations (FAO), the World Bank, the United Nations Development Program (UNDP) and the United Nations Environment Program (UNEP).

#### **Areas of focus of the CGIAR:**

- Sustainable production (of crops, livestock, fisheries, forests and natural resources).
- Enhancing NARS (through joint research, policy support, training and knowledge-sharing).
- Germplasm improvement (for priority crops, livestock, trees and fish).
- Germplasm collection (collecting, characterizing and conserving genetic resources - the CGIAR holds in public trust one of the world's largest seed collections available to all).

- Policy (fostering research on policies that have a major impact on agriculture, food, health, spread of new technologies and the management and conservation of natural resources).

#### The CGIAR and PGRFA:

On 16 October 2006, 11 IARCs of the CGIAR which hold *ex situ* germplasm collections signed agreements under Article 15 of the International Treaty on Plant Genetic Resources for Food and Agriculture. These agreements placed the *ex situ* collections of PGRFA held by those centers (some 650,000 accessions of the world's most important crops) within the purview of the Treaty. Under these agreements, the CG Centers recognize the authority of the Governing Body of the Treaty to provide policy guidance relating to their *ex situ* collections.

From January 2007, all transfers from the Center-held collections of PGRFA listed in Annex 1 of the Treaty will be subject to the Standard Material Transfer Agreement (SMTA) adopted by the Governing Body of the Treaty at its first session in June 2006. Non-Annex 1 PGRFA will be transferred to the requesting party subject to the Material Transfer Agreement (MTA) currently in use by the centers. During its Second Session in October-November 2007, the Governing Body of the Treaty would amend this interim MTA for use by the CG Centers for non-Annex 1 materials.

Not all the CG Centers relate to the PGRFA Hemispheric Conservation Strategy in the Americas. Therefore, only those directly related to the networks are described briefly below.

#### **Centers around the World**

##### **Bioversity International**

([www.bioversityinternational.org](http://www.bioversityinternational.org))

Founded in 1974 as the International Board for Plant Genetic Resources (**IBPGR**), in 1991, it became the International Plant Genetic Resources Institute (IPGRI). With effect from December 1, 2006, **IPGRI** and **INIBAP** operate under the name **Bioversity International**.

Via dei Tre Denari, 472/a  
00057 Maccarese (Rome)  
Italy  
Tel: (+39) 0661181  
Fax: (+39) 0661979661

Regional Director for the Americas Office  
Dr. Marleni Ramírez, PhD  
Email: [m.ramirez@cgiar.org](mailto:m.ramirez@cgiar.org)

Bioversity is an independent international scientific organization that seeks to improve the well-being of present and future generations of people by enhancing conservation and the deployment of agricultural biodiversity on farms and in forests. It is one of 15 centres supported by the CGIAR, who supports efforts to mobilize cutting-edge science to reduce hunger and poverty, improve human nutrition and health, and protect the environment. Bioversity has its headquarters in Maccarese, Italy, with offices in more than 20 other countries worldwide. The Institute operates through four programmes: Diversity for Livelihoods, Understanding and Managing Biodiversity, Global Partnerships, and Commodities for Livelihoods.

##### **CIAT - Centro Internacional de Agricultura Tropical**

(<http://www.ciat.cgiar.org/>)

Apartado Aéreo 6713, Cali, Colombia.  
Founded 1967

CIAT is a not-for-profit organization that conducts socially and environmentally progressive research aimed at reducing hunger and poverty, and preserving natural resources in developing countries.

Research in germplasm development in beans, cassava, tropical forages with a global reach, while rice and tropical fruits targets Latin America and the Caribbean. CIAT is one of the 15 centers supported by the CGIAR.

**CIFOR - Center for International Forestry Research**

(<http://www.cifor.cgiar.org/>)

P.O. Box 161, Bogor 16001, Indonesia.  
Founded 1993

CIFOR's mission is to contribute to the sustained well-being of people in developing countries, particularly in the tropics, through collaborative strategic and applied research and related activities in forest systems and forestry, and by promoting the transfer of appropriate new technologies and the adoption of new methods of social organization, for national development.

**CIMMYT - Centro Internacional de Mejoramiento de Maíz y Trigo**

(<http://www.cimmyt.org/>)

Lisboa 27, P.O. Box 6-641, Mexico 06600, D.F., Mexico.  
Founded 1966.

To help the poor by increasing the productivity of resources committed to maize and wheat in developing countries while protecting the environment, through agricultural research and in concert with national research systems.

**CIP – Centro Internacional de la Papa**

(<http://www.cipotato.org/>)

Apartado 5969, Lima, Peru.  
Founded 1970

CIP is a CGIAR-supported center that seeks to reduce poverty and achieve food security on a sustained basis in developing countries through scientific research and related activities on potato, sweetpotato, and other root and tuber crops and on the improved management of natural resources in the Andes and other mountain areas. Increasingly, CIP employs its expertise in convening global research initiatives that involve a range of institutions that can contribute to the Center's objectives. As opportunities arise, research is conducted in partner and client institutions around the world.

**ICARDA - International Center for Agricultural Research in the Dry Areas**

(<http://www.icarda.org/>)

P.O. Box 5466, Aleppo, Syria.  
Founded 1975

ICARDA's mission is to improve the welfare of poor people and alleviate poverty through research and training in dry areas of the developing world, by increasing the production, productivity and nutritional quality of food, while preserving and enhancing the natural resource base. To meet the challenge posed by a harsh, stressful, and water-deficit environment in which the productivity of winter rainfed crop and livestock production systems must be increased to higher sustainable levels; in which water capture must be improved by water harvesting and water use efficiency increased through supplemental irrigation; and in which the degradation of the soil, water and vegetation resources of a fragile environment must be arrested and, possibly, reversed.

**ICRISAT - International Crops Research Institute for the Semi-Arid Tropics**

(<http://www.icrisat.org/>)

Patancheru 502 324, Andhra Pradesh, India.

Founded 1972

To conduct research leading to enhanced sustainable food production in the harsh conditions of the semi-arid tropics. ICRISAT's main crops (sorghum, finger millet, pearl millet, chickpea, pigeonpea, and groundnut) are less well known in the world's more favorable agricultural regions, but they are vital to life for the one-sixth of the world's population that lives in the semi-arid tropics. ICRISAT research is conducted in partnership with the national agricultural systems. It encompasses the management of the region's limited natural resources to increase the productivity, stability, and sustainability of these and other crops.

**IFPRI - International Food Policy Research Institute**

(<http://www.ifpri.org/>)

2033 K Street, N.W., Washington, D.C. 20006, U.S.A.

Founded 1975

To focus on identifying and analyzing policies for meeting food needs of developing countries, particularly the poorer groups within those countries. Research covers ways to achieve sustainable food production and land use, improve food consumption and income levels of the poor, enhance the links between agriculture and other sectors of the economy, and improve trade and macroeconomic conditions.

**IITA - International Institute of Tropical Agriculture**

(<http://www.iita.org/>)

PMB 5320, Ibadan, Nigeria.

Founded 1967

To contribute to sustainable and increasing food production in the humid and sub-humid tropics and thereby to improve the well-being of low-income people by conducting international agricultural research and outreach activities in partnership with African national agricultural research systems, particularly on maize, cassava, cowpea, plantain, soybean, and yam.

**ILRI - International Livestock Research Institute**

(<http://www.ilri.org/>)

Founded in 1974 as **ILCA** (International Livestock Centre for Africa), in 1994, merged with **ILRAD** (International Laboratory for Research on Animal Diseases) to become **ILRI**.

P.O. Box 30709, Nairobi 00100, Kenya.

ILRI works at the crossroads of livestock and poverty, bringing high-quality science and capacity-building to bear on poverty reduction and sustainable development. ILRI is a non-profit-making organization which conducts research in Africa, Asia and Latin America and the Caribbean.

**IRRI - International Rice Research Institute**

(<http://www.irri.org/>)

DAPO Box 7777, Metro Manila, Philippines

Founded 1960.

Its mission is to improve the well-being of present and future generations of rice farmers and consumers, particularly those with low incomes, by generating and disseminating rice-related knowledge and technology of short- and long-term environmental, social, and economic benefit and by helping to enhance national rice research.

**IWMI - International Water Management Institute**

(<http://www.iwmi.cgiar.org/>)

Founded in 1984 as **IIMI** (International Irrigation Management Institute), in 1996-2000, it changed its name to **IWMI**.

P.O. Box 2075, Colombo, Sri Lanka.

To improve the management of land and water resources for food, livelihoods and nature. In these three areas, access to water and land are contributing factors. IWMI concentrates on water and related land management challenges that poor rural communities face.

**WARDA – Africa Rice Center**

(<http://www.warda.org/>)

Founded in 1970 as the West Africa Rice Development Association (**WARDA**), and designated the **Africa Rice Center** in 2003.

01 B.P. 2551, Bouaké 01, Côte d'Ivoire  
Temporary headquarters : 01 B.P. 2031 Cotonou, Benin

WARDA's mission is to contribute to poverty alleviation and food security in Africa, through research, development and partnership activities aimed at increasing the productivity and profitability of the rice sector in ways that ensure the sustainability of the farming environment.

**World Agroforestry Centre**

(<http://www.worldagroforestrycentre.org/>)

Founded in 1978 as **ICRAF** (International Council for Research in Agroforestry), in 1991, after joining the CGIAR centres, its name changed from Council to Centre. Since 2002, ICRAF operates under the name the **World Agroforestry Centre**.

PO Box 30677-00100 GPO  
Nairobi, Kenya

To generate knowledge on the complex role of trees in livelihoods and the environment, and foster use of this knowledge to improve decisions and practices impacting on the poor. Agroforestry systems integrate trees and crops, as well as livestock and aquatic resources on farmland or pasture. Such landuse systems can ease the pressure on tropical forests and generate income and improve living standards of the poor throughout the tropics. Agroforestry research can help reverse land depletion and reclaim degraded land. Its research focuses, for instance, on marginal land where rural poverty is most acute. It offers subsistence farmers services, such as soil improvement, as well as a wide range of products for home consumption or marketing. All of its work is done with national partners in Africa, Asia and Latin America.

**WorldFish Center**

(<http://www.worldfishcenter.org/cms/default.aspx>)

Founded in 1977 as **ICLARM** (International Center for Living Aquatic Resources Management), based in Philippines, in 2000, its name was shortened to the **WorldFish Center** and new headquarters were established in Penang, Malaysia.

P.O. Box 500, GPO 10670  
Penang, Malaysia

Its mission is to reduce poverty and hunger by improving fisheries and aquaculture. To improve production and management of aquatic resources for sustainable benefits of present and future generations of low-income users (producers and consumers) in developing countries through international research and related activities and in partnership with national agricultural research systems by improving the biological, socioeconomic, and institutional management mechanisms for sustainable use of aquatic resource systems, by devising and improving production systems that will provide increasing yet sustainable yields, and by strengthening national programs to ensure sustainable development of aquatic resources.

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**CATIE - Centro Agronómico Tropical de Investigación y Enseñanza**  
([www.catie.ac.cr](http://www.catie.ac.cr))

**Contact:** General Directorate, Pedro Ferreira Rossi, Ph.D  
CATIE  
P.O. Box 7170, Turrialba, Costa Rica.  
Phone: + 506 558 2000  
Email: [comunicacion@catie.ac.cr](mailto:comunicacion@catie.ac.cr)

CATIE is a regional center in Central America, with headquarters in Turrialba, Costa Rica, focusing on research and graduate education in the agricultural sciences and natural resources, and on environmental aspects related to both. Its mission is to benefit humanity through the application of knowledge, experiences and technologies in order to stimulate development, conservation and the sustainable use of natural resources in the American tropics. It was founded in 1942 as the Inter-American Institute of Agricultural Sciences (IICA) through the good offices of Henry Wallace, then Secretary of Agriculture and later Vice-President of the United States. CATIE seeks a substantive, verifiable impact on regional economic growth and social development in its member countries, as well as the conservation of their natural resources and environment.

**Mission:** To contribute to rural poverty reduction by promoting competitive and sustainable agriculture and natural resource management, through higher education, research and technical cooperation.

As a regional center, CATIE's work ultimately benefits the following target groups:

- Small and medium-sized low-resource farmers including those living in extreme poverty, and those with minimum means to diversify and become competitive.
- Rural communities and local organizations.
- Business-oriented farmers and agro-industrial entrepreneurs generating rural employment.

Today's CATIE was formally created in 1973, associated with the Inter-American Institute for Cooperation on Agriculture (today's IICA, headquartered in San Jose), but now an autonomous regional institution. CATIE has two great strengths: **a)** Its close cooperation with national, regional and international institutions and organizations, both public and private, non-governmental and academic, in its Member Countries (Mexico, Dominican Republic, Guatemala, Honduras, El Salvador, Belize, Nicaragua, Costa Rica, Panama, Venezuela, Colombia, Bolivia and Paraguay), Affiliated Members and other countries; and **b)** the quality of the services it provides, based on the effective integration of its three basic activities: research, education and outreach, all of which focused on sustainable human development and natural resource conservation.

The Center's Board of Directors meets twice yearly to lay out and guide CATIE's day-to-day activities, overseen by the Governing Council, made up of the Ministers of Agriculture or Environment of the Member Countries. The Inter-American Board of Agriculture (IABA), in its biennial meetings, serves as the highest advisory body of the Center. With a permanent and temporary staff of nearly 500 and an average yearly budget of some USD 20 million, CATIE occupies an important niche in Latin America.

**CARDI - Caribbean Agricultural Research and Development Institute**[www.cardi.org](http://www.cardi.org)

UWI Campus, St. Augustine  
 Trinidad and Tobago  
 West Indies  
 Tel: 1 868 645 1205  
 Fax: 1 868 645 1208

The institute was established in 1975 to serve the agricultural research and development needs of the member states of the Caribbean Community (CARICOM) in the modality of a regional entity. The institute provides:

- Technical services in integrated pest management technology, organic and crop production systems, sheep and goat production systems and statistical analysis.
- Agribusiness and marketing technical assistance.
- Information management for agricultural and rural development through the ACP-EU Technical Centre for Agricultural and Rural Cooperation (CTA).
- Regional research coordination through the establishment of commodity and thematic networks under the Caribbean Agricultural Science and Technology Information Networking System (PROCICARIBE).

CARDI implements its work program by working in collaboration with local, regional and international research and development organizations.

Message: Enhancing the socio-economic well-being of Caribbean people through research that improves the competitiveness and sustainability of regional agriculture.

Institutional slogan: Improving lives through agricultural research.

**The Inter-American Institute for Cooperation on Agriculture (IICA), the PROCIs and SICTA**

[www.iica.int](http://www.iica.int), [www.iica.int/Procis/](http://www.iica.int/Procis/), <http://sicta.ws/>

Headquarters address: 600 m noreste del Cruce Ipís-Coronado  
 San Isidro de Coronado, San José, Costa Rica  
 Mailing address: Apartado 6742-1000 San José, Costa Rica  
 Telephone: (+506) 2160222  
 Fax: (+506) 2160258  
 E-mail: [iica.cr@iica.int](mailto:iica.cr@iica.int)

IICA is a specialized agency of the Inter-American System with the purpose of encouraging and supporting the efforts of its Member States to achieve agricultural development and well-being for rural populations. With more than six decades of institutional life, the institute is responding to new mandates issued by the Heads of State and Government of the Americas, the General Assembly of the Organization of American States (OAS) and the ministers of agriculture of the Americas, to reposition itself so that it can meet both the new challenges facing agriculture and the requests for support it receives from its member countries.

Vision: To be the leading agricultural institution in the Americas and the partner of choice by virtue of the quality of the technical cooperation it provides in response to the needs of Member States and its contributions to sustainable agricultural development, food security and rural prosperity.

Mission: IICA is the specialized agency for agriculture and the rural milieu of the Inter-American System, whose purpose is to provide innovative technical cooperation to the Member States, with a view to achieving their sustainable development in aid of the peoples of the Americas.

As it pursues its vision and carries out its mission, IICA has competitive advantages it can draw on to carry out its new role. It has accumulated a wealth of knowledge regarding agriculture, rural territories, the diversity of peoples and cultures, and the agro-ecological diversity of the hemisphere, all of which are important for crafting creative solutions to a wide variety of problems and challenges.

Its presence in all of the Member States (<http://www.iica.int/paises/>) gives the institute the flexibility it needs to move resources between countries and regions in order to promote and adapt cooperation initiatives intended to address national and regional priorities, facilitate the flow of information and improve the dissemination of best practices.

IICA has its Headquarters in Costa Rica and offices in 34 countries throughout the Americas, an office in Miami (which is responsible for the Inter-American Program for the Promotion of Agricultural Trade, Agribusiness and Food Safety), as well as an office for Europe (located in Madrid, Spain). The Directorate for Strategic Partnerships works out of the IICA Office in Washington, D.C.

The PROCIs network ([www.iica.int/Procis/](http://www.iica.int/Procis/)) comprises a set of cooperative programs in agricultural research and technology in the continent. It is a vehicle to facilitate cooperative actions of mutual interest in the Americas and currently includes the following *Regional Research and Technology Development Systems*: PROCIANDINO, PROCISUR, PROCITROPICOS, PROCICARIBE and PROCINORTE. The PROCIs network provides an umbrella coverage for the six sub-regional networks.

SICTA, the Central American Integration System for Agricultural Technology (<http://sicta.ws/>), is a regional organization created in 1996 by the Central American Agricultural Council (CAC) to contribute to regional integration fostering technological changes in agriculture, strengthening the National Systems for Agricultural Investigation and Technology Transfer (SNITTA) as a basic tool to improve agricultural production and productivity, hence contributing to mitigate poverty, preserve the environment and sustain a satisfactory level of food security.

## **Appendix 6. Important Considerations to Facilitate Collaboration within the Hemisphere – a Detailed Assessment by Participants**

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1. Potential agreements to facilitate collaboration – element for PGR-HIS
  - 1.1. For exotic germplasm
    - 1.1.1. Many collections have material from the far corners of the world. In addition many collections have materials from the various international collections to better facilitate access to the materials and to evaluate under local growing conditions. In this regard, various partnerships could be formed for example, on a crop basis to facilitate information and germplasm exchange.
  - 1.2. For Species in the Region - Cooperation on research initiatives
    - 1.2.1. Collaboration on seeking research support (formation of partnerships on a crop by crop basis).
    - 1.2.2. Annual or semi-annual meeting to review and discuss critical elements and to detail specific action elements or activities.
  - 1.3. Possible Action Elements
    - 1.3.1. Long term agreements for specific projects (sharing responsibilities).
    - 1.3.2. Partnership on a crop or countries basis.
    - 1.3.3. Partnerships under a multilateral agreement.
    - 1.3.4. Space utilization especially for newer molecular techniques (e.g. tracking duplicates).
    - 1.3.5. Linkage and collaboration amongst various national programs (Regeneration, CG centers, identification of duplications and assistance for characterization).
    - 1.3.6. Establishment and sharing of taxonomic expertise and assist each other (potentially by agreements).
    - 1.3.7. Helping to define which collections are truly long term collections and develop mechanisms to help in the maintenance and the longer term distribution of materials.
    - 1.3.8. Sharing of efforts in developing project proposals for the regeneration, characterization and evaluation of key materials.
2. Access
  - 2.1. Access and availability - Development of flexible arrangements for distribution of materials (interchange of germplasm according to the ITPGRFA or Trust's guidelines).
  - 2.2. Understanding National regulatory issues (phyto-sanitary) - ability to move plant materials from country to country.
3. Safeguarding germplasm for future generations
  - 3.1. Safekeeping of germplasm – physical conditions.
  - 3.2. Finding and re-establishing lost materials at national level (C.G. Centres and USDA).
  - 3.3. Sanitary aspects and “clean-up” of pathogens in the collections – linkage to pathologists and other specialists.
4. Information Sharing
  - 4.1. Development of a common platform for exchange of information especially around database management issues
  - 4.2. Common framework for documentation and reporting.
5. Technology Interchange
  - 5.1. Interchange of technologies.
  - 5.2. Identification of experts and institutions with experience in handling of PGR.
  - 5.3. Interchange of methodologies or knowledge.
6. Research - Investigation
  - 6.1. Collaborative agreements for investigation and research on genetic resources.
  - 6.2. To advance and share information on evaluation and characterization methodologies.
7. Duplication
  - 7.1. Search for redundancy in the collections.
  - 7.2. Clear identification of any gaps in collections – connect to crop experts on a national / regional / international basis as well as linkage to crop based strategies.
  - 7.3. Development of and maintenance of safety back-up collections (long-term security).
  - 7.4. Utilization of the CG system or Regional Centers as safety – long-term backup.

8. Regeneration
    - 8.1. Regeneration of key materials under local conditions (e.g. in the locations where the original materials were developed), as well as linking this to characterization and evaluation.
    - 8.2. Safety back-up while avoiding unnecessary duplication including in the provider country.
    - 8.3. Use of off season nursery to assist in speeding the regeneration and rejuvenation process.
  9. Characterization and Evaluation
    - 9.1. Standardization of descriptions through exchange of information including the IPGRI crop descriptors lists.
    - 9.2. Development of expertise in characterization and evaluation of germplasm – crop specialists and exchange of information.
  10. Facilitate the use of germplasm
    - 10.1. To encourage the use of germplasm in breeding studies by making information available on the characteristics of the collections.
    - 10.2. Encourage the development of pre-breeding to make better use of germplasm.
    - 10.3. Development of core collection in a variety of crops including linkages to crop specialists.
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