Caribbean Crop Diversity Initiatives – Perspectives from the FAO

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Outline of the Presentation

• FAO project AG:GCP/ RLA/108/ITA
  – Background
  – Recommendations from the project
• PGR-related gaps identified in recent FAO projects
• FAO’s current Global initiatives re PGR
  – Seed and PGR Team
  – International Treaty on PGR for Food & Agriculture
• Joint FAO/OECD Workshop, *Building resilience for adaptation to climate change in the agriculture sector* 23-24 April 2012, Rome
Background (1 of 4)

• Project justification:
  – CARICOM Member States have a wide range of germplasm of the most common food crops which have the potential to increase crop production and productivity
  – CARICOM, recognizing that good-quality seed plays significant role in boosting crop productivity and quality, decided to lay the foundation for development of a sustainable regional seed programme
Background (2 of 4)

• Requested Italian Government to fund a project for:
  – establishment of cadre of trained professionals and technicians
  – a proper information network on germplasm availability;
  – an appropriate mechanism for seed-quality control in the region to facilitate seed exchange
Background (3 of 3)

• Phase I (1992-1994):
  – 513 professionals and technicians trained (regional / national training, fellowships, conference workshops)
  – Regional information network - Caribbean Seed and Germplasm Resources Information Network (CSEGRIN) established for germplasm information, collection and exchange
  – Regional technical standards for true seed developed; basic seed testing and handling equipment provided

• To strengthen and consolidate gains made during Phase I, CARICOM countries requested further assistance: Phase II was developed
Background (3 of 4)

• Project partners: FAO, CARICOM Secretariat (CARISEC), Government - Trinidad & Tobago (host country) (1994)
• Started: January 1995 and completed 30 June 1997
• Italian Trust Fund: $US 1,570,361, GOTT $TT 4,700,000
• FAO: executing agency
• Government implementing agencies:
  – CARISEC
  – Ministries of Agriculture of participating countries
  – Caribbean Agricultural Research and Development Institute (CARDI)
  – The University of the West Indies (UWI)
Short-term Objectives (1 of 2)

• Expand capacity of selected regional and national seed production activities to facilitate production of seeds & vegetative planting materials

• Alleviate constraints to massive propagation of vegetative planting material

• Facilitate establishment of a functional regional seed testing laboratory to monitor quality of seed in CARICOM & establish a basis for seed certification programmes
Short-term Objectives (2 of 2)

- Set up a long-term training programme and short specialized courses on seed technology and vegetative plant propagation, germplasm collection and storage
- Upgrade CSEGRIN (to include inventory of seed qualities / producers)
- Establish a varietal catalogue and data bank for CARICOM, to include major crops cultivated locally
- Facilitate the release of improved germplasm to farmers
Long-term Objectives

• To provide quality seed and planting materials of major crops in order to enhance both national food security and export diversification
  – This objective supported efforts of all CARICOM Governments and Suriname to develop a policy of self-sufficiency through extensive use of good-quality seeds to achieve higher crop yields

• Ultimate aim: the endeavour becomes ongoing, supported at regional & local government levels
Recommendations from the Project (several of which are relevant today!)
General Recommendations

• In view of large heterogenousness (crop types / stage of seed program development), crop zoning needed:
  – some countries produce true seed
  – others focus on propagules of vegetatively propagated crops

• **Sustainability** of seed programme for food security and rural development require active participation of farmers and realistic seed policy in each Member country
General Recommendations

• Limited resources require that a regional approach be taken for some elements:
  – Seed:
    • varietal development
    • massive propagation (all crops)
  – Vegetatively propagated crops:
    • disease indexing
    • *in vitro* plantlet propagation of disease-free foundation stocks
    • a comprehensive certification system
1. Varietal Improvement

Coordinated varietal trials

• A programme of coordinated trials should be launched for the most important regional crops in order to provide a steady inflow of good adapted varieties for seed multiplication

VARIETAL maintENANCE

• A programme of varietal maintenance must be set up to guarantee the genetic constitution of improved varieties in light of future exchange or purchase of genetically-engineered seed
2. High-quality Improved Planting Materials (1 of 2)

Seed supply and demand record

• For a successful seed business of identified varieties, an up-to-date record of planting material supply and demand must be maintained.
• Taking logistical requirements into account, this record is best kept by a regional institution. The survey system initiated by the project could be used.

Seed conditioning facilities

• Seed handling facilities in Belize, Jamaica and Suriname should be reinforced to increase capacity and efficiency.
• Seed testing laboratory at Central Experiment Station, Centeno, Trinidad, be converted into regional facility.
2. High-quality Improved Planting Materials (2 of 2)

Vegetative propagation facilities

• Propagation stations need to be refurbished for necessary hardening and weaning facilities

• Efforts should be concentrated in strategic locations to be used for introduction of new, high-quality disease-free planting propagules in CARICOM Member States

Technical standards for vegetative planting material

• Elements for certification of VPM developed by project be pooled together to:
  – develop a certification system
  – plan for mass propagation of vegetative propagules needed for cultivation of most of the important crops of the region
3. Seed Policy (1 of 2)

Seed policy plan
• Follow up action: ensure that Governments adopt and utilize seed policy plans already developed in some countries, in line with agricultural plans

Pricing policy of planting materials
• Governments should ensure that their stations operate on a cost-recovery basis so as to ensure sustainability of operations.
• Degree of autonomy and independent action should be granted to the propagation station in order to increase efficiency
3. Seed Policy (2 of 2)

Employee training and deployment policy

• A dynamic & appropriate policy should be pursued by member countries to ensure that trained personnel are properly utilized & provided with a friendly working environment

• Governments should fulfill their obligations to personnel trained under the project so as to motivate them to contribute to the further development of the regional seed programme
4. Computerized Seed-related Info

• To ensure timely dissemination of seed-related information:
  – CSEGRIN should be further developed to incorporate supply and demand forecasts, registers of seed growers in region and other important statistics

• To ensure trouble-free operations in future, the task should be assigned to a group or committee of scientists under supervision of regional institution or a group of regional institutions
  – Group should be responsible for maintenance, upgrading, updating and dissemination CSEGRIN data
5. Regional Germplasm Bank and 6. Training

REGIONAL GERMPLASM BANK

• Regional germplasm banks containing germplasm of agronomic importance should be set up or improved

TRAINING

• Provision should be made to train more people to MSc level to cover leadership roles in plant breeding, root crop production, horticulture and seed quality control
• It is recommended that the laboratory manual on tissue culture be extended to cover all the important crops in the region
Regional Consultation on Sustainable Crop Production Intensification (SCPI) 4-5 October, UN House, Barbados
Concerns re PGR issues

• Recent FAO projects (e.g. on Urban and Peri-Urban Agriculture; Black Sigatoka Disease Management) highlighted a general lack of availability, to farmers, of:
  – good quality seed of locally-adapted varieties
  – clean planting material

• Recommendation: the region should move to Climate Smart Agriculture and this should include PGR
FAO’s Seed and PGR Team and International Treaty on PGR for Food and Agriculture (ITPRGFA)
FAO’s Seed and PGR Team

- Seeds & Plant Genetic Resources team - Plant Production and Protection Division (AGP): assists Member Countries in developing effective policies and capacities for an integrated approach to conservation and sustainable use of plant genetic resources for food and agriculture including seed systems, for increasing crop production and achieving food security.
ITPGR for Food and Agriculture

• Secretariat hosted at the FAO HQ, Rome
• The Treaty aims at:
  – recognizing the enormous contribution of farmers to the diversity of crops that feed the world;
  – establishing a global system to provide farmers, plant breeders and scientists with access to plant genetic materials;
  – ensuring that recipients share benefits they derive from the use of these genetic materials with the countries where they have been originated.
Membership

• Under Article 27, Treaty is open for accession:
  – all Members of FAO
  – Non-FAO States that are Members of UN or any specialized agencies or IAEA

• Treaty entered into force on **29 June 2004**

• Caribbean situation
  – CP: Cuba, Jamaica, St. Lucia, Trinidad and Tobago
  – Signatories: Haiti, Dominican Republic
Benefits of Membership

• Thru’ the Treaty, countries agree to establish efficient, effective & transparent Multilateral System to facilitate access to PGRFA, and to share benefits arising out of their use in a fair and equitable way
  – "Standard Material Transfer Agreement“

• Capacity building

• Global Information System on PGRFA
Benefit-sharing Fund

• Financial support to prioritized projects:
  – Info exchange, technology transfer, capacity-building Treaty implementation
  – Managing and conserving PGRFA on-farm; and
  – Sustainable use of PGRFA

• Eligibility:
  – GO or NGO, including genebanks and research institutions, farmers, farmers’ organizations, regional and international organizations based in a developing country
  – Secretariat provides List of Contracting Parties eligible to apply for support for each round of the project cycle
Benefit-sharing Fund Projects

• Thematic focus of recent call for proposals of Benefit-sharing Fund: *Crop adaptation to climate change*

• Second portfolio of projects (started operation 2012):
  – Seven projects to prepare Strategic Action Plans (covering areas of on-farm conservation and management of PGRFA, in situ conservation, plant breeding and dissemination of seed and planting materials)
  – One project managed from Brazil has Cuba, Haiti as target countries (Through Action Aid International): “PR-26-2010, *Shared management and use of (agro)biodiversity by indigenous and traditional communities for food security and to reduce climate risks*” (12 mths, approx US$ 400,000)
<table>
<thead>
<tr>
<th>Project Proposal ID</th>
<th>Project Title</th>
<th>Funds requested (US$)</th>
<th>Targeted country or countries</th>
<th>Country of Submission</th>
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<tbody>
<tr>
<td>PR-246-2010</td>
<td>Community based Biodiversity Management for Climate Change Resilience</td>
<td>400,000</td>
<td>Bangladesh, Benin, Brazil, Ecuador, India, Guatemala, Malawi, Nepal, Nicaragua, Zambia, Zimbabwe</td>
<td>Nepal</td>
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<td>PR-292-2010</td>
<td>Strategic Partnership with Farmer Innovators for Adaptation and Management of Plant Genetic Resources to Climate Change.</td>
<td>400,000</td>
<td>Bhutan, Cambodia, Lao PDR, the Philippines, Vietnam</td>
<td>Philippines</td>
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<tr>
<td>PR-325-2010</td>
<td>Development of A Strategy for Building the Resilience of Pastoral Communities to Climate Change in Two Ecosystems of Sudan.</td>
<td>320,000</td>
<td>Sudan</td>
<td>Sudan</td>
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<tr>
<td>PR-26-2010</td>
<td>Shared management and use of (agro)biodiversity by indigenous and the traditional communities for food security and to reduce climate risks.</td>
<td>398,227</td>
<td>Brazil with partner applicants in: Costa Rica, Nicaragua, Guatemala, Cuba, Haiti e Mozambique</td>
<td>Brazil</td>
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<tr>
<td>PR-59-2010</td>
<td>Development of a National Strategic Action Plan for the Food Crop Genetic Resources Management to Adapt to Climate Change in the Democratic People’s Republic of Korea.</td>
<td>360,000</td>
<td>Democratic People’s Republic of Korea</td>
<td>Democratic People’s Republic of Korea</td>
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<tr>
<td>PR-50-2010</td>
<td>Participatory and science-based formulation of a Strategic Action Plan to strengthen the conservation of plant genetic resources and their enhanced use in adapting to climate change in Mesoamerica.</td>
<td>400,000</td>
<td>Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Mexico</td>
<td>Costa Rica</td>
</tr>
<tr>
<td>PR-355-2010</td>
<td>Promotion de la reconnaissance des systèmes ingénieux du patrimoine agricole mondial (SIPAM).</td>
<td>200,000</td>
<td>Tunisia</td>
<td>Tunisia</td>
</tr>
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Recent activities of PGRFA Secretariat

  - PGRFA has recently launched online information system that facilitates the use of the SMTA (Easy-SMTA) - https://mls.planttreaty.org
  - Developed brochures, User Manual & several presentations that deal with comments
Excerpt: Secretariat’s communication

• “During this biennium, the Treaty Secretariat is committed to increasing capacity building and to raising awareness in order to support countries in the ratification process, in particular in the Caribbean and in the South West Pacific Regions. We firmly believe that the Treaty is an international instrument that can bring enormous direct benefits on food security and hunger eradication to countries in the Caribbean Region”
Excerpt: Secretariat’s communication

• “...ratification of the Treaty by many Caribbean countries will allow them to become direct beneficiaries of:
  – facilitated access to global pool of PGRFA under the Multilateral System of the Treaty;
  – its Benefit-sharing Fund;
  – its capacity-building support programme and will enable them to participate in the multilateral policy fora of the Treaty’s Governing Body, where decisions regarding these important PGR are made”
Joint FAO/OECD Workshop - Building resilience for adaptation to climate change in the agriculture sector
23-24 April 2012, at FAO HQ
Joint FAO/OECD Workshop

• Follow up to 2010 Workshop: Agriculture and adaptation to climate change that concluded:
  – climate change brings new uncertainties,
  – adds new risks and changes already existing risks
  – one of the most effective ways for agriculture to adapt to climate change could be to increase its resilience

Areas of focus of Workshop (1 of 2)

• Setting the Risks
  – overview of main issues and definitions
  – two main long-term goals for agriculture: (i) achieve food security; (ii) adapt to climate change

• Types of risks and their management
  – biophysical and economic risks affecting agricultural production and households
Areas of focus of Workshop (2 of 2)

• Case studies
  – Finnish: no trade-off in land use diversity & resource use efficiency
  – Mediterranean: Climate change ‘hotspot’
  – Sahel: crop-livestock systems have numerous other issues
  – Asia – population increases not matched by production increases

• Tools, policies and institutions
  – new policies and policy frameworks needed to address adaptation to CC
Conclusions

• Huge uncertainties on the way CC will directly and indirectly impact agricultural and food systems, and related vulnerabilities

• Building resilience **now** is central to being prepared for future changes

• Notion of resilience enables examining together various domains – biophysical (ecosystems), economic, social and institutional -- and scales of operations

• Allows interactions between domains and between scales to be analyzed
General ways to increase resilience

• Identify & monitor potential risks & vulnerabilities
• Early action is needed, especially to avoid cumulative and long term effects
• Increase adaptive capacity of farmers and systems both to recover from shocks and to be prepared for changes.
• Take into account interactions between domains and scales in order to reduce the transmission of shocks between them
Thank you!