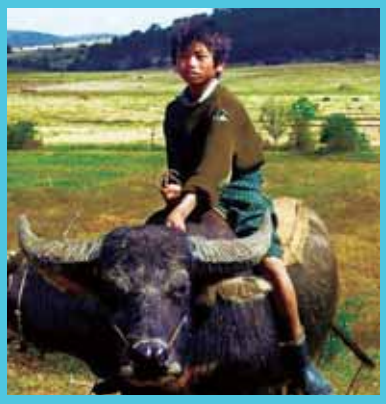
Plant Genetic Resources: ASIAN PERSPECTIVES



(1)
Second National Focal Point Meeting (GCP/RAS/240/JPN)
(2)
Asian Consultation on updating the Global Plan of Action for Conservation and Sustainable Use of PGRFA
(3)
Workshop on the International Treaty on PGRFA
Chiang Mai, 6-10 September 2010

Record of the Meetings:

(1) Second National Focal Point Meeting of Project GCP/RAS/240/JPN

(2) Asian consultation for the update of the Global Plan of Action on the conservation and sustainable use of PGRFA

(3) Workshop on the International Treaty on Plant Genetic Resources for Food and Agriculture

6-10 September 2010

Chiang Mai,
THAILAND

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The FAO Regional Project
"Capacity building and enhanced regional collaboration for the conservation and sustainable use of plant genetic resources in Asia"
(GCP/RAS/240/JPN)

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Cover photographs:

Front – top left vegetable seller, Laos (Norihiko Tomooka), right farm boy, Myanmar (Duncan Vaughan), lower photo Biodiversity Fair, Bhutan (Asta M. Tamang)

Back – The web pages for the NISM-GPA of India (top left), Lao PDR (top right), Philippines (center), Viet Nam (bottom left) and Thailand (bottom right)

Foreword

This document represents a record of three meetings held back-to-back during the week 6-10 September 2010 in Chiang Mai, Thailand. The first meeting was the Second National Focal Points Meeting of Project GCP/RAS/240/JPN – *Capacity building and regional collaboration for enhancing the conservation and sustainable use of Plant Genetic Resources in Asia*. This was held on the 6 September 2010 and was attended by the National Focal Points of all 15 countries that are participating in the project in addition to representatives from Japan, the project donor. This meeting also heard keynote addresses from the head of Bioversity for Asia and the Pacific, Leocadio Sebastian and from Dr Chikelu Mba a leader of the Global Partnership Initiative for Plant Breeding Capacity.

The second meeting was an Asian Consultation on updating the Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture. This is one of a series of regional consultations that is taking place during 2010 on this topic. The meeting was held on 7 and 8 September and led by Stefano Diulgheroff with support from consultant Percy Sajise. In addition to participants of the National Focal Point meeting, this meeting was attended by representatives Republic of Korea, China, the FAO Commission on Genetic Resources for Food and Agriculture, the Crop Diversity Trust and the Secretariat of International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

The week finished with a workshop on the ITPGRFA that was lead by the Treaty Secretariat represented by Mario Marino and consultant Lim Eng Siang, from Malaysia, and participants from Indonesia, Purnomo Chandra and Muhamad Sabran. This workshop was in response to interest shown by National Focal Points to the project GCP/RAS/240/JPN during the first NFP meeting in 2009.

The documents in this publication provide a great deal of information related to Plant Genetic Resources in Asia, the progress being made in documenting PGRFA information and also the present situation regarding the ITPGRFA.

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PART 1

Second National Focal Point Meeting
GCP/RAS/240/JPN

"Capacity building and enhanced regional collaboration for the conservation and sustainable use of plant genetic resources in Asia"
(GCP/RAS/240/JPN)

Group photograph of participants
Second National Focal Point Meeting of Project GCP/RAS/240/JPN

Chiang Mai
6 September 2010

VIP Floor:

Wandee Jangkanipakul

Sitting:

(left to right): Andari Risliawati, Tosiah Sadi, Leocadio S. Sebastian, Masahide Hirokawa, Duncan Vaughan, Makoto Kawase, Percy E. Sajise, Chutima Ratanasatien

Standing:

Asta M. Tamang, Noov Bayarsukh, M. Shahid Masood, Chikelu Mba, M.K.A. Chowdhury, Karden Mulya, D.C. Bhandari, P.M. Wijeratne, U Aung Myint, Hari Dahal, Veerana Sinsawat Forrer, Solita R. Sicat, Ty Channa, Rungthiwa Thanumthat (F), Thidakoon Saenudom (B), Sumana Ngampongsai

Second National Focal Point Meeting of Project GCP/RAS/240/JPN

6 September 2010
Royal Princess Hotel
Chiang Mai, THAILAND

AGENDA

Monday 6 September 2010 – *Project Day*

Session 1: Chairman – *Mr Percy E. Sajise*

09:00-09:10	**Introductions** Welcome address – *Duncan Vaughan,* FAO-RAP
09:10-09:20	Opening address – *Masahide Hirokawa*, Embassy of Japan
09:20-09:30	**Personal Introductions** All participants
	Country reports 1
09:30-09:45	Vietnam – *Tran Danh Suu*
09:45-10:00	Thailand – *Chutima Ratanasatien*
10:00-10:15	Sri Lanka – *P.M. Wijeratne*
10:15-10:30	***Coffee***

Session 2: Chairman – *Mr D.C. Bhandari*

10:30-11:00	Keynote address – *Leocadio S. Sebastian*, Bioversity Future perspectives related to Plant Genetic Resources in the Asia and Pacific region and beyond
	Country reports 2
11:00-11:15	Philippines – *Solita R. Sicat*
11:15-11:30	Pakistan – *M. Shahid Masood*
11:30-11:45	Nepal – *Hari Dahal*
11:45-12:00	Myanmar – *U Aung Myint*
12:00-12:15	Mongolia – *Noov Bayarsukh*
12:15-13:00	***Lunch***

Session 3: Chairman – *Mr Makoto Kawase*

13:00-13:45	Keynote address (2a) – *Chikelu Mba*, FAO Global Partnership Initiative for Plant Breeding Capacity Building – GIPB
	Country reports 3
13:45-14:00	Malaysia – *Tosiah Sadi*
14:00-14:15	Lao PDR – *Vayaphat Thattamanivong*
14:15-14:30	Indonesia – *Karden Mulya*
14:30-14:45	India – *D.C. Bhandari*
14:45-15:00	***Coffee***

Session 4: Chairman – *Mr Godfrey Mwila*

	Country reports 4
15:00-15:15	Cambodia – *Ty Channa*
15:15-15:30	Bhutan – *Asta M. Tamang*
15:30-15:45	Bangladesh – *M.K.A. Chowdhury*
15:45-16:00	General discussion
16:00-17:00	Keynote address (2b) – *Chikelu Mba,* FAO Towards strategies and plans for national plant breeding capacity
19:30-20:30	Steering Committee

Welcome address

Duncan Vaughan
Chief Technical Advisor-Plant Genetic Resources
GCP/RAS/240/JPN

On behalf of FAO Director General Jaques Diouf and Assistant Director General for the FAO Regional Office for Asia and the Pacific, Mr Hiroyuki Konuma, I would like to welcome you to this series of meetings here in Chiang Mai.

At the beginning I would like to express my deep appreciation to Mr Hirokawa, from the Embassy of Japan, for being with us today and we all appreciate the Government of Japan for its kind support to the work we are doing of conserving plant genetic resources.

I would also like to thank Mr Percy Sajise for the support and preparations he has made for the meetings this week.

This is a week of varied activities related to Plant Genetic Resources. Tomorrow and Wednesday we have the obligation to provide an Asian Perspective on the Global Plan of Action – part of a series of regional consultations. On Thursday and Friday, in response to last years NFP comments, we have arranged a workshop kindly organized and supported by the ITPGRFA Secretariat.

Today is the 2nd National Focal Point meeting for the project to strengthen information on Plant Genetic Resources in Asia (GCP/RAS/240/JPN). We are at the mid point in this project so it is important that we have this opportunity to reflect on what has been accomplished and to plan activities for the next year.

The recent devastating floods in Pakistan illustrate how critical plant genetic resources are for global food security. The genebank of Pakistan will be helping farmers recover from their loss of genetic resources in the months and years ahead.

Plant genetic resources and our efforts to sustainably conserve and use them depend on comprehensive and reliable information. That is what the project you are here today to discuss aims to achieve in each country.

Today each country will report on what they have achieved in relation to this project and what there plans are for the coming year. Please openly discuss problems that you may have had and ways to overcome these problems so that in the next year the project can achieve lasting benefits for your countries. I would also like to encourage all participants to make maximum use of this meeting to forge new relationships among countries. It is a rare opportunity to interact with colleagues from about 20 countries in a small meeting.

Today there will be delegations arriving also from China and Republic of Korea. This is an excellent opportunity to build bridges with people sharing common interests. In addition, there are several experts coming to share information at this meeting from Bioversity International and FAO headquarters in Rome, they will discuss the future perspectives on PGR, the Global Partnership Initiative for Plant Breeding Capacity Building and the International Treaty on Plant Genetic Resources for Food and Agriculture. I hope that the information they share will be useful and interesting to you all. Please ensure that you share the information you receive with your colleagues when you return home.

This is very much a participatory week not just show and tell. The week ahead you will also discuss important issues related to plant genetic resources. I hope that you will always keep in mind that our societies rest on an agricultural foundation and that the health of this foundation for each countries food security is critical.

This is an unusually long series of meetings I do appreciate you all for sparing time from your very busy schedules. I wish you to enjoy your time in Thailand; if there is anything that we can do to make your week more comfortable please let Ms Wandee Jangkanipakul or me know. Thank you.

Opening address

Masahide Hirokawa
First Secretary and Deputy Permanent Representative of Japan to ESCAP
Embassy of Japan in Thailand
177 Witthayu Road, Lumphini, Pathum Wan,
Bangkok 10330, Thailand

Ladies and Gentlemen

It is a great pleasure for me to be here this morning to learn of the progress since the first meeting held last year of this Regional Plant Genetic Resources Project.

The Government of Japan is deeply committed to assisting countries in the conservation and sustainable use of biological resources. Japan is hosting the tenth Conference of Parties to the UN Convention on Biological Diversity in Nagoya, Japan next month. Further the Government of Japan has assisted through bilateral arrangements several countries in Asia with their plant genetic resources programmes, including Myanmar, Pakistan and Sri Lanka. Through the project being discussed today 15 countries in Asia are being assisted in strengthening the information they have on their plant genetic resources.

The significance of the present project is enhanced by the fact that global food security is now very high on the international agenda. The recent drought and fires in Russia have resulted in that country halting all wheat exports. In Pakistan devastating floods have not only affected millions of people and their livelihoods, but destroyed crops across vast swaths of that country. These events may reflect, to some extent, global climate change. In addition agriculture has to address the ever changing biotic stresses that affect crops. There are now two virulent and highly aggressive wheat yellow rust strains that are at high frequencies at sites in five continents (Science vol. 329, p. 369). Thailand is now trying to cope with severe cassava mealy-bug infestation by using South American wasps as a biological control. I provide these examples to indicate that the work that you do on plant genetic resources is an essential part of developing a world with greater food security.

This week you will be discussing a range of related topics. From tomorrow you will spend two days discussing to what extent the Global Plan of Action for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture needs to be updated since it was first prepared 15 years ago. At the end of the week you will have a workshop on the International Treaty of Plant Genetic Resources for Food and Agriculture. All the events this week are important and I hope that you will share the experiences of the week with your colleagues in each country when you return home.

Today's deliberations on the Regional Plant Genetic Resources Project are a chance to see how each country is progressing. Importantly it is a chance to be reinvigorated to accomplish the project objectives for your country and during the week forge linkages with plant genetic resources workers from right across Asia. This is a valuable and rare opportunity.

I wish you a very productive meeting and appreciate the opportunity of learning the progress you have made since last year and your plans for the next year. Thank you.

First Progress Report of the Project on "Capacity Building and Enhanced Regional Collaboration for the Conservation and Sustainable Use of Plant Genetic Resources in Asia", GCP/RAS/240/JPN

Dr M.K.A. Chowdhury
Member-Director (Crops)
&
National Focal Point, BARC, Bangladesh

Introduction

The Fourth International Technical Conference of the Food and Agricultural Organization (FAO) of the United Nations held in Leipzig, Germany in 1996 adopted twenty priority areas in the Global Plan of Action (GPA) for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (PGRFA). The Conference also adopted the Leipzig Declaration, which focuses attention on the importance of plant genetic resources for the world food security, and commits countries to implementing the plan. Bangladesh as a signatory to the CBD (1992) is committed to the implementation of GPA for Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture.

FAO Regional Office is implementing the project entitled **"Capacity Building and Enhanced Regional Collaboration for the Conservation and Sustainable Use of Plant Genetic Resources in Asia".** The aim of the project is to strengthen capacity and collaboration related to information on Plant Genetic Resources for Food and Agriculture (PGRFA), particularly in relation to institutionalizing the regular updating of NISM-GPA the main monitoring mechanism of the Global Plan of Action. The project activities will support Bangladesh to incorporate updated information from present and new stakeholders into Bangladesh NISM-GPA database and strengthen PGR activities in Bangladesh. A letter of Agreement has been signed between Bangladesh Agricultural Research Council (BARC) and FAO on 5 January 2010. BARC nominated Member-Director (Crops) as National Focal Point. Due to delay of signing of LOA we could not start work as per schedule. But immediately after signing of LOA we have started to organize prescheduled activities.

Progress

Firstly PGR related stakeholders were identified and selected for continuing PGR activities. Institutional Focal Points have been identified among the participating organizations for smooth coordination of PGR activities. A six member Steering Committee headed by Executive Chairman, BARC was formed to guide the development of PGR activities. Three new stakeholders have been identified and included in the list. The following activities have been performed during the 1st phase of the project.

1. First Institutional Focal Points Meeting was held on 10 March 2010. The Global Plan of Action Questionnaire was filled in and discussed future plan of Action.
2. A six member Steering Committee was formed headed by the Executive Chairman, BARC
3. A training-workshop on the National Information Sharing Mechanism on Implementation of the Global Plan of Action (NISM-GPA) for Food and Agriculture in Bangladesh was held 18-19 July 2010. The workshop events were divided into 5 programme components;

(a) inaugural session, (b) discussion on the draft report on 20 priority areas, (c) presentation on the project activity by the national focal point, (d) demonstration on data base, and (e) future plan of activity. There were 40 participants representing BARC, BARI, BRRI, BINA, BJRI, BSRI, BLRI, BFRI, CDB, BAU, SAU, BSMRAU, DU, DAE, BADC, SCA, Bangladesh National Herbarium, Supreme Seed Ltd., and Lal Teer Seed Ltd. Stakeholders CD was distributed and given an orientation to the new and old stakeholders on updating of existing database for NISM-GPA implementations and detailed briefing on the Common Tables. It was decided during the training workshop that participating institutes would provide before and after 2005 information and data on PGR and related information within September 2010 as per format developed and provided to them.

4. Second Institutional Focal Points Meeting was held on 30 August 2010 to review the progress of updating common tables.
5. Procurement of two computers for stakeholders is in progress.

Organization involved with the Conservation of PGR

National Agricultural Research Institutes are involved conserving and evaluating Plant Genetic Resources. Public agricultural universities are also conserving PGR especially horticultural crops. Some private organizations conserve genetic resources of special type of crops. The organizations responsible for conservation of PGR are given below:

Organizations	Responsibility
Bangladesh Agricultural Research Institute	NARS; public research institute: Collection, conservation and utilization of Genetic resources and breeders seed production.
Bangladesh Rice Research Institute	
Bangladesh Jute Research Institute	
Bangladesh Sugarcane Research Institute	
Bangladesh Institute of Nuclear Agriculture	
Bangladesh Tea Research Institute	
Bangladesh Forest research Institute	
Bangladesh Livestock Research Institute	
Bangladesh Agricultural Research Council	Coordination and Policy
Cotton Development Board	Research and development of cotton; Germplasm evaluation; Seed production.
Bangladesh Agricultural Development Corporation	Govt. seed multiplication agency
Department of Agriculture Extension	Govt. extension department and farm level seed production.
Bangladesh National Herbarium	Surveying and recording of germplasm
1. Bangladesh Agricultural University	Teaching, variety development and collection, conservation and utilization of germplasm
2. Bangladesh Sheikh Mujibur Rahman Agricultural University	
3. Sher-E-Bangla Agril. University	
4. Dhaka university	
1. Bangladesh Rural Advancement Committee	Seed business and variety development
2. Lal Teer Seed Ltd.	
3. Supreme Seed Ltd.	
Ministry of Agriculture	Policy

The State of Use of Plant Genetic Resources

Different organizations have been working on collection, characterization and evaluation of different crops. But the work is still in preliminary phases in Bangladesh. However, the number of germplasm used for breeding, seed enhancement and supply by the Bangladesh Agricultural Research Institute (BARI) was 590 accessions, Bangladesh Rice Research Institute (BRRI) about 20 000 accessions, Bangladesh Tea Research Institute (BTRI) about 30, Cotton Development Board 130, Bangladesh Sugarcane Research Institute (BASRI) about 229, Bangladesh Jute Research Institute (BJRI) about 2 915, Lal Teer Seed Limited 5 263 and Bangabandhu Sheikh Mujibur Rahman Agricultural University used 547. Bangladesh Agricultural Research Council has established the national network and is actively involved in facilitating the PGRFA activities. Some survey and inventory work have already been undertaken by stakeholder institutions/organization. More support is needed for strengthening and for widening survey and inventory work.

Priority Areas

- Establishment of National Centre for PGRFA for conservation, use and enhancement of biodiversity
- Collection, characterization including biochemical and molecular characterization and documentation of PGR for users
- Strengthening of coordination among different stakeholders
- Human resources development and capacity building in PGR activities
- Preservation facilities (*in situ*, on-farm, *ex situ*, *in vitro*, cryo-preservation) for genetic material.
- Creation of public awareness about the importance of PGR and promotion of its traditional and diverse use
- Establishment of regional and international collaboration for the development of national programme on PGR.

Bhutan
Progress report for Project GCP/RAS/240/JPN

Asta M. Tamang
Deputy Chief Officer, Bhutan National Genebank
National Biodiversity Center
Sebithang, Thimpu, Bhutan

In-country activities of the Project began with a meeting between FAO Bhutan and the National Biodiversity Center (NBC) on 21 December. This was followed the next day by a meeting of the Project Technical Task Force that is composed of 11 members from NBC, Department of Agriculture, Department of Forest and Park Services, Council of Renewable Natural Resources Research of Bhutan, Ministry of Agriculture. During that meeting the TTF was explained the Project and relevance to Bhutan.

From 21-25 December Dr Rakesh Agrawal, of NBPGR, India, visited Bhutan to assist in explaining to the database officer and other staff of NBC the NISM-GPA database system. Demonstrations of the software were provided. Data for Common Tables of the NISM-GPA application and also for the genebank holdings related to the ex-situ collections and seed regeneration were gathered during the visit of Dr Agrawal.

Subsequently supplies needed to implement the project have been procured. In addition the NBC has developed a website (www.nbc.gov.bt) funded under South-South Cooperation and it is planned to link this website with the NISM-GPA database when the database has been prepared. A staff member is being recruited to assist with the database development.

On 22 May the International Year of Biodiversity was observed in Bhutan. At the event NBC produced articles and brochures encapsulating the rationale for sustainable conservation of the natural environment. The one-day exhibition was in part funded by the project and was able to alert people about the significance of preserving and promoting the natural biodiversity of Bhutan.

Establishment of the National Information Sharing Mechanism on Implementation of the Global Plant of Action (NISM-GPA) for the Conservation and Utilization of Plant Genetic Resources for Food and Agriculture in Cambodia

Ty Channa and Thorng Ra
Cambodian Agricultural Research and Development Institute
Training and Information Center

Introduction

The project aims to promote the implementation of the twenty priority activity areas of the Global Plan of Action by establishment of a National Information Sharing Mechanism on the GPA (NISM-GPA) through sharing experiences among stakeholders, in order to enhance activities on conservation and utilization of PGRFA in Cambodia.

The activities involved in the NISM establishment process are generally divided into three phases: preparatory phase, implementation, and reporting phase. The implementation (NISM-GPA) involves stakeholders throughout the country.

- Preparatory Phase: January 2010 – June 2010
- Implementation and Reporting Phase: June 2010 – September 2011

Activities

Preparatory phase (January 2010 – June 2010)

After signing of the letter of agreement with FAO, the Cambodian Agricultural Research and Development Institute (CARDI) has become the National Focal Point (NFP). The CARDI started identification of stakeholders and reviewing the available data for input into the NISM database. The project's working group under the Training and Information Center of CARDI translated the document Indicators and Reporting Format for Monitoring the Implementation of GPA and the Guide "Towards the National Information Sharing Mechanism on the Implementation of the GPA" and its establishment in the Cambodian national language (Khmer) for distribution to the stakeholders. Based on the translation of the Indicators and Reporting Format, a Khmer version of the NISM-GPA computer application was developed with the assistance from FAO. The CARDI also made contacts with key stakeholders by conducting the meeting with relevant members from the Cambodian Agricultural Research and Development Institute (CARDI), Ministry of Agriculture, Forestry and Fisheries (MAFF), Ministry of Environment (MoE), Royal University of Agriculture (RUA), Royal University of Phnom Penh (RUPP), Community Based Natural Resources Management Learning Institute (CBNRM-Learning Institute), Srer Khmer Organization and AQIP Seed Co, Ltd.

The first stakeholder meeting held in June 2010, aimed to raise the awareness of PGRFA and the GPA and to seek stakeholders permission to carrying out the project's activities. For this case, 3 000 copies of brochures have been published for distribution and dissemination to the leader of Ministry of Agriculture, Forestry and Fisheries (MAFF), Departments of MAFF, provincial departments of agriculture, institutions, libraries, NGOs and other targeted stakeholders. A total of 18 national stakeholders working on PGRFA were involved in the NISM-GPA establishment and

identification of priority activity areas of the GPA. Needs of the SHs with respect to their participation in these activities were identified.

In the project's activities, one MSc student has been supported for the capacity building related to PGRFA. The supporting this activity has helped the young scientist understand plant genetic resources.

Implementation and reporting Phase (June 2010 – September 2011)

The implementation phase's activities will involve organization of national stakeholders meeting/training, data gathering, compilation, validation and analysis, and developing a website on the NISM-GPA. Based on the time, the meeting of stakeholders was used to describe this section as following:

- During the 1st meeting of stakeholders, Mr Ty Channa, deputy director of CARDI mentioned about the significance of NISM-GPA project and it objectives. He continued with the presentation about the establishment of the National Information Sharing Mechanism for the implementation of GPA. The presentation focused on the 20 priority activity areas of GPA, significance of NISM-GPA and the key of stakeholders involved.
- Mr Mom Sovanna led discussion among the stakeholder participation. The stakeholders agreed to establish the NISM-GPA and they required the benefit when taking part in developing NISM-GPA. Moreover, it should be agreed and approved by institution or head of institution with the NFP. In this case, the head of institution will appoint the staff to work with the NFP.
- Mr Thorng Ra made presentations about the establishment process of the NISM-GPA for conservation and sustainable use of PGRFA. He explained NISM-GPA, objectives and outputs of NISM-GPA, types of information (indicators and reporting format, guideline for national process), common tables, and computer application.

Conclusions

In preparation and some a parts of implementation phase, we learned a lot of experiences from the NISM-GPA software and stakeholders. The project plays an important role in increasing the ability of Cambodia to assess the current status of plant genetic resource and monitoring the GPA implementation. Moreover, the project helps the country build a strong relationship among the stakeholders and enhance the capability of the country to meet international reporting obligations.

Establishment of the Information Sharing Mechanism for Monitoring the Implementation of Global Plan of Action (GPA) in India

D.C. Bhandari and R.C.Agrawal
National Bureau of Plant Genetic Resources, New Delhi, India
(Up-to July 2010)

National workshop for the sensitization of the Stakeholders

To sensitize the identified Stakeholders (SH) for the execution of FAO sponsored project on 'Establishment of the Information Sharing Mechanism for Monitoring the Implementation of Global Plan of Action', a workshop at national level was organized at NBPGR, New Delhi on 17 April 2010. Seventy-seven participants from National Agricultural Research System, NGOs, Private Seed Industry, Farmers, State Departments of Agriculture, State Biodiversity Boards and CGIAR Institutes attended the workshop.

Dr Gavin Wall, FAO Representative for India and Bhutan addressing the participants during the NISM workshop at NBPGR on 17 April 2010

Dr S.K. Sharma, the then Director, NBPGR while welcoming the participants reiterated that it is the responsibility of the nation and in turn of every institute to provide the information in time so as to ensure implementing GPA for conservation and utilization. Dr R.C. Agrawal, PI of the project briefed the achievements of the project in the previous phase (2005-06) and the project objectives and about the website developed in this regard. He further informed that new SHs are being identified and a total of 231 SHs were approached for participation in this workshop. Dr Duncan Vaughan, Chief Technical Advisor, FAO Regional Office, Bangkok stressed the direct need of sharing the information among international PGR community and the need to conserve the traditional knowledge. He narrated that this GPA-NISM database has been made available in 22 languages which is a unique thing in this software. Dr H.P. Singh, Deputy Director General (Horticulture), ICAR emphasized the importance of validation of information and care in generation of data during the implementation of the project. Dr R.S. Rana, Member, National Biodiversity Authority appreciated the past efforts taken in NISM Phase I and also gave an account of historical development of PGRFA from late 1970s. Dr Gavin Wall, FAO Representative for India and Bhutan appreciated the efforts of India on PGR management and applauded that India has been recognized as Centre of Excellence in PGR. Dr S.K. Datta, Deputy Director General (Crop Science), and the Chief Guest of the occasion, stressed the responsibility to develop and update the database on PGRFA.

The participants during the NISM workshop on 17 April 2010

Regional Training workshops organized for the Stakeholders

The following training workshops have been conducted upto 30 July 2010:

a.	NBPGR Regional Station, Thrissur	19 May 2010
b.	NBPGR Regional Station, Shillong	11 June 2010
c.	NBPGR Regional Station, Ranchi	26 June 2010
d.	NBPGR Regional Station, Shimla	3 July 2010
e.	NBPGR Regional Station, Hyderabad	9 July 2010

One more training workshop is scheduled on 30 August 2010 at Delhi to impart training to all those participants who are left over. During the above training programmes conducted up to 30th July 2010, we could train about 80 participants from ICAR crop and horticulture based institutes, State Agricultural Universities, Institutes from other Ministries, State Departments of Agriculture, NGOs, Private Organizations and Farmers' Communities.

A farmer sharing his experiences during one of the training workshops at Hyderabad on 9 July 2010

During these training programmes, the broad objectives of GPA were explained and the brief about of the NISM project was also discussed by the PI during the presentation. The complete NISM software was demonstrated with the backup and export of data procedure. The participants were also given hands on practice and were provided NISM software CDs with the unique keys. The participants were requested to submit the data before 30 September 2010 to the respective zonal co-ordinator.

Development of the NISM Phase II Website

NISM Phase II website of India (http://202.141.12.147/gpa/ind/main.htm)

To sensitize the stakeholders about the basics of NISM-GPA, Phase I activities and other details about the present project. The website also provides the search facility of the NISM information collected during the Phase I. We shall be updating the information in search facility after the complete compilation of the information of Phase II.

Further Work Plan

Last date for the receiving of data from the SHs	30 September 2010
Merging of the data in NISM	30 November 2 010
Analysis of the NISM data	30 December 2010
Report Writing	31 January 2011
Second workshop of the SHs	March 2011
Submission of the report for approval of Steering committee	March 2011
Submission of the report and data to FAO	May 2011

Progress of the NISM-GPA Project in Indonesia

Karden Mulya and Andari Risliawati
Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development, Indonesia Agency for Agricultural Research and Development, Ministry of Agriculture

Progress of in-country activity of GCP/RAS/240/JPN Project

National policy change in genetic resource management in Indonesia occurred as consequences on implementation of Agriculture Ministerial Decree No. 67/2006 on Conservation and Utilization of Genetic Resources and Agriculture Ministerial Decree No. 15/2009 on Material Transfer Agreement Guidelines. One of the national policy changes is the empowering network on Agriculture Genetic Resources Management. NISM-GPA project started in line with the activities on the empowering network. Since July 2009, the NISM-GPA Project has been conducted activities on:

1. **Translating the documents for the computer application into Bahasa Indonesia**

   The CGRFA-10/04/Inf.5 document of the NISM software was translated into Bahasa Indonesia on September 2009 consists of 15 341 words and was then sent to the NISM-FAO (Dr Stefano) to be used for generating the new computer application of NISM in bilingual (English and Bahasa Indonesia).

2. **Roundtable discussion to inform and to train stakeholders in the basic operations of NISM software (National and Local Workshop Form)**

   a) ***The First National Workshop of NISM-GPA***
   The first national workshop of NISM-GPA held on 2 December 2009 at ICABIOGRAD, Bogor, participated by 17 stakeholders from national institutes, district institutes, universities, and private institutes (Annex 1).

   b) ***Local Roundtable Discussion at Yogyakarta Province***
   On 23 January 2010 with the facilitation of Yogyakarta District Government (BAPEDDA), a local roundtable discussion at Yogyakarta conducted and participated by university and local district institute. The purpose of this activity is to convince several stakeholders at Yogyakarta Province to get involved in the NISM project. Four new stakeholders agreed to join the NISM (Annex 1).

   c) ***The Second National Workshop of NISM-GPA***
   The second national workshop of NISM-GPA held on 20 May 2010 at ICABIOGRAD. Sessions of identifying areas of GPA from each stakeholders and training of basic operations of NISM software were conducted with a balanced allocation time. Thirty stakeholders participated in the second national workshop (Annex 1).

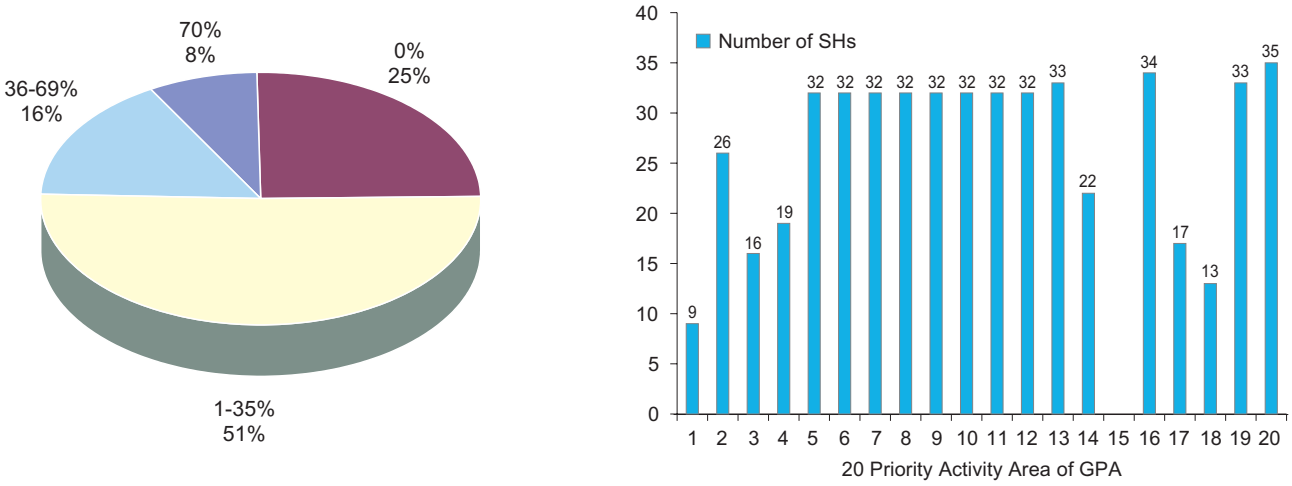
   d) ***Promotion of NISM-GPA Mechanism in 3rd National Congress on District Commissions on Agricultural Genetic Resources***
   The 3rd National Congress on District Commissions on Agricultural Genetic Resources was held on 4 August 2010 in Surabaya, East Java. The mechanism of NISM-GPA including the background, the progress and the potential benefits arising from its implementation, were presented to the district-genetic resources commission members. This activity was the first public awareness of NISM-GPA in Indonesia.

*e) **Special NISM-GPA Software Training at Central and East Java***

This activity conducted on 12 and 16 August 2010 in Malang-East Java and Semarang-West Java. We train not only the new stakeholder (*Muhamadiyah* University) but also new operator from existing stakeholders in Malang and Semarang because of change the operator position. Fourteen participants from 4 institutes in Malang and 8 participants in Semarang participated the training.

3. Visit to Stakeholders for Assisting and Gathering Information's

During February – March 2010, the NISM team visits the stakeholders from the 1st National Workshop of NISM-GPA that already agreed to join. We identified their priority activity areas on GPA and assisted some of the stakeholders with entry of data. Because of the limited time and transportation budget, only 17 stakeholders have been identified their areas which 15 stakeholders among them have already provided their data, though it is still in progress. Also during August 2010, the team starts to visit and assist some stakeholders from the 2nd National Workshop. Following are the progress of stakeholder's works on NISM-GPA to date and their identification area of GPA.



(a) **(b)**

Figure 1. (a) State of NISM entry progress of stakeholders, (b) Identification the GPA's area of SHs

Useful outcomes from activities to date

Activity 1

The new computer application of NISM-GPA which work both in English and Bahasa Indonesia and its improvement allow compatibility of the NISM software on computer with Windows Vista and Windows 7, thus ease for stakeholders in operating the software.

Activity 2

1. Stakeholders become involved by participating the workshop
2. Sharing experiences activity among stakeholders on the conservation and sustainable use of PGRFA
3. Initiative a chance for collaboration and partnership among stakeholders for the conservation and sustainable use of PGRFA activity

Activity 3

1. Information on past and current activities related to the 20 GPA-PGRFA were gathered and documented
2. Past and current priority activities in Indonesia related to the 20 GPA-PGRFA were documented and updated
3. Several advices from stakeholders related to the improvement of NISM computer application

Problems encountered and overcome

No.	Problems encountered	Overcome
1.	The aversion to sharing information due to the lack or insufficient information on the intellectual property rights on PGR	Brief descriptions about GPA, its relationship with NISM and other international legal instruments on conservation PGRFA activities such as ITPGRFA
2.	Changing of the person who is operating NISM-GPA application from stakeholders	Conducted another training and familiarize about the NISM-GPA and its operations to the new operator
3.	Lower political will and support from the high level authorities (related to the in-kind fund/budget)	Maximize the efficiency of the fund given by FAO, especially for transportation budget, delay some travel plan to the far location such as Papua and Sulawesi
4.	Slow progress on stakeholders work	Need legal support and policy from the authorities

Annex 1

List of the stakeholders involved in NISM-GPA in Indonesia

1. Indonesian Centre for Agricultural Biotechnology and Genetic Resources Research and Development (ICABIOGRAD), Bogor-West Java
2. Indonesian Centre for Rice Research (ICRR), Subang-West Java
3. Indonesian Medicinal and Aromatic Crops Research Institute (IMACRI), Bogor-West Java
4. Indonesian Spices and Industrial Crops Research Institute (ISICRI), Sukabumi-West Java
5. Indonesian Tobacco and Fibre Crops Research Institute (ITOFCRI), Malang-East Java
6. Indonesian Legume and Tuber Crops Research Institute (ILETRI), Malang-East Java
7. Assessment Institute for Agricultural Technology of Papua (AIAT Papua)
8. Assessment Institute for Agricultural Technology of West Papua (AIAT West Papua)
9. Assessment Institute for Agricultural Technology of Bali (AIAT Bali)
10. Assessment Institute for Agricultural Technology of West Java (AIAT West Java)
11. Indonesian Coffee and Cocoa Research Institute (ICCRI), Jember-East Java
12. Indonesian Oil Palm Research Institute (IOPRI), Medan-North Sumatra
13. Research Institute for Tea and Chinona (RITC), Gambung-West Java
14. Centre for Plant Variety Protection (CPVP), Jakarta
15. Centre for Tropical Fruit Studies (CTFS), Bogor Agricultural University
16. Environmental Agency of Central Java (EA Central Java)
17. Badan Perencanaan Pembangunan Daerah Provinsi Yogyakarta (BAPEDDA DIY)
18. Agricultural Seed Monitoring and Certification Institute of Yogyakarta (ASMCI DIY)
19. Biology Faculty of Gadjah Mada University (UGM), Yogyakarta
20. Environmental Agency of Yogyakarta (EA DIY)
21. Forestry and Estate Plant Protection and Seed Monitoring and Certification Institute of Yogyakarta (FEPPSMCI DIY)
22. Indonesian Centre for Agricultural Postharvest Research and Development (ICAPRD), Bogor-West Java
23. Indonesian Tropical Fruits Research Institute (ITFRI), Solok-West Sumatera
24. Indonesian Ornamental Plants Research Institute (IOPRI), Cipanas-West Java
25. Indonesian Citrus and Subtropical Fruits Research Institute (ICSFRI), Malang-East Java
26. Indonesian Vegetables Research Institute (IVEGRI), Lembang-West Java
27. Assessment Institute for Agricultural Technology of Central Java (AIAT Central Java)
28. Assessment Institute for Agricultural Technology of East Java (AIAT East Java)
29. Assessment Institute for Agricultural Technology of Lampung (AIAT Lampung)
30. Assessment Institute for Agricultural Technology of South Sumatra (AIAT South Sumatra)
31. Agency of Food Security (AFS), Jakarta

32. Directorate General of Estate Crops (DGEC), Jakarta
33. Directorate General of Horticulture (DGH), Jakarta
34. Biology Research Centre (BRC-LIPI), Bogor-West Java
35. National Centre for Research in Biotechnology (NCRB-LIPI), Bogor-West Java
36. Centre for Plant Conservation Bogor Botanical Gardens (CPCBBG-LIPI), Bogor-West Java
37. Biology, Faculty of Mathematics and Natural Sciences, Diponegoro University (Undip), Semarang-Central Java
38. Agronomy and Horticulture Department, Faculty of Agriculture, Bogor University (IPB), Bogor-West Java
39. Faculty of Agriculture, Andalas University (Unand), Padang-West Sumatra
40. Faculty of Agriculture, Brawijaya University (Unibraw), Malang-East Java
41. Faculty of Agriculture, Hasanudin University (Unhas), Makassar-South Sulawesi
42. Genetic Resources Committee of East Java (GRC East Java)
43. Genetic Resources Committee of Riau (GRC Riau)
44. LP3M Rahmatan Lil Alamin (RLA), Bogor-West Java
45. ELSPPAT-Institute for Sustainable Agriculture and Rural Livelihood (ELSPPAT), Bogor-West Java
46. Farmers Initiatives for Ecological Livelihoods and Democracy (FIELD), Jakarta
47. The Indonesian Biodiversity Foundation (KEHATI), Jakarta
48. Pusat Pendidikan Lingkungan Hidup Seloliman (PPLH), Mojokerto-East Java
49. PASIR MUKTI Tourism Park (PMTP), Bogor-West Java
50. MEKARSARI Amazing Tourism Park (MATP), Bogor-West Java
51. Muhamadiyah University

Lao PDR NISM-GPA progress report for the second NFP meeting

Vayaphat Thattamanivong
Lao PDR National Focal Point, GCP/RAS/240/JPN

Project accomplishments to date

Activity 1: Project team established
Activity 2: User manual for NISM-GPA designed and printed
Activity 3: PGR specialists provided with needed facilities
Activity 4: Existing data validated
Activity 5: Stakeholders oriented on NISM-GPA
Activity 6: First meeting of stakeholder team conducted
Activity 7: New stakeholders provided with necessary facilities
Activity 8: NISM-GPA training and workshop held

Project activity

Initial project meeting of NISM-GPA Steering Committee, Specialists and Stakeholders

Objectives

- To introduce the project background and objectives and understand the project objectives.
- To orient specialists and stakeholders who are assigned by NAFRI DG on the project activities and expected outputs.
- To discuss and comment on the project activity plan and making decision on the project schedule
- To select staff of stakeholders involved and getting approval from NAFRI DG

Specialist and stakeholder team improve and validate Lao NISM-GPA data

Objectives

- To follow up the project activity plan and obtain the agreement of steering committee.
- To understand the NISM-GPA database system and correct and validate current data before putting in new information.

Steering committee and national focal point provide some work facilities and equipments for specialist team

Objectives

- Strengthen project team for enhancing Lao NISM-GPA needed equipment was aquired. In addition specialists were assisted on data validation.
- To upgrade and support project stakeholders to improve their work environment and support the data collecting and validating process.

First meeting of Lao NISM-GPA stakeholders was held and stakeholders were introduced to the activity plan and conducted teamwork

Objective

- All stakeholder staff were informed about project plan timing and responsibilities.
- To ensure all understand all activities involved and are prepared for participation in the project.
- Explanation of the project involvement.

Project equipment are provided to facilitate and strengthen the data entry process

- Stakeholders motivated to support and participate in project activities.
- Data collecting process improved to prevent errors during data transfer.

Stakeholder ability and knowledge on NISM-GPA are improved while data is improved and more extensive as a result of the training workshop

- To increase stakeholder capacity and knowledge of NISM-GPA especially how to share information through NISM-GPA.
- Stakeholders are able to use system for data entry process base on 20 activity areas.

Future plans

- Specialist will be working on data validation and updating;
- Midterm review: all project steering committee members, national focal point team, specialists and stakeholders;
- Countinuely updating and editing after receiving comments from midtern review;
- Finalise data before exporting and report writing;
- Final workshop (project closing ceremony).

Constraints

- Insufficient facilities and incentive for the time-consumming process of data entry by staff/ stakeholders;
- In reality, not all stakeholders have sufficient skills to update information therefore assistance from persons with computer skills and working experience as a facilitator is required.

Comments and suggestions

- Project administation and management: to increase the number of stakeholders and encourage the use of NISM-GPA as a knowledge base and information sharing we need more dynamic support from many perspectives such as policy makers, academics and the private sector to be involved in different areas of conservation and use for PGRFA.
- Database technical perspective: we need more dynamic system for further integration of information sharing and exchange. There is a lot of valuable information which is available on the web and critical database systems and most stakeholder want to have one point

information access and ease of use, in the current technology of information integration as Web 2.0, metadata standard for information exchange such as XML. From the policy aspect the realiability and highly visible information at the macro level as a reliable and dynamic support for coherent planning and management of PGRFA such as GIS.

Left standing: *Solivong Kongmanivong (NFP team), Phonepaseuth (Previous DB manager), next 3rd Xayaxin (HRC specialist), Vayaphat (NFP) and stakeholders.*
Front seating: *Khamphang (stakeholders), Kongpan (steering committee), Dr Chai (rice specialist)*

Figure 1. Initial project meeting: steering committee, specialist team and stakeholder

Left: *Phonevilay (rice specialist team), Phetmanisang (rice specialist team), Manoluck (DB manager, specialist), Xayasin (HRC specialist).*

Figure 2. Lao NISM-GPA data is validated by specialist team before new updating

NISM Project (GCP/RAS/240/JPN) "Capacity Building and Enhanced Regional Collaboration for the Conservation and Sustainable Use of Plant Genetic Resources in Asia" Country Report: Malaysia

Tosiah Sadi and Mohd Shukor Nordin
Strategic Resource Research Center, MARDI Headquarters,
Serdang, Selangor, Malaysia

Introduction

Following the meeting held in FAO Regional Office in Thailand on the 28-30 June 2009, Malaysia has prepared the national workplan on the project and has signed the Letter of Agreement for participating in the project on the 8 December 2009.

The first meeting of technical task force (national team) was conducted on 24 December 2009 in MARDI headquarters. The meeting was chaired by Dr Mohd Shukor Nordin the Malaysia Focal Point person and attended by 8 research officers who on the PGRFA. The meeting discussed the objectives of the project and the importance of the information gathered from the project which will be used for preparation of the State of the World Report.

List of MARDI Officer/Technical Task Force attending the first meeting,

Ms Tosiah Sadi
Dr Rosliza Jajuli
Mr Zulhairil Ariffin
Dr Mohd Shukri Ali
Ms Khadijah Awang
Ms Maya Izar Khaidizar
Mr Mohd Norfaizal Ghazali
Mr Azuan Amron
Mr Razali Mirad

During the meeting, Mr Zulhairil Ariffin was appointed as the project leader and responsible in the planning for workshops and make arrangement of meeting with the SHs. The chairman also announced that Ms Tosiah Sadi will be an alternate Focal Point for the project. Since Mr Zulhairil will be back up by Dr Rosliza Jajuli as he soon will be on study leave.

Realizing that the present technical task force consists of many new members, one day training was conducted to educate and expose the team members on how to operate the software of NISM-GPA. The training was held on 19 April 2010.

Project achievement

1) Verification, validation and enhancement of data in the first NISM project

Holding a 3 days workshop for previous stakeholders to verify and validate existing data in the NISM database

One day training prior to the above exercise has been held on 19 April 2010 at MARDI. The training was attended by team members. The training was continued with the verification and validation

exercise. The team members had identified duplicate data in NISM especially from the project tables. Thus, the validation/invalidation activity was conducted by each team members to invalidate the duplicated data. In addition, we also did some translation on some of the data from Malay to English.

2) Public Awareness

Seminar series (total 10) held across all of Malaysia to introduce and inform about PGR and NISM in Malaysia. * (partial)

We displayed and demonstrated the NISM database using several methods such as power point presentation and poster paper on conjunction with seminars and occasions such as,

- MARDI 40 year's celebration on 15-17 March 2010 in Serdang,
- Second National Conference on Agrobiodiversity on 11-13 May 2010 at Tawau, Sabah, Malaysia.
- 2nd International Biotechnology and Biodiversity Conference (BioJOHOR). 6-8 July 2010, Johor Bahru, Johor.

Oral paper and poster also presented during the NAC2.

3) Mainstreaming the GPA and NISM into National Policy and Strategies

Publication of leaflets and brochures

Leaflets title:
Pembangunan Mekanisme Pangkalan Data Perkongsian Kebangsaan' (Malay version)
National Information Sharing Mechanisms (English version)

Publication of Books:

Conservation and Utilization of Plant Genetic Resources for Food and Agriculture in Malaysia (launched by the honorable Minister of Agriculture and Food Industry of Sabah.

National Strategies and action plans for Agricultural Biodiversity Conservation and Sustainable Utilization (will be launch by the Minister of Agriculture and Agro-based Industry of Malaysia in conjunction of Malaysia Agriculture and Horticulture Exhibition on October 2010).

4) Capacity building in PGRFA

Training

One day training on NISM-GPA software for new Task Force member
19 April 2010.

Publications

1. Zulhairil, A., Tosiah, S. Erny Sabrina, M.N. & Mohd. Shukor, N. (2010) National Information Sharing Mechanism: Support information system for conservation and sustainable utilization of PGRFA, poster paper presented at Second National Agrobiodiversity Conference, Tawau Sabah on 11-13 May 2010.

2. Tosiah, Sadi, Mohd. Shukor, N. and Zulhairil, A. (2010) Information system in genetic resources exchange and strategic planning – the Malaysian AGROBIS and NISM, oral presentation at Second National Agrobiodiversity Conference, Tawau Sabah on 11-13 May 2010.

List of stakeholders from the first NISM project

1. SR – Dr Salma Idris
2. HR – Dr Abdul Rahman Milan
3. RIC – Hj. Musa Yaacob
4. DOA PENINSULAR – Mr Wan Darman Wan Abdullah
5. MALAYSIAN CROPLIFE – Ms Lidya
6. TWN – Ms Mageshwari
7. UMS – Associate Prof. Wan Mohamad Wan Othman
8. SABAH PARKS – Dr Jamili Nais/Mr Mohd. Zaini A. Wahab
9. DOA SABAH – Ms Mary Siambun
10. UiTM KINABALU – Mr Suhaili Sabki
11. MCB – Mr Haya Ramba
12. UNIMAS – Dr Ho Wei Seng
13. DOA SARAWAK – Mr Abang Moktar Abang Pawozan
14. DOA KELANTAN – Tn. Hj. Mustapha Muda
15. KEDA – Tn. Hj. Mohd. Nor Kassim
16. UKM – Associate Prof. Dr Mohamad Osman/Prof. Mahani Mansor Clyde
17. MINT – Ms Sakinah Salleh
18. FRIM – Dr Lee Soon Leong
19. GOLDEN HOPE – Dr Mohd. Noor Abdul Ghani/Mr Hamdan Ibrahim
20. MPOB – Dr Maithura Ithnin/Mr Zulkifli Yaacob
21. MRB – Dr Masahuling Benong
22. UPM – Associate Prof. Dr Mohd Said. Saad
23. UiTM SHAH ALAM – Mr Zakaria Tajuddin
24. USM – Prof. Mashhor Mansor/Prof. Madya Dr Hasnah Md Jais/Mr Mohamad Hifni Baharuddin
25. IIUM – Ms Zarina Zainuddin
26. DOF SABAH – Mr Julius Kodoh
27. DOF PENINSULAR – Hj. Kamaruzzaman Ali Budin

New potential stakeholders have been identified to be included in the second iteration of this project. The names of the organizations are listed below:

No.	Name of potential new Stakeholders
1.	Faculty of Agriculture and Biotechnology, Universiti Darul Iman Malaysia
2.	Faculty of Science and Industrial technology, Universiti Malaysia Pahang
3.	Faculty of Agro Industry and Natural Resources, Universiti Malaysia Kelantan
4.	Institute of Biological Sciences, University of Malaya
5.	Nottingham University, Semenyih Selangor

Challenges

Technical team consist of new members who are new officers recruited by MARDI. Thus, training and guidelines need to be conducted for them, prior to the second iteration activity.

Progress on implementation of NISM establishment in Mongolia

Bayarsukh Noov,
National Focal Point and Deputy Director
Plant Science and Agriculture Research Training Institute,
Darkhan-Uul, Mongolia

The Plant Science and Agricultural Research Training Institute (PSARTI) is the implementing organization of project on the Establishment of National Information Sharing Mechanism (NISM) for monitoring implementation of Global Plan of Action (GPA) under the FAO/Mongolian Government project capacity building and enhanced regional collaboration for the conservation and sustainable use of plant genetic resources in Asia (GCP/RAS/240/JPN).

Translation of NISM-GPA software

In the preparatory phase a full document of NISM software using Excel tables has been translated into Mongolian language and the translation converted into unicode (Word format and PDF) using the online converter found at http://badaa.mngl.net/convert/con2uni.htm.

Finally the installer of the Mongolian-English version of the GPANFP application completed in December 2009 with the full support and involvement of Mr Stefano Diulgheroff, FAO AGP.

Establishment of LOA

The LOA/2009/262 established between FAO and PSARTI on 8 November 2009. The PSARTI referred to as recipient organization. The LOA indicated the responsibilities and roles of both parties for the establishment of NISM-GPA in Mongolia.

Training of documentation specialist

The project team composed of NFP and documentation specialist and research staff of PGR division of PSARTI established. The full time new documentation specialist hired for implementation NISM-GPA in Mongolia.

The national focal point (NFP) provided training to documentation specialist and other researchers at PSARTI for the use of NISM-GPA.

During training the documentation specialist provided guidelines and hands on training on the use of NISM-GPA including access to programme, filling of common tables, data export and import, data validation, creating new records, searching, registration of SH and creation of CD to SHs, linking and data merging etc.

Provision of equipment

The 2 set of computers, printer and color scanner purchased to enable efficient data collection and management for the NISM-GPA Mongolia.

Survey and selection of stakeholders

The project team conducted a survey of organizations which are involved in conservation and sustainable use of plant genetic resources for food and agriculture in Mongolia by surveying projects, programmes, publications, reports, through internet and meeting with organization officials.

Also, we sent official request to State Central Registration Department (SCRD) of Mongolia asking for the list of government and non-government organizations which conduct activities related to conservation and sustainable use of PGRFA. In response, we received list of organizations which are registered to conduct environmental research activity in Mongolia.

Finally we were able to develop list of 31 organizations which may be involved in activities related to conservation and sustainable use of PGRFA in Mongolia. We selected 18 organizations which are involved in the conservation and sustainable use of PGRFA.

We prepared 6 page manual containing information about project objectives, activities and expected results of NISM-GPA Mongolia and guidelines for filling common tables. Also, the common tables exported into excel sheets and recorded into CD. The manual and CD together with official invitation to join to the establishment of NISM Mongolia are distributed to selected 18 organizations.

Finally we received response from 14 stakeholders which have agreed to join to establishment of NISM-GPA in Mongolia. (Table 3).

Organization of first SHs workshop

The first stakeholders (SH) consultation workshop held on 17 June 2010 at the Mongolian State University of Agriculture (MSUA) in Ulaanbaatar. Totally 30 participants representing 13 stakeholders attended the meeting. The officials including Mr L. Bayartulga, Head of Department of coordination of agriculture policy implementation of MoFALI, Mr Ch. Buyannemex, FAO representative, Dr A. Gombojav, vice president of MSUA took part in the meeting.

The objectives of the workshop were to 1) develop strategy for the establishment NISM-GPA in Mongolia 2) define roles and responsibilities of SHs 3) train SHs on the use of NISM-GPA software.

The resource persons including Dr N. Bayarsukh, deputy director of PSARTI and national focal point (NFP), Dr G. Erdenejav, senior scientist of the Institute of Botany, Dr J. Namjilsuren head of PGR division PSARTI, Dr Tserenbaljid, senior scientist of the Institute of Botany made 5 presentations during workshop. The presentations covered topics related to the current status of conservation and use of plant genetic resources in Mongolia.

Mr B. Otgonbayar, the project documentation specialist provided a presentation on the use of NISM-GPA software and hands on practice on the use of software using computers provided to participants.

Also, the SHs installation CD, registration key and guide book with programme instruction and common tables exported from NISM software with instructions to fill common tables provided to each participant.

Finally, workshop participants agreed to create project steering committee consisting of representatives of authorities and core research institutes including Mr L. Bayartulga from MoFALI, Dr N. Bayarsukh from PSARTI, Dr Namxai from RIAH, Dr Erdenejav, Institute of Botany and Mr B. Otgonbayar, from PSARTI.

Gathering stakeholders data

The CD containing the installation programme of GPAS? and manuals for GPASH in Russian and Mongolian language and Global Plan of Action on PDF files developed. Also, manual consisting of 6 parts, containing 42 pictures in 28 pages printed in Mongolian language and distributed to stake holders during first SHs meeting. At the moment only 4 organizations including PSARTI, RIAH, Institute of Botany and Institute of Plant protection provided information for common tables.

The NFP and project team keep regular communication with other SHs through means of telephone, e-mail and other communication tools to assist filling the common tables.

Considering the slow process of filling common table by SHs the project documentation specialist conduct scheduled visit to selected SHs to assist filling common tables from August 2010.

Challenges and lessons learned

1. Some translated terms and meanings into Mongolian language need to be edited again.
2. New edition of Mongolian version of software needed.
3. During, the survey of participating organizations some organizations for example the Institute of Chemistry and Chemical Technology of Mongolian Academy of Agricultural Sciences /MAAS/ refused to provide information for NISM-GPA Mongolia due to their regulation on intellectual property.

Project Report of GCP/RAS/240/JPN in Myanmar Capacity Building and Regional Collaboration for Enhancing the Conservation and Sustainable Use of Plant Genetic Resources in Asia National Information Sharing Mechanism-Global Plan of Action

U Aung Myint
Seed Bank Unit, Department of Agricultural Research
Yezin, Nay Pyi Taw
Myanmar

Organizing Steering Committee

Steering Committee for the project was organized on 16 October 2009 consisting of following members.

1. U John Ba Maw (U Khin Soe)[1], DG, DAR — Chief
2. U Khin Soe (Daw Mar Mar Myint), Director, DAR — Secretary
3. U Hla Gyi General Manager, Myanma Agriculture Service (MAS) — Member
4. Daw Aye Aye Myint, National Focal Point, DAR (U Aung Myint) — Member
5. Daw L Nan Kha Data Management Manager, DAR — Member

The first steering committee meeting was held on 10 February 2010. At the meeting, after discussion for selecting stakeholders for the project, the following stakeholders group A (8 members) and group B (11 members) were selected.

No.	Name	Section	Location	Organization	Stakeholder Group
1.	Dr Ye Tun Tun	Seed Bank	Yezin	DAR	A
2.	U Min San Thein	Seed Bank	Yezin	DAR	A
3.	Daw Khin Mar Mar Nwe	Oil Crop	Yezin	DAR	A
4.	Dr Ni Ni Tint	Industrial Crop	Yezin	DAR	A
5.	Dr Tun Shwe	Food Legumes	Yezin	DAR	A
6.	Daw Su Myat Hlaing	Agri. Eco	Yezin	DAR	A
7.	Daw Cho Cho Aung	Rice	Yezin	DAR	A
8.	U Thant Lwin Oo	Other Cereals	Yezin	DAR	A
9.	Daw Mi Mi Aye	Latpadan Farm	Bago (West)	DAR	B
10.	Daw Nyunt Nyunt Tin	MyaungMya	Ayarwady	DAR	B
11.	U Htain Lin Tun	Naung Mon	Shan (North)	DAR	B
12.	Daw Khaing Khaing Oo	Aungban Farm	Shan (South)	DAR	B
13.	U Thein Htay Oo	Magwe Farm	Magwe	DAR	B
14.	Dr Ye Tint Tun	Seed Division	Hmawbi, Yangon	MAS	B
15.	U Htwe (U Dong Lun)	Extension	Kachin State	MAS	B
16.	U Kyaw Myo Oo (U Khin Maung Aye)	Extension	Kayah State	MAS	B
17.	U Aung Thwin	Extension	Mon State	MAS	B
18.	Daw Than Yi	Seed Division	Kayin State	MAS	B
19.	U Kyaw San (U Swe)	Extension	Sagaing Division	MAS	B

[1] In parenthesis are new members of the steering committee and stakeholders due to personnel changes or retirements.

Stakeholder A Group Training

The first training of National Information Sharing Mechanism-Global Plan of Action was held from 22 January to 24 January 2010. International consultant Dr Rakesh and Dr Duncan explained how to use software of National Information Sharing Mechanism. National Focal Point, Data Management Manager and 4 members of stakeholder group A participated.

The second training for the rest of stakeholder group A members was held on 10 and 11 May 2010. Trained person of previous training served as instructors at the training. The training was completed well and there was no difficult in understanding the software since all trainees have computer knowledge.

Stakeholder B Group training

Training of NISM-GPA for stakeholders group B was held on 14 and 15 June 2010. All group B stakeholders participated in the training. There were some difficulties in explaining NISM-GPA software using computers due to the followings:

- Lack of computer knowledge of some participants, especially extension people
- Less background knowledge of plant genetic resources of some participants

Common tables and priority activity areas have to be translated in Myanmar language and printed as hard copies and then they are mailed to every stakeholder. Stakeholders are shown in the Table.

Translation of software into Myanmar Language

Translation into Myanmar language to develop Myanmar version of NISM started in May 2010. Due to problem of selecting Myanmar font, translation of software into Myanmar language is not complete yet. Official fonts of Myanmar language for Ministries are Myanmar2 and Myanamr3. Myanmar3 is later version of Myanmar font. Using of Myanmar3 font is more suitable and convenient than that of Myanmar2 font, all documents should be typed in Myanmar3 font again. Data management section of Myanmar Seed Bank will take responsibility for typing.

Both Myanmar2 and Myanmar3 fonts are Unicode fonts. Typing sequence of Myanmar characters, vowels and consonants to obtain Myanmar words are also the same for both fonts. Only when typing a word especially combination of vowel and consonant or 2 characters, there will be difference is appearance on screen before typing completed.

Data Collection and Entry

Collecting data from stakeholders is underway. Stakeholders (A group) from Department of Agricultural Research, Yezin are using computers to fill up common tables and priority activity areas. However they could not complete by the end of September. Most of the Stakeholders (B group) are using hard copies of tables which had been sent from Yezin to fill up questions. Data from Aungban, Loikaw, Letpadan, Myaungmya, Pa-an were already collected. Data management section of seed bank is now doing data entry. Data from other stakeholders are still to be collected.

Budget utilization

Food and Agriculture Organization of the United Nation has provided 2 sets of desktop computer and 2 numbers of laptop computer using project budget. Expense for holding steering committee

meeting, and for translation have not been reimbursed yet. Only budget for conducing training for stakeholder B group has been utilized. Total amount of budget used for training is approximately 1 000 US$.

Future perspectives

Myanmar NISM-GPA is now being developed and it is necessary to address the problem of Myanmar font. The iteration 1 of NISM-Myanmar is expected to be completed by the end of 2010. The in-country activities of the Project, including linkage to WISM, are expected to be completed on time.

At present, internet users (biologist, scientists, technician, students, etc.) have more or less language skills. This moment therefore NISM software in English language is still useful enough. NISM-Myanmar is also necessary to develop for all Myanmar people interested in PGRFA.

National Information Sharing Mechanism-Global Plan of Action, Nepal

Hari Dahal
Joint Secretary, Gender Equity and Environment Division,
Ministry of Agriculture and Cooperatives

A Memorandum of Understanding (MoU) was signed between Ministry of Agriculture and Cooperatives (MoAC) and Food and Agriculture Organization (FAO), Regional Office for Asia and the Pacific to implement the project "National Information Sharing Mechanism-Global Plan of Action". As per the MoU, Agriculture Botany Division, NARC is coordinating the implementation of the project activities in Nepal. To establish a country driven, system that assists the GPA-PGRFA as a support for sustainable agricultural development in Nepal and the expected outcomes of the project are a) establishment of a country-driven NISM-GPA database in Nepal with network of stakeholders, for sharing information on PGRFA activities and improving coordination and partnership in Nepal and beyond; b) Enhanced conservation and use of PGRFA for sustainable agricultural development in Nepal. The following section outlines a summary of the major activities undertaken.

Ministry of Agriculture and Cooperative formed a 9 member Steering Committee on 28 October 2009. The steering committee is the project governance unit for the project NISM-GPA. The purpose of the project steering committee are i) to brief the members of the Functional Committee about the national commitment for the implementation of GPA, and the project on establishment of information sharing mechanism for monitoring the implementation of GPA, and seek their advice. ii) To brief members about reporting procedures and solicit their advices on their contributions to the priority areas of the GPA. iii) To discuss and finalize a comprehensive list of stakeholders contributing to the indicators and reporting format who will collect data in the computer application developed by FAO. The chairperson of the committee was the Joint Secretary, Gender Equity and Environment Division, Ministry of Agriculture and Cooperatives. After the establishment of the Steering Committee, a series of meetings were organized to carry on the activities of the project.

The steering committee nominated Dr Madhusudan Prasad Upadhyay, In-charge, Plant Genetic Resources Unit as member secretary of the committee and also appointed Mr Surendra Kumar Shrestha as Data Specialist on 2010 February 3 as per the existing Nepal Agricultural Research Council rules and regulations to run the project activities. The committee has taken some of the major decision (i.e. revised the time frame of project work plan, decided to purchase equipment/supplies through FAO-Nepal office, endorsed the programme for the "National workshop and training for the establishment of a national sharing mechanism and for implementation and monitoring of the GPA" and decided the list of participants for the workshop) to run the project activity.

A one day training programme for the support staff on National Information Sharing Mechanism – Global Plan of Action was organized on 15 February 2010 at Agriculture Botany Division. All together nine staff from Ministry of Agriculture and Cooperatives, AICC and Agriculture Botany Division participated in the programme. Mr Surendra K. Shrestha introduced the Global Plan of Action and NISM-GPA system during the training session. During the practical session he elaborated the common table inputs and 20 activity areas of Global Plan of Action. The overall remark from participants of the training was that the training was properly organized and effective in sharing the information.

The Initial Stakeholders Meeting NISM Training was organized at Mirabel Resort Hotel Dhulikhel in 15-16 April 2010. All together 21 stakeholder were participated the training workshop. The resource

person for the workshop was Dr Duncan Vaughan, FAO. Mr Surendra K. Shrestha, Data specialist NISM-GPA provided the training with the support of Ms Bidhya Pandey, GEED, MoAC and Mr Salik Ram Gupta, PGR Unit, Agriculture Botany Division on NIMS-GPA database system. The participants were trained on entering the data in Common Table and Activities Priority Area of NISM software. The resource person elaborated on the Global Plan of Action and database sharing mechanism.

Most of the common table data i.e. organization table, project table, reference table, area table, contact persons table and Cultivar table (released varieties of different crops with their parent lines) have already been documented. All the available data on four areas of GPA received from Nepal Agricultural Research Council (NARC), Cardamom Development Center, Vegetable Seed Production Center, Spices crop development center, Tuber crop vegetable seed production center etc. have been documented. The rechecking of the entered and missing data has also been initiated. Most of the stakeholders have only few amounts data on ex-situ conservation, in-situ conservation and use of PGR.

The National Agriculture Genetic Resources Center (NAGRC) has recently been established in NARC. The NISM-GPA project office also shifted to NAGRC. The NAGRC has a programme to exchange the information with the community seed banks to strengthen the information system and other supports. We are also aiming to document the information received from the NAGRC activities.

A visit to the in-situ site (Kaski) to update recent status of on-farm conservation and find out the possibility to link up the Community Biodiversity Register (CBR) and NISM-GPA will be initiated soon. And also visit of community seed banks (CSB) in Bara eco-site for data collection and documentation is under way.

Pakistan
Summary of the project GCP/RAS/240/JPN

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GCP/RAS/240/JPN: **Capacity Building and Regional Collaboration for Enhancing the Conservation and Sustainable use of Plant Genetic Resources in Asia**

- A physical plan of work was prepared and finalized in consultation with the Chief Technical Advisor of the project indicating the activities to be performed in Pakistan with time frame and output.
- A letter of agreement (LOA) for in-country project activities was completed. It was signed by the Chairman, Pakistan Agricultural Research Council (PARC) on behalf of PARC the and Mr Gamal Mohmed Ahmed FAO Country Representative in Pakistan on behalf of FAO.
- One day workshop entitled "Strengthening Plant Genetic Resources Information system for Food and Agriculture including the National Information Sharing Mechanism (NISM) for the Global Plan of Action" was organized on December 16, 2009 at IABGR. It was attended by 32 key stakeholders from Federal and Provincial Institutes. The workshop was inaugurated by Chairman, PARC.

Chairman PARC addressing the participants of the workshop

The participants of the workshop gave presentations on the following topics.

- ❒ Intellectual Property (IP) Rights and Plant Genetic Resources
- ❒ IP protection of Genetic Resource – International scenario and National situation in Pakistan
- ❒ Plant Genetic Resources and Global Plan of Action.
- ❒ National and Regional collaboration for conservation and sustainable utilization of Plant Genetic Resources: gaps and constraints in NISM.
- ❒ Activities of the Institute of Agri-Biotechnology and Genetic Resource (IABGR)
- ❒ Demonstration of an established National Information Sharing Mechanism on PGRFA
- ❒ Revision of information in Common Tables and Priority Areas Relevant to the PGR.

- Two days training course for all the stakeholders of National Information Sharing Mechanism software was organized on April 13-14, 2010 at NARC, Islamabad. It was attended by 21 stakeholders from Federal and Provincial Institutes.
- The objective of this training programme was to give hands on training to all the stakeholders regarding NISM-GPA software and its implications to the national PGR documentation database. Participants were provided sufficient information materials on training. Web-based information was also demonstrated which is an important source for sustainable use of plant genetic resource for food and agriculture.
- The common tables were updated one by one, to add information, insert, delete and edit records and remove errors. The practical session was also held to become familiarized with the NISM software i.e. common tables and priority areas. Discussions were held to elaborate the gap and deficiencies.
- Overall the following topics were covered on the day one.
  - ❒ Demonstration of Common Tables an established National Information Sharing Mechanism on PGRFA.
  - ❒ Installation of NISM software
  - ❒ Demonstration of input data/information in Common Tables.

The next day following lectures/demonstration were given:

- ❒ Demonstration of Priority Areas an established National Information Sharing Mechanism on PGRFA.
- ❒ Demonstration of input data/information in Priority Areas.
- ❒ Demonstration/use of FAO Website regarding NISM

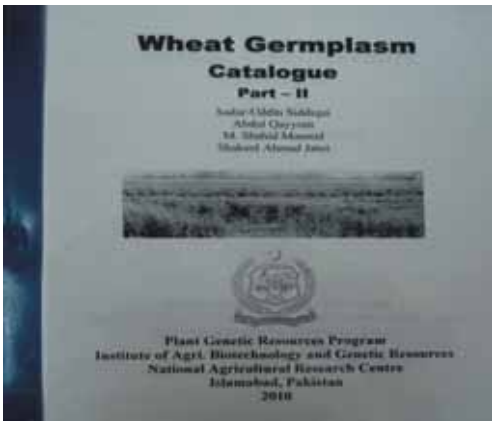
Three practical sessions were also held for hands on training of the participants.

Session 1: Working with the Priority Areas to input data

Session 2: Working with the Priority Areas to add, search, deletes, edit records, remove errors and linking tables, etc.

Session 3:
- ❒ Working with the Common Tables and Priority Areas and backing-up data
- ❒ Export/import data to/from Excel
- ❒ Discussed problems

- Two catalogues were published to disseminate the information among the stakeholders for better use of PGR for the crop improvement. Wheat germplasm catalogue contains passport data of 3 096 accessions whereas peas catalogue has both evaluation and passport data of 240 accessions.



- Added information/data of 20 key stakeholders from Federal, Provincial Institutes in Common Tables and Priority Areas. Of these 10 new and 10 old stakeholders provided the information/data regarding NISM. The current status of NISM after input information in Common Tables is as shown below. This clearly indicates progress made after the earlier project GCP/RAS/186/JPN.

Status of Common Tables in Pakistan

Name of the common table	No of entries (2007)	No of entries (2010)
ORGANIZATIONS	142	192
CONTACT PERSON	524	741
PROJECTS	98	150
CULTIVARS	491	515
AREAS	09	09
REFERENCES	283	573
AGREEMENTS	01	01

- A survey was conducted on the 20 priority areas of Global Plan of Action for further improvement of the document. Altogether 51 stakeholders responded.
- The vast amount of useful information on PGR activities throughout the country in Pakistan has been gathered and documented in the NISM-GPA database. Stakeholders from around the country were contacted by IABGR to discuss and share knowledge about the Global Plan of Action.
- The information and data documented in NISM will be helped for effective planning of projects and identifying priority areas of plant genetic resources in Pakistan. The establishment of the NISM-GPA also enhanced coordination and collaboration of activities and reduced duplication of efforts among the various institutions in the country. The major activities of IABGR for effective management of Plant Genetic Resources include germplasm acquisition, characterization, evaluation, documentation and conservation for sustainable agriculture.

Summary of Accomplishments "Capacity Building for Regional Cooperation in Asia (GCP/RAS/240/JPN)" September 2009 – September 2010 Philippines

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In August 25, 2009, a Bureau of Plant Industry (BPI) Steering Committee for the project was created which is composed of the BPI Assistant Director as the Chairman, and 6 members consisting of the projects Database Manager and staff of the Plant Genetic Resources Unit of the agency to assist the Director (as Focal Person) in the execution of the activities of the project's Work and Financial Plan and see to it that all the outputs are realized.

The First National Steering Committee Meeting composed of the Director of BPI (Joel S. Rudinas, BPI former Director and now Undersecretary for Field Operations of the Department of Agriculture), former Asst. Director Clarito M. Barron (now BPI's newly appointed Director), experts in Plant Genetic Resources Conservation and Utilization, Professors Nestor Altoveros and Teresita Borromeo, Solita R. Sicat, National Coordinator and Database Manager of the project was conducted in October 9, 2009. The highlight of this meeting was the review of the constitution of the National Steering Committee, list of stakeholders and implementation of the Work and Financial Plan. It was decided in this meeting that aside from the members of the Philippine National Network of Plant Genetic Resources for Food and Agriculture (PNNPGRFA), who were trained in the first phase of the project (GCP/RAS/186/JPN), stakeholders from the different Department of Agriculture (DA)-Regional Field Units (RFUs) all over the country, other Private Institutions and other State Universities and Colleges (SUCs) would be invited to join the list of Stakeholders. It was also decided that the conduct of the training on the implementation of NISM-GPA will be done in such a way that the participants for the training will come first from the BPI Research Centers, then from the DA's Commodity Institutions, DA-RFUs and last will be from Private Institutions and SUCs to ensure sustainability of the project.

The first training which involved 15 participants consisted of the Heads of BPI-National Crop Research and Development Centers (NCRDCs), together with their staff responsible for their Center's PGRFA collections and some of the staff from BPI Central Office (two each from Crop Research Division and Seed System) was conducted last November 4-6, 2009 at the DA-Information Technology Center for Agriculture and Fisheries (ITCAF).

The second training was attended by 11 stakeholders from the Department of Agriculture's Commodity Institutions (Fiber Industry Development Administration, Sugar Regulatory Administration, Cotton Development Administration, Philippine Coconut Authority, National Tobacco Administration and Philippine Rice Research Institute) at the same venue in December 16-18, 2009. Before the training of the 2nd batch, the heads of these commodity institutions were first oriented on the importance of their participation in the establishment of NISM-GPA in the country to get their support and commitment to the project.

The trainings were conducted in such a way that participants were first oriented on the project and were introduced to the application software (NISM) where the method was purely hands-on. It was a refresher course for those who have already undergone the training in the first phase of the project and was a very good experience for the new participants (the previous participants were changed by these new ones). During this training, the strengths and weaknesses of each Center regarding their PGR capabilities were discussed and a schedule of implementation for the group was created.

Updating of the common tables from the trained participants are now pouring in and being consolidate at the National Focal Point's office. The remaining two trainings in the implementation of NISM-GPA application is scheduled after orientation of the DA's Regional Executive Directors and their staff.

The appointment of Director Rudinas as Undersecretary of Agriculture and the appointment of a new Director in BPI (Dr Larry Lacson) as well as the preparations for the national elections last June somewhat hampered the smooth implementation of the project. The new Director was briefed about the project and his designation as National Focal Point was delayed because of a change in management at the Department of Agriculture. As this was going on, search for materials of wild crop relatives and wild plants for food and agriculture is being done. A consultation with Prof. Altoveros and Borromeo revealed, however, that there is still no in situ conservation of wild crop relatives here in the Philippines, although there are wild crops/plant relatives that can be found in situ. However, as shown in the gathered materials, there is still really no in situ conservation of wild crops/plants being done in the Philippines.

Meanwhile, preparation for the next two technical plant genetic resources trainings in Characterization of Plant Genetic Resources and Regeneration of Ex situ Plant Genetic Resources is being done at the BPI-Los Banos National Crop Research and Development Center. A total of 1 500 sq m land area was cultivated and planted to ten accessions of corn and mungbean at different time intervals to cover three plant stages (vegetative, flowering and harvest stages). The plants will be used for characterization and regeneration in the third week of October where experts in plant genetic resources will be tapped as speakers and 20 participants (stakeholders) per training will attend.

As this is going on, orientation of the project's activities is being conducted for the Department of Agriculture's Regional Field Units in different parts of the country to get their commitment and support to achieve the success of the project. To date, Regions 12, and 11 in Mindanao; and Regions 1, CAR, Region 3, 4A and 4B in Northern Luzon have already been made. The most important observation that was gathered during the orientation was the fact that most of the staff do not know that they are performing plant genetic resources activities and that documentation of their existing collections are still done manually. Upon explaining and orienting them of the importance of having their information in electronic form and sharing them through a consolidated report in a database which could be easily accessed through the internet, they are now ready to participate in the endeavor. On the other hand, the remaining seven regions are scheduled before the next training in September.

The project, on its second phase will involve a lot more stakeholders than the first phase. Most of them especially those in the Department of Agriculture's Regional Field Units, 14 of them, will be introduced to plant genetics activities for the first time. However, we are getting full support from them with the directions from the Undersecretary of Agriculture for Field Operations (former BPI Director and National Focal Point, Joel S. Rudinas) and BPI Director Dr Clarito M. Barron (who is focused on the institutionalization of the NISM-GPA). However, close monitoring on the stakeholders' active participation should be done and their needs should be met so that they can perform their tasks on plant genetic resources activities better.

Second National Focal Point Meeting of Project GCP/RAS/240/JPN Summary of activities in Sri Lanka

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National Focal Point
Plant Genetic Resources Center
Sri Lanka

Background

The agreement aiming to institutionalize the regular updating of NISM-GPA was signed by the Director General of Agriculture of the Department of Agriculture and the FAO representative in Sri Lanka. According to the original work plan agreed upon, the activities of the project were scheduled to commence in September 2009 and terminate in September 2011 covering a period of 2 years. The activities of the project were split into 3 phases as per the time frame given below.

Time frame

First Phase: September 2009 – March 2010
Second Phase: April 2010 – December 2010
Third Phase: January 2011 – September 2011

The project activities so far undertaken are given below.

1. Consultation and Preparation of Stakeholders List

Various organizations and individuals were consulted to identify new stake holders related to 20 priority activities of GPA. The list of the previous stakeholders was updated to include 15 new stakeholders thereby bringing the total number to 47. The new stakeholders include the officers of the Provincial Department of Agriculture in the northern region of Sri Lanka where the communal disturbances existed for more than thirty long years prevented the implementation of project activities in the area. Other stakeholders include the private sector organizations, NGO and the universities

2. First National Stake Holders workshop

Regrettably due to unavoidable reasons mainly due to the retirement of the country coordinator in March 2010 the first National Stakeholders Workshop had to be delayed and finally it was held on 14-15 June 2010 at the Paradise Beach Hotel, Negambo with the participation of 47 stakeholders. The first session of the workshop included 3 comprehensive presentations on establishment and implementation of NISM-GPA mechanism and the processes involved in the gathering and analysis of data. There were 4 other presentations by the Heads of the Departments on various aspects of genetic variability of crop species and PGRFA conservation systems in their organizations.

2.1 Finalization of the Work Plan

During the second session of the workshop future activities were discussed in details with the stake holders and scheduled time period of some of the activities were adjusted.

2.2 Nomination of National Partners (contact persons)

During the course of the workshop all the stakeholders were requested to nominate a suitable officer as contact person to work on the project activities. The second training workshop for all contact people was scheduled to be held on 30 July 2010. However this was postponed to 27 August 2010.

3. Setting up of Steering Committee

The steering committee consisting of 19 members was set up during the workshop. They include the Director General of Agriculture, Directors of the Department of Agriculture, Director generals of Export Agriculture Department and National Botanic Gardens, Directors of Tea Rubber, Coconut and Sugarcane Institutes, Chairman of Cashew Cooperation, Director of Aurvedic Research Centre, Director Biodiversity of the Ministry of Environment, Director, Palmyra Board, Project coordinator and one personal to represent private sector.

4. The International Year of Biodiversity

The activities pertaining to the celebration of the International Year of Biodiversity were discussed in detail. The decision was taken to hold the event in November 2010.

Country Report of Thailand on Capacity Building and Enhanced Regional Collaboration for the Conservation and Sustainable Use of Plant Genetic Resources in Asia (GCP/RAS/240/JPN)

Chutima Ratanasatien,
National Focal Point

The Government of Thailand signed the project agreement on December 2008. Thailand has processed some activities before signing a letter of agreement. On November 2009, the national focal point formed a working group consists of 12 persons from various institutes under Department of Agriculture and Department of Rice and the first meeting of the working group was conducted for overviewing the project objective. Moreover, the potential stakeholders have been identified. The working group has planned to maintain 20 stakeholders from the first phase and to recruit new 15 stakeholders which would be communities and organizations whose activities relate to the 20 activities under the Global Plan of Action. In this connection, the national focal point of the Convention on Biological Diversity (CBD) has also been invited to join the project for better collaboration in the future on submitting agro biodiversity to the clearing house mechanism (CHM) of the CBD. The second and the third meetings were held on January and February 2010 respectively to formulate the activities and work plans. Having discussed in the working group, 10 activities have been defined to fulfill the objectives of the projects which are 1) organizing of working group meetings to formulate National Information Sharing Mechanism (NISM) documents, questionnaires and guidelines; 2) conduct visits to stakeholders to enhance awareness and provide instructions regarding providing data for the NISM-Thailand; 3) organization of first stakeholders meeting; 4) provide essential supplies in order for stakeholders to conduct project activities; 5) survey stakeholders and gather data from stakeholders; 6) verify data provided from stakeholders and inputting the data; 7) provide completed data on CDs to stakeholders and explain how to use; 8) organization of a final stakeholders meeting; 9) Thai NISM second iteration completed in both Thai and English and linked to World Information Sharing Mechanism (WISM) and 10) report of in-country activities and translation of this report. Having considered and agreed with the Chief Technical Advisor of the project, the work plans and activities has been a part of a letter of agreement which was signed on April 2010. To formulate National Information Sharing Mechanism (NISM) documents, questionnaires and guidelines, the fourth and fifth meetings of the working group were conducted on May 2010. The National Focal point and team have conducted visits to stakeholders to enhance awareness and provide instructions on providing data for NISM-Thailand from May to August 2010. In the mean time, the questionnaires have been tested with some stakeholders. On August 2010, the first stakeholders meeting was help in Bangkok at which 42 stakeholders participated. The national focal point presented background and objectives of the project, reasons and advantages of joining the project. Phase I NISM of Thailand has been presented as well as a demonstration of NISM software. In this regard, there were 2 groups of stakeholders. The first group would like to input data to the software themselves while another group would like to share their information by hard copy especially the representatives of some communities have had and idea that the NISM is too complicated for farmers to access and they don't see benefit of the NISM. However, they would join the project for the sake of sharing what they have done about plant genetic resources with the NISM. With a limited budget, we can't provide essential supplies for all stakeholders to conduct project activities. In this

regard, we purchased 5 personal computers and 2 laptop computers which will facilitate only some stakeholders for data input. Having experienced some difficulties on the first phase, we have adopted different methodologies to develop the NISM of the second phase. However, there have also been some problems such as translation of the software which we have corrected since last phase but it still appears in the software. Moreover, we also have a problem of installing the software. We expected that the expert of FAO would be able to solve the problems. As aforementioned, different methodologies were applied to develop the NISM, one of those is to approach and visit the stakeholders which are communities who have conserved plant genetic resources from their ancestors for more than 100 years. These communities have their own languages which makes communication difficult to communicate with. However, we could overcome this problem by employ 2 local district officers for translation and gathering information. In conclusion, we have conducted 4 activities (40%) out of 10 activities so far.

Progress report on the implementation of Project GCP/RAS/240/JPN in Viet Nam (September 2010)

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Hanoi, Viet Nam

Background

Viet Nam was one of the first countries to participate in establishing a NISM-GPA with the signing of a Letter of Agreement for establishing a NISM-GPA under project GCP/RAS/186/JPN (FAO-RAP) on the 4 May 2004. Based on the information gathered through this NISM, national programmes can assess the current status of PGRFA in the country, which will assist in identifying the needs and priorities for PGRFA conservation and sustainable use. The project has developed a website NISM-Viet Nam and the database has been placed on the website for access by SHs and other interested users. An external evaluation mission of the project GCP/RAS/186/JPN recognized the many positive results of the project and also some remaining challenges. Thus, the project was recommended to develop the second phase.

Viet Nam continued to participate in implementation of NISM-Viet Nam through Project "GCP/RAS/240/JPN" which is funded by the government of Japan. A LOA was signed on the 10 September 2009. This Agreement aims to support Viet Nam in strengthening its activities related to information on Plant Genetic Resources, particularly in relation to institutionalizing the regular updating of NISM-GPA the main monitoring mechanism of the Global Plan of Action. The inputs will permit Viet Nam to incorporate updated information from present and new stakeholders into the NISM-Viet Nam database and conduct activities that will strengthen PGR activities in Viet Nam.

The activities to be undertaken in the project

The activities under the Letter of Agreement include the following:

i) Review of NISM-GPA common tables and SH counterparts;
ii) Provide training to 25-30 new stakeholders;
iii) Review of Indicators and Reporting Format for monitoring and implementation of GPA-PGRFA;
iv) Make TV programme on PGR;
v) Hold a workshop "Biodiversity Year" on PGR activities in Viet Nam;
vi) Add new data from previous and new stakeholders to the NISM-GPA database;
vii) Issuing catalogue of specific germplasm for promoting use.

Progress and outputs

Organization of the International Biodiversity Workshop

A two days workshop on strengthening conservation of plant genetic resources conservation for food and agricultural towards the International Year of Biodiversity was organized and hosted by the

Plant Resources Center (PRC) on 9-10 December 2009, with over 70 participants, including researchers from the National PGRFA network, relevant decision makers, and 50 researchers from PRC, representatives from Viet Nam television and Dr Duncan Vaughan, Chief Technical Advisor of the project GCP/RAS/240/JPN.

In total, 16 papers were presented and discussed at the workshop. The workshop proposed resolutions and priorities for strengthening PGR activities.

- To complete the strategy for the conservation of national plant genetic resources for the period of 2010-2015.
- To develop and implement the project for PGR collecting from all over Viet Nam.
- To strengthen the national PGR conservation network.
- To develop, adopt and implement the regulations on PGRFA conservation, use and exchanges.

Training of new stakeholders

A training course was held for new stakeholders on the use of the computer application for the NISM-GPA implementation at Plant Resource Center-Ankhanh-Hoai Duc-Hanoi on 11-12 December, 2009. The training course was attended by 26 new stakeholders. The trainee discussed the National Information Sharing Mechanisms (NISM), work plan and some agreements were made. Stakeholder agreed to provide the required data by answering the indicator questions in the NISM-GPA software.

Add new data from previous and new stakeholders to the NISM-GPA database

Updated data for 40/60 previous stakeholders and new data from 20/26 new stake holders is achieved by dispatching the staff to every stakeholder (old and new).

The software from the old SHs was checked and questions posed by SHs were answered, new data and information from SH were collected to add to the database.

For the new stakeholders, the software was explained such as the indicators and reporting format and information was collected.

Review of Common tables, Indicators and Reporting Format

Seventy percent of common tables and SH counterparts have been reviewed and updated. Sixty percent Indicators and Reporting Format information for monitoring and implementing of GPA-PGRFA have been reviewed and updated.

Issuing catalogue of specific germplasm for promoting use

A catalogue of cowpea germplasm, a catalogue of crop varieties collected from Northwest region of Viet Nam, and leaflets of promising varieties have been published.

Activities benefited from implementation of the project

- Awareness on PGRFA conservation and sustainable use has improved.
- Data on PGRFA collected, systemized and made available widely to interested people.
- Distribution of crop germplasm to users has increased.

- Partnerships and collaboration between SHs strengthened.
- The present situations of PGRFA activities in the country have been reviewed, achievements and limitations identified.

The activities will be implemented in next stage

i) Continue to review NISM-GPA common tables and engage with SH counterparts

ii) Continue to review Indicators and Reporting Format for monitoring and implementation of GPA-PGRFA

iii) Make TV programme on PGR conservation

iv) New data from previous and new stakeholders will continued to be added to the NISM-GPA database.

v) Issuing catalogue of specific germplasm for promoting use.

Acknowledgements

We would like to acknowledge the financial and technical support provided by the Government of Japan and by FAO (Food and Agricultural Organization) for the implementation of project GCP/RAS/240/JPN. We sincerely thank all the stakeholders for their support and active participation in the first stage of this project.

A Perspective of the Future Global and Asian GRFA activities[1, 2]

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The Asian region is the centre of diversity of many important species of crops, animals and livestock. It is also home to more than half of the world's people, many of whom are economically very poor but rich in culture and knowledge about agricultural biodiversity. Plant genetic resources are valuable assets to the resource-poor farmers who depend on them for food and livelihood. The direct reliance of the poor on PGR makes the effective conservation and sustainable use of agrobiodiversity in the region an urgent and essential call for action. This paper discusses an integrated approach developed by the CGIAR genetic resources community which will address current issues and strengthen regional genetic resources conservation and use strategies.

Since its inception, the CGIAR has placed *ex situ conservation* and use of crop plant genetic resources (PGR) on a pedestal, and these activities have generated enormous impact, often with extremely high rates of return on investment. But proposals for change in the CGIAR system have provided the opportunity to rethink current modus operandi against the exciting developments in the underlying science and technology.

The proposed approach seeks to ensure the continued availability of critical genetic resources for the improvement of agricultural productivity and resilience of production systems through the collaboration of centres working towards the improved management and research on a broad range of genetic resources for food and agriculture. It also builds on current partnerships and eco-regional experiences within the CGIAR, as well as in presenting opportunities for engaging other national and international organizations and for integrating partnerships across the different sectors of genetic resources.

The vision of the proposed approach follows upon years of successful collaboration between different CGIAR centres – a collaboration that now needs to be lifted to a higher level to respond effectively to the new challenges.

First, there is a need to take on a holistic approach to the conservation and use of GRFA. A holistic approach would intrinsically be more successful in the long term because it brings together work in microbes, crop plants, forest trees, livestock and fish.

Second, working together maximizes opportunities to have an agile response to new, as yet unforeseen, developments in understanding diversity; promoting use through applied research; conservation technologies and strategies; information and documentation; capacity building; awareness and advocacy; economic analysis; and science-based policy.

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[1] Presented during the "Asian consultation for the update of the Global Plan of Action on the conservation and sustainable use of PGRFA" held in Chiang Mai, Thailand, September 6-10, 2010.

[2] Presentation was based primarily on the following references: CGIAR (2009). A Position paper reflecting the consolidated vision developed collectively by the entire genetic resources community of the CGIAR (*Note: This has not been adopted by CGIAR*); and Bioversity (2010). Genetic Diversity for better lives: A cross cutting component on genetic resources for food and agriculture. *A draft document for a proposed mega programme*. These two documents although not adopted and approved, respectively, present useful and important ideas and approaches.

Future PGRFA activities will be directed towards achieving three major outcomes which have been identified under the proposed approach 1) CGIAR and partners conserve and make available and use genetic resources within the context of coordinated initiative, 2) Clients and beneficiaries use comprehensive, free and accurate knowledge, 3) National partners sustainably manage increased range of genetic diversity. Under a shared vision, the approach will attempt to address the different focal areas: 1) Understanding diversity, 2) Promoting use through applied research, 3) Conservation technologies and strategies, 4) Information and documentation, 5) Capacity building, 6) Awareness and advocacy, 7) Economic analysis, and 8) Science-based policies

An outcome of this proposed approach is the proposed mega-programme on the cross-cutting components on genetic resources. The goal of this proposed mega-programme is to ensure the continued availability of the genetic diversity that is critical to improve agricultural productivity and resilience in order to eradicate poverty, ensure food security and environmental sustainability. It brushes on three main research themes: a) Strategies and technologies to enhance conservation and use of genetic resources; b) Global information systems and tools for data exchange; and c) Supportive policies and laws and globally coordinated strategies to enable use and conservation of genetic resources.

The proposed approach harmonizes with the FAO Commission on Genetic Resources' Multi-Year Programme of Work and its draft Strategic Plan 2010-2017. Additionally, the CGIAR crop-based Centres have to meet their commitments under their agreements with the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture through management of the *ex situ crop collections*.

This paper argues that the impacts of the CGIAR's achievements in the future will become increasingly dependent on an integrated approach to conserving and using genetic resources for food and agriculture.

The Global Partnership Initiative for Plant Breeding Capacity Building

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Rome, Italy.

Introduction

The Global Partnership Initiative for Plant Breeding Capacity Building (GIPB)[2] is a multi-partner platform convened by FAO with the aim of improving institutional capacity for effective crop variety development, and their distribution through seed systems. Launched in Madrid, Spain, during the June 2006 First Governing Board Meeting of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), GIPB is a direct response to Article 6 of the Treaty which mandates the contracting parties to "promote the sustainable use of plant genetic resources for food and agriculture". In operation now for over four years, GIPB's activities focus on the enhancement of national capacities for crop improvement using both conventional and novel biotechnology strategies.

The implementation of the platform's activities, all geared towards enhancing the capacity, especially, of developing countries for the sustainable use of PGRFA is channeled through its five objectives, namely:

- Provision of support for policy development in order to foster the appropriate enabling environment for crop improvement;
- Provision of education and training in plant breeding and other related relevant scientific disciplines;
- Facilitation of access to relevant technologies critical to crop improvement;
- Facilitation of the exchange of plant genetic resources in order to enhance genetic variation required for developing new crop varieties; and
- Dissemination of information relevant to plant breeding and related scientific disciplines.

GIPB has in the space of its three-year existence become the platform for the largest forum of plant breeders and other PGRFA practitioners.

Overviews of GIPB's major achievements

GIPB's activities have included the following:

- **Policy awareness and development**

  A combination of advocacy materials in the forms of leaflets and posters, web-based information, the media, and direct contact in visits and meetings have been used to call attention to the need for overarching policy environments to foster enhanced plant breeding

[1] Corresponding Author: Chikelu.Mba@fao.org
[2] http://km.fao.org/gipb/

and seeds system capacities. The immediate result is that mid-and high-level policy makers have been made aware of GIPB work in many countries especially in those where the benchmark surveys were carried out and completed. Many countries are consequently at varying stages of the development of national strategies to improve plant breeding capacity. Equally, in-depth studies are being carried out to create the basis to further define policy guidance in this area.

- **Assessment of national plant breeding capacity**

  National surveys of capacity in plant breeding and seed systems were conducted in 80 countries, followed by more in-depth and structured analysis of six countries namely, Ghana, Kenya and Malawi (Africa), Bangladesh and Thailand (Asia) and Uruguay (Latin America). National surveys and their analysis are providing GIPB stakeholders with the baseline information to formulate long-term strategies to improve plant breeding capacity. Further, the regional analyses are allowing comparisons across countries, to understand complementarities and potential collaboration. The completed regional consultations in Latin America, Africa and Asia involved about 195 people in combined electronic (Asia and Africa) and face-to-face consultation (Latin America and the Caribbean). The results of these studies is permitting the profiling of the national PGRFA programmes of these countries according to strengths and weaknesses and will be invaluable in devising relevant national strategies. Several countries are receiving assistance in using the information garnered from these studies to formulate their own strategies.

  Ancillary to these studies, the draft of a plant breeding capacity analysis model has been developed and as part of its validation process has been the subject of a wide ranging global electronic consultation. It is envisaged to form the crux of an expert consultation for "Defining and Mainstreaming Best Practices for the Sustainable Use of Plant Genetic Resources for Food and Agriculture" scheduled for early 2011.

- **Establishment of a Knowledge Resource Centre**

  The web portal, the Knowledge Resource Centre (KRC)[3] , is unique in the provision of plant breeding and other PGRFA-relevant information that was either previously not available, was not easily accessible, or was not packaged in the context of complementary information about plant breeding and related technologies. The broad and integrated information provided through the portal is designed to ensure fact-based decision making in matters relating to plant breeding and related activities. Considered the largest plant breeding forum globally, the site received almost 25 000 visits from 186 countries by mid-2010. The Plant Breeding News (a monthly newsletter distributed to 1 600 subscribers on the FAO listserver) constitutes part of the KRC. Quite uniquely also, the Plant Breeding Global Forum (PBForum) that is supporting plant breeding and PGRFA-related communities of practice through cooperation, interaction and exchange of information is an integral part of the KRC. Currently functioning as an e-mail based forum, the PBForum currently averages more than 440 users in about 10 discussion topics per month with about 4 contributions per topic.

- **Formulation of a 5-year operational plan**

  The long term strategy for GIPB has been articulated as a Business Plan and has been widely distributed in about 100 countries. Feedbacks being received indicate its utility to users in

[3] http://km.fao.org/gipb/index.php?option=com_content&view=article&id=973&Itemid=272&lang=en

the planning and implementation of partner strategies and for fundraising. The Business Plan, a product of an extensive electronic and face-to-face consultative process involving about 130 scientists, research administrators, policy-makers and other stakeholders enunciates GIPB's mission and activities. The platform's five objectives (listed) above are defined in the Business Plan and defines the scope of GIPB's activities.

- **Facilitation of training in pre-breeding**

  GIPB has adopted a multi-pronged approach to address the empirically identified need for the significant enhancement of the scope for the utilization of PGRFA in many countries. These approaches have included the deployment of KRC resources, supporting pre-breeding training courses, and instituting a competitive grants scheme to support pre-breeding activities. Since inception, 134 scientists have been trained in pre-breeding and biotechnology techniques through four training courses organized in Belgium, Philippines, Thailand and Venezuela. GIPB supported the participation of an additional two scientists in a related course held in Bangladesh. In order to reach the widest possible target audience, GIPB and Bioversity International have collaborated successfully in the development of an e-learning package for pre-breeding that is set to become available online shortly. The curriculum and instructional materials were developed by renowned experts in the relevant fields.

  Six projects addressing aspects of germplasm enhancement through pre-breeding were funded under a collaborative initiative of GIPB, the Global Crop Diversity Trust, and the Generation Challenge Programme of the Consultative Group on International Agricultural Research. The comprehensive review of rust resistance conducted through two competitive grant schemes supported by GIPB has been completed and will be published through the KRC is another means for supporting capacity building.

Taking stock of the relevance of GIPB to PGRFA community

An extensive on-line survey of the users of the GIPB platform and other stakeholders indicated that while a majority of the users were public and private sector plant breeders, other users included plant biotechnologists, pathologists, research and development managers, agronomists, educationists and students. Interestingly also, the users were drawn from all the continents with a significant majority using the GIPB portal to search for information relating to plant breeding especially those relating to specific crops. The respondents also indicated a widespread satisfaction with the portal.

Future perspectives

GIPB is set to leverage its current strategic position as the most viable global crop improvement community to support the enhancement of capacity for deploying plant breeding and related technologies in the utilization of PGRFA to address current and emerging threats to crop production. Some of the envisaged activities include:

- Leverage the success to foster stronger, broader coalition for addressing shortcomings of the PGRFA continuum, i.e. fostering substantive linkages between germplasm conservation, plant breeding and seed systems;
- Synthesize, deploy and support the integration of the results of studies of capacity and the assessment tool into PGRFA activities;
- Foster initiatives for institutionalization of national plant breeding strategies

- Consult, dialogue, strategize, seize opportunities, expand partnerships, secure added buy-in's and enhance the profile of plant breeding as the most compelling reason for germplam conservation and the most reliable route for ensuring the availability of planting materials of superior crop varieties that address constraints to crop productivity; and
- Partner with stakeholders to seek funding to support national capacities for the sustainable utilization of PGRFA.

Further Reading

GIPB: The Global Partnership Initiative for Plant Breeding Capacity Building: http://km.fao.org/gipb/. Accessed on 7 October 2010.

The PGRFA Continuum: Towards strategies and plans for national plant breeding capacity building

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Genetic Resources and Seeds Team,
Plant Production and Protection Division,
Food and Agriculture Organization of the United Nations (FAO),
Rome, Italy.

Introduction

Plant Genetic Resources for Food and Agriculture (PGRFA) is "any material of plant origin, including reproductive and vegetative propagating material, containing functional units of heredity of plant origin of actual or potential value for food and agriculture"[2]. This definition therefore encompasses materials ranging from DNA, through pollen grains, seeds and other plant tissues to whole plants. Plant genetic resources impact on food and agriculture by their conservation in manners that permit their utilization to develop superior crop varieties which in turn are made available to growers as seeds and other planting materials. The prevailing unacceptably high levels of food insecurity – exacerbated by the vagaries of climate change and variations and myriad demographic pressures against the backdrop of inelastic natural resources base – dictate the imperative of urgently attaining greater efficiency in food production beyond the current global levels. The optimal harnessing of the potentials inherent in PGRFA is pivotal to achieving the desired enhancements in crop productivity required for feeding the growing world population in the face of aforementioned drivers of food insecurity.

PGRFA as global commonwealth

Since inception, FAO has consistently championed multilateral initiatives that underscore the vital importance of PGRFA in safeguarding food security. These efforts have resulted in several international agreements and instruments e.g. the International Plant Protection Convention, Global Plan of Action for the Conservation and Sustainable Use of PGRFA, the Convention on Biodiversity, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and Global Crop Diversity Trust. These enhance the capacities of countries to take the fullest advantages of plant genetic resources both within and beyond national boundaries.

The ITPGRFA, the latest and most comprehensive instrument dealing with PGRFA to date, for instance, aims at the conservation and sustainable use of PGRFA and the fair and equitable sharing of benefits derived from their use. The Treaty exemplifies the concerted efforts by FAO and partners to achieve greater efficiencies in the management of PGRFA. The premise is that the greatest benefit derivable from PGRFA – and hence the primer for its conservation – is its utilization (in crop improvement) and the distribution of planting materials of improved varieties. The Article 6 of the Treaty mandates contracting parties to facilitate the sustainable utilization of PGRFA[3].

[1] Corresponding Author: Chikelu.Mba@fao.org

[2] Composite of the definitions provided in the International Treaty for Plant Genetic Resources for Food and Agriculture: Plant genetic resources for food and agriculture means *any genetic material of plant origin of actual or potential value for food and agriculture* while genetic material means *any material of plant origin, including reproductive and vegetative propagating material containing functional units of heredity*.

[3] Article 6 of the Treaty binds contracting parties to "develop and maintain appropriate policy and legal measures that promote the sustainable use of plant genetic resources for food and agriculture".

The State of the World's PGRFA

FAO, through its Commission on Genetic Resources for Food and Agriculture, has recently published a compendium[4] that details the current global status of PGRFA. With reviews of the states of diversity, *in situ* management, *ex-situ* conservation, use, national programmes (and their training needs and legislation), collaborations (regional and international); access to PGRFA, the sharing of benefits and farmers' rights; and the contribution of PGRFA to food security, a key deduction was that while a lot of progress has been recorded in the 15 years since the earlier report, there still existed substantial room for improvement in many aspects of PGRFA management. With regard to the state of the use of PGRFA in developing new crop varieties, for instance, the increasingly important roles of novel biotechnology tools (including genomics, proteomics and bioinformatics) were highlighted. Breeding crops with adaptations to climate change and variations was also highlighted as increasingly important crop improvement objective. An identified worrisome trend is the pervasive dwindling or stagnant capacities for plant breeding in many countries. This trend, if unchecked, has the potentials for undercutting the efforts to harness PGRFA for food security.

The three components of the PGRFA as a continuum

Several of FAO's field activities, complemented by those of partner development organizations like the World Bank, the International Fund for Agricultural Development, centres of the Consultative Group on International Agricultural Research, national governments, regional organizations, donor agencies and the civil society have resulted in significant enhancements to the capacities of countries to conserve crop germplasm, to breed new crop varieties and to avail the growers of access to the planting materials of superior crop varieties. However, evidence abounds as to significant scopes for improvement. The most telling shortcoming to PGRFA interventions is the overly compartmentalization of the three components of germplasm conservation, crop improvement and seed systems as if each component constituted an end in itself rather than an inalienable part that is intertwined inextricably with the other two. These strict divisions, invariably characterizing PGRFA management in many countries, obviate collaborations and the ensuing invaluable exchange of information and sharing of resources that would lead to better crop varieties in the hands of the growers that need them.

FAO's activities now target the addressing of the above three components of PGRFA in a concerted manner. The logic is that while enhancements in capacity for plant breeding, for instance, would undoubtedly lead to incremental improvements in crop productivity, such improvements are demonstrably even greater in situations where comparable attention is paid to germplasm conservation and seed systems while at the same time developing effective interfaces between the components. The three components sustain one another symbiotically. Just as an unused conserved crop germplasm is of no greater value to food security than a museum, the most promising new varieties are worthless if their planting materials are not distributed to growers. In this token, a seed dissemination framework is not viable unless its source of elite varieties is assured by an equally vibrant breeding programme – which in turn relies on the heritable variation housed within germplasm holdings.

National strategy as route to attaining a seamless PGRFA continuum

Considerable efforts are currently being invested in assisting individual countries in the development of overarching national strategies to govern all aspects of PGRFA in manners that recognize the country's peculiarities and needs. Such a strategy would provide, *inter alia,* for:

[4] FAO. 2010. The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture. Rome, Italy. 370 pp.

- A clearly defined policy framework articulated as a National Programme on PGRFA that must stipulate provisions for linking conservation through utilization to dissemination of seeds and planting materials;
- A High-Level Coordinating body mandated with overall responsibility for PGRFA management including the fostering of linkages amongst the defined stakeholders, development and periodic updating of the National Strategy on PGRFA, setting priorities, allocation of budgets, production of advocacy materials, developing and nurturing collaborations and partnerships; and
- Sustained capacity in terms of both human and material resources including appropriate education and training.

Future perspectives

Following the crisis in food prices in 2008 and a spate of natural disasters impacting on crop production – that are linked to variations in climatic conditions – there is a manifest resurgence of interest in supporting the capacity of countries to develop high yielding, resilient and input-efficient, crop varieties. This scenario provides the opportunity for FAO and its partners to institutionalize best practices – within the ambit of multilateral collaborations – in member countries for managing PGRFA in the result-oriented manners. Envisaged to enhance efficiencies in crop production, these practices will be driven by deliberately articulated national strategies that provide the enabling environments for deploying proven science and technology interventions to utilize PGRFA to produce better crop varieties that are accessible to the growers.

Further reading

FAO. 2010. The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture. Rome, Italy. 370 pp.

GCP/RAS/240/JPN
6 September 2010 Chiang Mai
Minutes of the Steering Committee Meeting 7:30 – 8:45 pm

Attendance

Chairman: Mr D.C. Bhandari
Mr Karden Mulya
Ms Asta M. Tamang
Mr Noov Bayarsukh
Ms Andari Risliawati
Ms Chutima Ratanasatien
Ms Tosiah Sadi
Mr Tran Danh Suu
Mr M. Shahid Masood
Mr Percy E. Sajise
Mr Leocadio S. Sebastian
Mr Makoto Kawase
Mr Duncan Vaughan (Secretary)

Items raised and discussed:

Sustainability (Institutionalization) of the project beyond the life of the project

Mr Mulya asked where he could find information on how other countries had set up NISM – so he could consider alternative ways for setting up NISM in Indonesia. He said unfortunately Indonesia had completed the middle-term-national plan the previous year so could not do as Malaysia has and get NISM within the Government planning system at the present.

Ms Tosiah said that some information on the set up of NISM could be found via the FAO-GISM web sight where country NISM sites could be viewed.

It is possible also at the same site to access country reports to FAO for the 2nd State of the Worlds PGRFA and this might also provide information.

It was suggested that each country prepares an explanation as to how their country will institutionalize NISM and ensure its long-term sustainability of NISM *(follow up by CTA and all NFPs)*. It was pointed out that if NISM is considered useful and important for a country that this alone should ensure that it will be sustained. Mr Kawase pointed out once a good database is established it is not so expense or difficult to maintain. However, whatever good data is present in NISM databases becomes a permanent record and will help ensure institutional memory regarding PGRFA. In the days country reports the Philippines did highlight the effort to institutionalize the Project.

Mr Sajise said that it would be helpful if project member countries shared "best practices" in relation to the implementation of the project. What have been effective ways to overcome problems such as stakeholder reluctance to be involved and changing human resources?

Ms Chutima explained that she had changed the way she engages with stakeholders from calling meetings to "one-on-one" visits. She also commented that to help with sustainability it might helpful to develop links with those involved with the CBD (often in a different Ministry) since each countries CBD focal point had reporting obligations and the NISM database can help them – in return they can help the NISM database by providing information.

Mr Sebastian said that the Newsletter that the Bioversity APO office produces (currently on a 6-monthly basis) can be used to highlight best practices and he encouraged Project participants to contact his office if they had examples. There are also other newsletters that may be vehicles for spreading the word of Project activities such as the SAARC newsletter and APAARI newsletter *(follow up by CTA and all NFPs)*

Mr Mulya raised the issue of whether NISM can be more "all-inclusive" – to include animals, microorganisms etc. The CTA explained that FAO does have efforts related to animal genetic resources and there has been a State of the Worlds Animal Genetic Resources produced. However, he said that efforts related to Animal Genetic Resources are several years behind those of Plant Genetic Resources.

Mr Masood raised the issue of exchange of PGRFA and that although countries have joined the ITPGRFA there still seems some difficulty in exchange of germplasm. This issue maybe fully addressed in the ITPGRFA workshop at the end of the week.

View of Progress so far

Generally the meeting recognized that a lot had been achieved over the year. Ms Asta and Ms Tosiah raised the issue of human resources (lack of or changing). The CTA commented that countries that had a person dedicated (part or full time) to the project database seemed to result in a more effective build up of NISM in different countries. The CTA explained that any database takes much time and effort to build up and the quality of the data put in would effect its usefulness and hence sustainability. *(Follow up raise with each country the need to ensure data quality within NISM databases)*.

Mr Bhandari commented on the case of India that ensures there is always a competently trained deputy to take over in the case of someone retiring or being transferred. This way continuity is ensured.

Mr Masood said that he could feel that countries in the first phase of the project had moved forward relatively easily compared to countries new to NISM as might be expected.

Mr Bayarsukh said that he found stakeholders wanting to know what they would get if involved with the project (a similar view had been expressed by Mr Channa during plenary). Several participants (Mr Masood and Mr Bhandari) pointed to the need for high level support for the project and that would help ensure stakeholder participants. Ms Chutima sited the need for one-on-one (personal) contact and follow up with requesting support from the superiors of the particular stakeholder. Mr Bayarsukh that it would help if the Project in Mongolia came under a National Project.

Mr Sebastian asked if the CTA had visited all Project countries. The CTA said he had visited 8 of the 15 Project countries. He explained that his priority had been to visit countries new to NISM and provide them with extra support if this was requested. Thus he had visited Nepal, Cambodia and Myanmar twice and Bhutan had received 2 visited from himself and consultant Dr Rakesh Agrawal.

Project Evaluation

Mr Sebastian asked if there would be a Project evaluation. The CTA said that there would be no formal evaluation as occurred with the first phase of the project because it would be too expensive. However, he explained that in the same way the NFP meetings are evaluated by participants he would request at the end of the project all Project participants to offer an evaluation on the Project effectiveness and use *(Follow up next year)*.

Mr Kawase said that while Japan is mindful of the need to continuing supporting different National Programmes in there efforts related to conservation of PGRFA the current budget situation in Japan was extremely difficult.

PART 2

Asian consultation for the update of the Global Plan of Action on the conservation and sustainable use of PGRFA

Part 2

Group photograph of participants
Asian consultation for the update of the Global Plan of Action on the conservation and sustainable use of PGRFA

Chiang Mai
7-10 September 2010

Front Row:

(left to right): Andari Risliawati, Godfrey Mwila, Asta M. Tamang, Fumiko Yagihashi, Solita R. Sicat, Veerana Sinsawat Forrer, Sumana Ngampongsai, Tosiah Sadi

Second Row:

Wandee Jangkanipakul, Makoto Kawase, Tran Danh Suu, Leocadio S. Sebastian, Percy E. Sajise, Ty Channa, Chutima Ratanasatien, Thidakoon Saenudom, Duncan Vaughan

Third Row:

Mario Marino, Zongwen Zhang, Noov Bayarsukh, P.M. Wijeratne, D.C. Bhandari, U Aung Myint, M.K.A. Chowdhury, Man-Jung Kang

Back Row:

Dan Leskien, Karden Mulya, Hari Dahal, M. Shahid Masood, Taek-Ryoun Kwon, Mba Chikelu, Lim Eng Siang, Stefano Diulgheroff

Asian consultation for the update of the Global Plan of Action on the conservation and sustainable use of PGRFA

7-8 September 2010
Royal Princess Hotel
Chiang Mai, THAILAND

AGENDA

Plenary Sessions will be held on the 9th Floor main meeting room
Working Groups will be held in rooms on the 2nd Floor.

Tuesday 7 September – GPA consultation

08:30-08:45	Introductions
08:45-09:30	GPA revision process Changes and challenges for GPA – *Stefano Diulgheroff* (FAO) **Plenary**
09:30-10:00	*The Synthesis – Percy E. Sajise* (FAO consultant) **Plenary**
10:00-10:10	Dynamics of Working Groups *Duncan Vaughan* (FAO-RAP) **Plenary**
10:10-10:30	***Coffee and photo***
10:30-12:00	Working Group 1* In-situ/Ex-situ
12:10-13:00	***Lunch***
13:00-14:40	Working Group 2* Ex-situ/In-situ
14:40-15:00	***Coffee***
15:00-16:40	Working Group 3* Use/Capacity Building/Introduction
18:30	**Reception**

Wednesday 8 September 2010 – GPA

09:00-10:40	Working Group 4* Use/Capacity Building/Introduction
10:40-11:00	***Coffee***
11:00-12:40	Working Group 5* Use/Capacity Building/Introduction
12:40-14:40	***Lunch***
14:40-15:40	Discussion – In-situ and Ex-situ **Plenary**
15:40-16:00	***Coffee***
16:00-17:00	Discussion – Synthesis Sections, Use Capacity Building and Introduction **Plenary**

* 2 Working group sessions consisting of 2 working groups for In-situ and Ex-situ conservation, 3 working groups for sessions – Use, Capacity building and the Introduction
5 Working Group Sessions each of 100 minutes

Regional Synthesis of Gaps and Needs for Updating the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture: Asian Region

Percy E. Sajise
Honorary Research Fellow,
Bioversity International and Consultant,
GCP/RAS/240/JPN

Draft prepared August 2010 and distributed to participants of Regional Consultation on updating the Global Plan of Action for comments during August and September.

CONTENTS

1. Regional Background

For this regional synthesis, the Asian region comprising of 23 countries was geographically divided into: (a) South Asia comprising Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka; (b) Southeast Asia comprising Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Lao PDR, Thailand, the Philippines, Singapore, Timor-Leste and Viet Nam; and (c) East Asia comprising China, Japan, DPR Korea, Republic of Korea and Mongolia. This region is characterized by high biodiversity where 5 of 17 mega-biodiverse countries of the world are located (China, India, Malaysia, Philippines and Indonesia). These countries are also considered as biodiversity "hotspots" because there is rapid loss of this valuable biodiversity. For example, India which covers only 2.4 percent of the global land area, can already account for 7-8 percent of recorded species of the world. Indonesia which covers only 1.3 percent of the earth's land surface is home to 17 percent of plant and animal species which are found nowhere else in the world. Asia is also home and diversity center of many of the world's most important crops such as rice, soybean, sugarcane, banana and coconut, as well as a wealth of crop wild relatives. Hence, the Asian perspective on the conservation and sustainable use of plant genetic resources for food and agriculture is important and critical.

One of the major reasons for the rapid loss of biodiversity in many countries of the region is poverty, where the food security and livelihood requirements of the poor often result in destruction of natural habitats and overexploitation of natural resources. For example, the Oxford Poverty and Human Development Initiative (July 2010) indicated that "8 Indian states account for more poor people than in the 26 poorest African countries combined" using a new measure of poverty. In addition, the rapid and significant loss of valuable plant genetic resources for food and agriculture (PGRFA) in the region is caused by the following:

- poverty
- the rapid modernization of agriculture which highly favours monoculture and high yielding varieties vis-à-vis traditional varieties and landraces;
- changing consumer tastes;
- rapid urban population increase partly as a result of migration from rural areas;
- ageing rural population in some countries such as Japan and the Republic of Korea causing discontinuity in the practice of traditional agriculture; and
- infrastructure developments, changing land-use and destruction of habitats resulting in loss of agricultural, forest and aquatic areas.
- frequent occurrence of disasters and climate change

It is believed that in the long run, food security and sustainable development not only in the Asian region but globally will not be attained if present trends will continue. The focus areas of the Global Plan of Action for Plant Genetic Resources for Food and Agriculture (GPA) gains more importance and even more urgency in Asia because the demands placed on agriculture will significantly increase. Such increase will be caused by an ever increasing population pressure, unabated ecosystem degradation, frequent occurrence of disasters and climate change. Meeting these demands will only be possible if we continue to have access to the genetic diversity of crops and their wild relatives that provide breeders and farmers with raw materials required to sustain and improve their crops.

2. The Big Picture on PGRFA and Institutions in the Region

Asia is very diverse not only in terms of degree and kinds of biodiversity but also in terms of socio-demographic features. It includes some very large countries in terms of size and population such as China and very small countries such as the Maldives. From the smallest country to the largest in terms of population, there is a 3 377 fold difference; in terms of size, the range is from 298 sq km to 9 596 960 sq km. Nominal GDP shows an 89 fold difference between the lowest to the highest. However, these variations are not a reflection of the genetic diversity they contain, which is more related to climatic, historical, cultural and ecological factors. The socio-demographic factors will become significant if economic, technological and human resource capacities will be considered for developing supportive and complementary networking across the region for PGRFA conservation and sustainable use.

The socio-demographic characteristics of the Asian region are also very dynamic. Farm size is continuously getting smaller and fragmented. An increasing number of farmers are becoming "part-time farmers," with those with access to urban work or farm households with more children getting out of farming, either more permanently or on a seasonal basis. **This situation requires a clear definition of who are the farmers involved in PGRFA conservation and sustainable use. It also underscores the importance of gender roles, the context in which they are undertaking farming activities, as well as the transmission or lack of transmission of the value of PGRFA and the knowledge system associated with these materials.**

Countries in the region can also be categorized into those having a more coordinated conservation and sustainable use of PGRFA programme, complemented by a network of genebanks. There is a well established and effectively working national genebank providing national coordination, such as those in Japan, China, Viet Nam, Bangladesh, India, Sri Lanka and more recent ones such as Bhutan, the Republic of Korea, Myanmar, Pakistan and the Philippines. The other type would be those with dispersed genebank systems, some by crops or commodities, and a less coordinated national system of PGRFA conservation and sustainable use programme, such as those in Cambodia, Malaysia, Thailand, Mongolia, Lao PDR and Indonesia.

In this context, it may be possible to classify the countries in Asia as follows:

- **Type A –** well established organizational structure for effective coordination in the conservation and sustainable use of PGRFA; relatively adequate support for human resource and infrastructure for PGRFA conservation and sustainable use; collection of PGRFA is substantial through a long history of exploration, collection, characterization and evaluation, as well as exchanges with the outside; good links between genebanks and breeders and other users of the PGRFA materials.

  Example countries of this type: **Japan, China, Republic of Korea, India and Viet Nam.**

- **Type B –** organizational structure for effective coordination of national PGRFA programme is not well established; relatively less adequate support for human resource and infrastructure needed for PGRFA conservation and sustainable use; collection of PGRFA is less substantial and requires more exploration, collection, characterization and evaluation, as well as exchanges both from within as well as from the outside; needs more linkages between genebanks and users of the PGRFA.

  Example countries of this type: **Sri Lanka, Bhutan, Nepal, Bangladesh, Cambodia, Lao PDR, Myanmar, Pakistan and Mongolia.**

- **Type C –** organizational structure for effective coordination is less well established but strong crop specific genebanks; requires additional support in terms of human resources and infrastructure needed for PGRFA conservation and sustainable use; requires more focused collection of PGRFA especially in strategic crops and crop wild relatives, as well as priority areas where rapid loss of biodiversity is taking place; has existing linkages but requires greater strengthening between genebanks and users of PGRFA.

  Example countries of this type: **Indonesia, Malaysia, the Philippines and Thailand**

This classification is useful because it can bring together within regional and sub-regional PGR and Crop Networks the complementarities and sharing of strengths of countries which belong to various categories, i.e., for countries in Categories A and B or Categories A and C. Sharing of strengths and complementary interest can take place in human resource and infrastructure development, as well as technologies for conservation and sustainable use. These can build up linkages and confidence which could lead to collaboration in the exchanges of PGR, joint explorations and the conduct of research for mutual benefits. Eventually, this could lead to the functional expansion of the Annex 1 list of crop species of the International Treaty on PGRFA (ITPGRFA). It can apply across sub-regions such as South Asia, East Asia and Southeast Asia PGR Networks, since all these networks already exist and have, in many cases, a long history of existence but with varying levels of effectiveness and sustainability. Similarly, it can take place for crop-specific PGR networks such as coconut, banana, rice, lathyrus and others which are more active because of common interest and problems being pursued with relatively more adequate funding in partnership with some CGIAR Centers. There is also a need for a more effective coordination and functional linkages between the existing PGR Networks and the various Crop Networks.

Several countries belonging to Categories B and C have expressed the need for better coordination at the national level of various agencies and stakeholders involved in PGRFA conservation and sustainable use. The mechanisms and strategies to bring this about can be shared by countries belonging to Category A. On the other hand several countries belonging to Categories B and C have successful experiences in promoting and implementing on-farm conservation of PGRFA. These experiences can be shared with countries belonging to Category A if this capacity is not yet present and where the context is similar. The basic principle involved is to enhance complementarities and synergy for effective PGRFA conservation and sustainable use at the national and regional levels.

3. The Regional Synthesis Process

The regional synthesis of gaps and needs for the GPA in the Asian region was derived from country reports which served as inputs to the State of the World's Plant Genetic Resources for Food and Agriculture-2 (SOW-2). These reports did not include Cambodia, Bhutan, DPR Korea, Republic of Korea (report in English was not available at the time of synthesis), the Maldives, Mongolia, Myanmar, Singapore and Timor-Leste. Information on the status of GPA implementation from Cambodia, Bhutan, Myanmar and Mongolia were derived from the First National Focal Point Meeting, 2009 of the GCP/RAS/240/JPN project document "Strengthening Information on Plant Genetic Resources in Asia". For the whole regional synthesis, information was not available or could not be used for the other countries in Asia: Singapore, Timor-Leste, DPR Korea and Republic of Korea.

Other information for this synthesis was derived from various surveys which were conducted by FAO, Bioversity International and other CGIAR Centers, as well as some universities in the region. Information from the report of Bioversity International Regional Office for Asia, Pacific and Oceania

(formerly IPGRI-APO) to the Global Crop Diversity Trust in 2005 entitled "Regional strategy for conservation and utilization of crop diversity in South, Southeast and East Asia" was also used in this regional analysis, as well as personal experiences of the author and other resource persons. It was also noted that the descriptions of gaps and needs are oftentimes expressed in opposite terms so that the same identified gap can be translated into a need.

4. Priority Areas in the GPA in a Regional Context

In a survey conducted by FAO in 2000, the GPA priority activity for the Asian region was *ex situ* conservation and the top three activities were: Activity 5 (sustaining existing *ex situ* collection), Activity 7 (collecting PGR) and Activity 8 (expanding *ex situ* collection) (Tao and Anishetty, 2001). Since then, there had been significant progress and efforts on *in situ* conservation and development not only in terms of protected areas, but also on-farm conservation as gathered from country reports which served as inputs to SOW-2. There had also been considerable progress in developing and strengthening national programmes including the setting up of a **National Information Sharing System on PGRFA (NISM) in several countries in the region.** On the other hand, during the last decade, the Asian region has also seen rapid economic development with several countries undergoing economic transition which has brought about negative impacts on PGRFA in particular and genetic resources in general. These impacts are:

- rapid urban population increases as a result of migration from rural areas, hence farming has been receiving less attention than it used to be;
- rapid fragmentation of farms and shift to monocropping which is a major concern because it facilitates genetic erosion;
- ageing rural population in some countries such as Republic of Korea and Japan;
- land use changes and infrastructure developments resulting in loss of agricultural and forest areas, e.g., three Gorges Dam, China and Nam Theum Dam, Lao PDR.

With more affluence, there has also been a shift in consumer taste and preferences which contributed to the demise of many underutilized crop species. The region has also experienced several major natural disasters such as devastating cyclones, tsunami, extensive droughts and flooding, earthquakes and volcanic eruptions. This is the backdrop against which the GPA for the conservation and sustainable use of plant genetic resources for food and agriculture in the Asian region is being implemented.

5. *In Situ* Conservation and Development

The analysis of gaps and needs is summarized in Appendix Table 1. The common gaps identified by countries in the Asian region are the following:

- insufficient number of staff and weak technical capacity;
- lack of or insufficient funding;
- lack of incentives for farmers for on-farm conservation and participation in protected area (PA) protection;
- In some countries lack of well-developed infrastructure and equipment; and
- lack of or weak coordination.

The last identified gap above was also indicated in SOW-2. The first two gaps mentioned above were identified as major constraints in the implementation of on-farm conservation as facilitated by both government and non-government organizations. **This seems to deviate from the SOW-2 identified capacity building needs which specifically refer to farmers, indigenous and local communities and their organizations, as well as to extension workers and other stakeholders. Facilitators of implementing agencies are not always extension workers because training for this kind of capacity is not included for extension workers dealing with particular crop commodities.**

As regards needs, the following were identified:

- documentation of indigenous knowledge (IK) associated with the PGRFA;
- more enhanced networking/partnership/stakeholder participation; and
- public awareness.

It is important to note that several countries indicated the need to conduct survey and inventory, especially of crop wild relatives (CWR) and underutilized crop species (UUC) in **remote, inaccessible and disturbed areas**. There were some new needs identified such as **restoration of home gardens as a form of on-farm conservation, integration of *in situ* conservation in school curricula, as well as the need to bring about better integration of the formal government sectors involved in agriculture, environment and forestry in order to promote *in situ* conservation and development.** This point is important because in many Asian countries, these key government sectors are separate and a strong inter-sectoral coordination is very much needed.

5.1 Surveying and inventorying plant genetic resources for food and agriculture

The common gap in this area as expressed by countries especially those falling under Categories B and C is in terms of lack of capacity (human, physical and financial). **The nature of the terrain and the occurrence of social disturbance in some countries in the region have led to the identified gap of giving priority for survey and collection in remote and disturbed areas especially for CWR.** The need expressed for this priority activity was mapping of priority crops and CWR and upgrading of inventories.

5.2 Supporting on-farm management and improvement of plant genetic resources for food and agriculture

There had been considerable experience in several countries in the region in the implementation of *in situ* conservation of crops and fruits. These experiences were a result of multi-country research and development projects implemented by CGIAR Centers such as Bioversity International, World Agroforestry Center and International Center for Forestry Research (CIFOR) as well as NGOs involved in on-farm conservation, home gardens and traditional multi-layered tree farming. Common gaps identified were: (1) lack of coordinated approach and (2) sustainability is not ensured. The needs expressed were: (1) the development of markets for products from UUC and traditional varieties, landraces and farmer's varieties and (2) promotion and development of value addition for traditional varieties and landraces.

5.3 Assisting farmers in disaster situation to restore agricultural systems

This is a very important activity in GPA for the Asian region which is commonly subjected to different forms of natural and human-induced disasters. The needs identified for this GPA priority activity were: (a) establish a network of community genebanks linked with national genebanks for disaster

response and (b) the establishment of community seed banks such as in India, Nepal, Philippines and other countries in the region. The latter need was also included in SOW-2. Improved understanding of the local seed system was also identified as a need to improve the disaster response to restore agricultural systems. A common gap identified in the country reports is the lack of baseline data for disaster rehabilitation.

5.4 Promoting in situ *conservation of wild crop relatives and wild plants for food production*

SOW-2 recognizes that *in situ* conservation of wild crop relatives and wild plants occur in protected areas. **However, PGRFA concerns and jurisdiction over protected areas usually fall under separate sectors of the government for most countries in the region. To bring about improved *in situ* conservation of wild plants and CWR for PGRFA, there is a need for a better coordination between these concerned sectors of government in partnership with local stakeholders.** This need was expressed in the various country reports as the need to develop stronger networking and partnerships of various stakeholders. A gap also identified in some country reports was the lack of proper incentives for communities to be involved in forest protection and *in situ* conservation in PAs.

6. *Ex Situ* Conservation

This conservation area broadly encompasses genebanks, field banks, botanic gardens, *in vitro* conservation and cryopreservation. Basic conservation activities which are essential to maintain and make available an existing collection over the long-term include:

- storage and maintenance (seed, *in vitro*, field);
- safety-duplication;
- regeneration;
- characterization;
- documentation;
- health of germplasm;
- distribution/links to users;
- acquisition.

The maintenance of *ex situ* collections, in particular, requires a stable, sustainable and perpetual funding stream which is now partly provided by the Crop Diversity Trust (or the Trust). Furthermore, *ex situ* conservation has seen a considerable reduction in donor support in recent years, in favour of funding for *in situ* conservation. However, the complementarities between *in situ* and *ex situ* conservation is also more important than just an emphasis on either one, as both needs to exist side by side to bring about sustainable conservation, evolution and use of plant genetic resources. In this regard the Trust emphasizes adopting a rational conservation system for *ex situ* conservation.

Base collections were established in China, India, Japan and the Republic of Korea with optimum conditions and to some extent in the Philippines and Viet Nam. Modern facilities have been established in Bhutan and Thailand and the moving of material from dispersed collections into these facilities is underway. More recently, countries such as Nepal are upgrading their national genebank facilities. In the rest of the countries in the region, the conservation facilities are in relatively poor conditions. The active collections are usually maintained in the provinces or substations of national agricultural research system in medium-term genebanks and also with research institutes, universities and experimental stations with varied storage conditions. These genebanks and institutions are responsible for germplasm regeneration, characterization, distribution and utilization.

For vegetatively propagated crops, the field genebanks are used to maintain the diversity collected in the region. The crop species, for example fruit trees, cannot be stored as seed samples and are stored in the fields with proper protection facilities. However, in many cases such as in the Philippines, field genebanks are not adequately well protected and are subject to anthropogenic and natural disasters. For safety of germplasm collections of vegetatively propagated crop species, *in vitro* techniques are used to maintain the viability of these crop species in the tubers which are maintained in controlled conditions. New opportunities for *ex situ* conservation are in terms of improving the value and use of molecular characterization for understanding genetic diversity and germplasm collection. Security of *ex situ* collections have also been enhanced through arrangements with some CGIAR Centers and recently with the Svalbard Global Seed Vault in Norway.

A summary of identified gaps and needs in Asia is shown in Appendix Table 2. It is in *ex situ* conservation where differentiation of countries by the three categories earlier described at the beginning of this paper becomes more clearly demonstrated in terms of patterns of gaps and needs. This is shown by the shading pattern as summarized in Appendix Table 2. Across all categories of countries in the region, the more common need expressed is a strengthened and focused collecting activities with greater attention for crop wild relatives. The common needs identified were greater and stronger institutional linkages and documentation. For countries belonging to Category B, the common need expressed is lack of a focused approach in planning and policy development. The need for interdisciplinary teams to work on PGRFA and upgrading of facilities, identification of duplicates and improved regeneration protocols were also identified.

6.1 Sustaining existing ex situ *collections/regenerating threatened* ex situ *accessions*

A common need indicated in the country reports which were already mentioned in the SOW-2 is a strengthened and focused collecting activity with particular attention given to CWR and Underutilized Crop Species (UUC). Similarly, the need for better coordination at the national level for the identification of duplicates and improved regeneration protocols, as well as increased efforts to regenerate accessions were also identified. Identification of duplicates in and between collections, including safety duplication and processing of backlogs in collections, was also identified as existing needs from several country reports.

Because many countries in Categories B and C have no reliable electric power supply, this need was clearly identified and has to be alleviated to sustain existing *ex situ* collections in genebanks.

6.2 Supporting planned and targeted collecting of PGRFA

The gaps reported by countries in the region for this activity are: (a) lack of focused approach, planning and policies; (b) inadequate funding; (c) lack of clonal repositories; and (d) lack of interdisciplinary teams to conduct targeted collecting. There is a need for upgrading of facilities and equipment, improved technologies for *ex situ* conservation and better institutional linkages both within and between countries to promote exchanges of germplasm materials.

6.3 Expanding ex situ *conservation activities*

The Bioversity-APO report to the Trust in 2005 identified priority crops[1] for the region (Appendix Table 3). Priority activities to promote expansion of *ex situ* conservation activities were also agreed

[1] Bases for prioritization include: (a) region is primary or secondary center of diversity for the crop, (b) level of importance as food and/or nutritional crop, (c) presence of regional/international collections, (d) usefulness as crop for marginal areas or subsistence agriculture, (e) livelihood security for smallholders, (f) threat for genetic diversity in *in situ*/on farm and (g) crop with unique advantage for region/sub-region.

by national focal points who were primarily responsible for national genebanks for the various PGR sub-regional networks. These were:

East Asia

- Carry out regeneration, characterization and documentation of 4 550 accessions of wheat (1 000), rice (1 000), maize (700), apple (250), *Vigna* (200), Medicago (100), Citrus (200), barley (600) and sorghum (500)
- Develop regional core collections of priority crops and identify and distribute useful materials
- Develop the guidelines for monitoring the viability of seeds at genebanks; develop guidelines for monitoring and controlling pests and diseases; the protocols for *in vitro* conservation of apple and citrus germplasm; improve documentation systems at different genebanks
- Organize two training courses; upgrade conservation facilities; improve national policies

South Asia

- Targeting collecting from specific areas for specific traits, inventory and mapping of genetic diversity
- Regeneration of targeted accessions and their processing and storage
- Improve the management of collections of identified crop; monitoring of seed viability and seed health in accessions held in genebanks for long term storage; strengthening field genebanks for conservation of perennial wild relatives
- Conserve, characterize and document genetic diversity of identified priority crops; evaluation of germplasm for nutritional traits; molecular characterization; ultra desiccation studies; exploring zero-energy based conservation options
- Capacity building and upgrading genebank facilities
- Enhancing knowledge on database management, *in vitro* conservation and cryopreservation, molecular characterization and seed processing and genebank management through training programmes

Southeast Asia

- Improve the management of collections of identified crop; monitoring of seed viability and seed health in accessions held in genebanks for long term storage; strengthening field genebanks for conservation of perennial wild relatives
- Capacity building and upgrading genebank facilities
- Enhancing knowledge on database management, *in vitro* conservation and cryopreservation, molecular characterization and seed processing and genebank management through training programmes
- Regeneration of materials in critical danger of loss of viability
- Targeting collecting from specific areas for specific traits, inventory and mapping of genetic diversity

- Improve the management of collections of identified crop; monitoring of seed viability and seed health in accessions held in genebanks for long term storage; strengthening field genebanks for conservation of perennial wild relatives
- Conserve, characterize and document genetic diversity of identified priority crops; evaluation of germplasm for nutritional traits; molecular characterization
- Capacity building and upgrading genebank facilities
- Enhancing knowledge on database management, molecular characterization and seed processing and genebank management through training programmes
- Regeneration of materials in critical danger of loss of viability
- Use of identified materials with desirable traits for base broadening towards utilization

7. Utilization of Plant Genetic Resources

The gaps and needs identified by countries in the region are summarized in Appendix Table 4. For all categories of countries in the region, the common gap identified was on evaluation and documentation of PGR and the need for enhancing linkages between users of PGRFA and the genebanks. These gaps were also identified in SOW-2. For countries belonging to Category B, the common gap identified was weak human resource capacity. The common needs identified were for greater understanding of seed systems, policy development and attention to core collection. These needs were also reported in SOW-2.

The opportunity exists and should be encouraged for harnessing the strengths of countries in Category A belonging to various sub-regional networks for responding to the gaps on human resource capacity and lack of facilities and equipment, especially in the use of molecular tools for characterization and evaluation of conserved germplasms. This is already taking place, through Centres of Excellence designated by Bioversity International, where China is providing staff training in molecular tools for PGR; India on *in vitro* and cryoprservation techniques and the Republic of Korea on genebank management. What is needed is financial support to allow staff from countries of Categories B and C to avail of this staff development and training which is already taking place in the region.

7.1 Expanding the characterization, evaluation and number of core collections to facilitate use

As indicated in SOW-2, there is a need for more efforts in characterization and evaluation of germplasms collected in genebanks and to have it in a manageable level through the establishment of core and mini-core collections. Many countries belonging to Categories B and C also indicated the desire to develop capacities for use of molecular tools to conduct these activities as well as in developing and using an effective documentation system. Many countries in the region under Categories B and C identified the need for increased human capacity, i.e., staff training for the above tasks. **The opportunity to link genebanks and enhance networking support to bring this about exists in the region as earlier indicated.**

7.2 Increasing genetic enhancement and base-broadening efforts

A major concern expressed in many country reports deals with increasing crop uniformity as a function of increasing industrialization of agriculture and the influence of the export market. This trend is known to undermine agricultural sustainability and increases vulnerability to pests and diseases as well as to environmental perturbations. **However, in the Asian region, there are good examples of**

using agricultural biodiversity for managing this trend of reduction in crop diversity, such as in the case of multi-varietal rice cropping in Yunnan, China and the home gardens of Nepal, Indonesia, Viet Nam, Sri Lanka, Thailand and others.

The recognition of the importance of base broadening is a need expressed by many countries in the region. This highlights the importance of collecting and characterizing wild crop relatives as well as underutilized species as a means of coping with climate change and environmental disasters which are commonplace in the region.

The need for enhanced linkages between breeders, researchers, traditional and private sectors, national and international institutes were also clearly identified by many countries in the region. This was already indicated in SOW-2. India indicated that, in addition, there is **insufficient feedback from users of PGRFA.**

7.3 Promoting sustainable agriculture through diversification of crop production and broader diversity of crops

The Asian region is well known for its diverse cropping system which has co-evolved with its many cultures and types of farming systems; subsistence, low inputs, multiple and multi-purpose cropping. This has given way, in many instances, to commercial monocropping with its attendant consequences of economic advantages but with accompanying greater vulnerability to pests and diseases as well as disasters. In fact disasters are more common and are a current and more major concern than climate change for countries in the region, although these two phenomena are interrelated over time and space. **SOW-2 has probably indicated more emphasis on climate change than coping with disasters which is a major concern in the region.**

SOW-2 has emphasized the "growing efforts to strengthen the relationships between agriculture and provision of ecosystem services". **This was not prominently emphasized in the country reports from the region.**

7.4 Promoting development and commercialization of underutilized crops and species

The need to develop systems for neglected/underutilized crops, enhance crop diversification through market development and incentive systems was identified as a need by several countries in the region. **However, it is worth noting that this was identified only by countries which generally belong to Categories B and C.** If countries in Category A have already developed this type of incentive system, it could be an area for cross transfer or sharing of lessons learned through a networking process which can be explored.

7.5 Supporting seed production and distribution

Many countries in the region reported the need for developing improved seed systems through participatory selection, public sector seed systems and growers' association. The importance of responding to this need with an appropriate strategy has been demonstrated in connection with the success of participatory plant breeding in Nepal, the Philippines, Viet Nam and other Asian countries.

Country reports indicated that lack of seeds is a major reason for the inability to promote cultivation of underutilized crop species. On the other hand, the lack of institutional support to identify, recognize and officially register farmer's varieties is working against providing economic incentives to commercially grow farmer's varieties. Countries in the region recognize the need for seed policy development which will support and facilitate mainstreaming of farmer's varieties by providing the needed incentive system for seed production as similarly indicated in SOW-2.

7.6 Developing new markets for local varieties and "diversity-rich" products

Asian local and traditional markets are known to favour diverse-rich products from wild crops and underutilized species, i.e., "ulam" in Malaysia, and village markets in the Philippines, Thailand, Viet Nam, Lao PDR, Nepal and many more countries as examples. The country report of Japan indicates that there is a lot of pride in quality produce and there are museums for azuki bean and soybean and recognition is given to farmers with exceptional varieties. These diversity-rich products from local markets are disappearing because of changing lifestyles where most people are now getting uniform and less diverse products from supermarkets. The SOW-2 identified need to promote these diversity-rich products is very appropriate for the Asian region. **Nepal's example of developing products from farmer varieties to cater to the needs of ethnic groups residing in other countries around the world is a good example of this collective effort of providing value adding and markets to farmer varieties to support on-farm conservation through promotion of diversity-rich products.**

8. Institutions and Capacity Building

The summary of gaps and needs for this particular priority activity in the GPA is summarized in Appendix Table 5. The common need expressed by majority of the countries is staff training, database development and educational training on PGR.

8.1 Building strong national programmes

National programmes on PGRFA in the region vary in terms of strength and levels of coordination. For countries in Category A, there is a well defined structural organization which facilitates coordination for all PGRFA activities. For countries in Category B and C, other forms of organizations which are not as strong exist, such as National Committees on PGRFA. For countries with weaker national coordination on PGRFA programmes, the common manifestations are weak policy development regarding access to and sharing of benefits on the use of PGRFA and in information sharing and coordination. These indicated weaknesses were listed in SOW-2. The gaps identified were: (a) limited number of staff and heavy workload; (b) lack of financial resources and PGRFA is often not a national priority; (c) PGR networks poorly managed; and (d) international cooperation is limited.

During the last five years, several countries in the region have been assisted to develop their National Information Sharing Mechanism (NISM) on the GPA priority activities. The establishment of the NISM in several countries in the region which is still being expanded to date has greatly helped to assist the monitoring and evaluation of the GPA implementation in the region and has improved the quality of contribution to SOW-2. At the country level, the NISM outputs can be used to develop a "national rolling plan/strategy" for PGRFA conservation and sustainable use. NISM feeding into GPA can be the basis for a National Strategic and Action Plan for PGRFA. The country strategic and action plan can be used to identify and share responsibilities, create awareness, promote research and action on gaps and for inviting and facilitating long-term financing for the action plan. NISM will promote national and regional networking, capacity building for members of the network and directly feed into GPA implementation, monitoring and evaluation. It will also improve the quality of the data and information used for status and progress assessment of GPA implementation. SOW-2 can feed into the updating of rolling GPA while other countries without NISM can be assisted to put up one. There are now 61 countries with NISM and a third of this total is in the Asian region. Because NISM is a country-driven process, once it proves its usefulness, countries will commit for its maintenance and sustainability and will draw more stakeholders into the process.

8.2 Promoting networks for plant genetic resources for food and agriculture

Collaborative arrangements are facilitated through networking. Networks provide a mechanism for sharing information/knowledge and germplasm, transferring technology and standardizing procedures, as well as in undertaking collaborative R&D programmes, including capacity building. The crop germplasm networks facilitate the standardization of germplasm collection, maintenance, evaluation and documentation, and also enhance capacity building that includes exchange of experts/scientists and upgrading of facilities. Most countries in the region are members of several commodity-based PGR networks with linkages to international institutions such as the various CGIAR Centers. The same countries are also members of regional PGR networks and three of them are present in the region with varying levels of effectiveness and activities. These networks are: the South Asia Network on Plant Genetic Resources (SANPGR), the Regional Network for Plant Genetic Resources in East Asia (EA-PGR) and Regional Cooperation for Plant Genetic Resources in Southeast Asia (RECSEA-PGR). These sub-regional PGR networks were organized through the assistance and facilitation of Bioversity International. These sub-regional plant genetic resources (PGR) networks, mostly composed of heads of their national genebanks as national focal points, have conducted joint activities and meetings which are of mutual benefit to the members. The main purpose of these meetings was to review the progress of activities relating to different aspects of PGR and to develop plans for collaborative activities. Despite lack of major funding, the networks helped the countries to develop individual national programmes as well as conducted some joint activities such as PGR collection, evaluation and limited bilateral exchanges of the collected materials.

For a regional system of conservation to be efficient and to ensure links to users, the system has to be under the aegis of a formal regional inter-governmental organization, such as the Association of Southeast Asian Nations (ASEAN), with government commitment to share financial or material contribution in the operation of the network. For organized dissemination of improved rice germplasm and information, the International Network for Genetic Evaluation of Rice (INGER) facilitates the unrestricted, free and safe exchange of rice germplasm and the free sharing of information not only among NARES and IARC partners, but also with the private sector. For banana, the International Network for the Improvement of Banana and Plantain (INIBAP) coordinates a global research effort on Musa and promotes and strengthens research collaboration in national and global levels. Regional collaboration is enhanced through the Banana Asia Pacific Network (BAPNET). Bioversity International/INIBAP facilitates BAPNET activities in the following areas: germplasm management, information development and exchange, banana resource development, and strategic planning. Thus, regional priorities are established and reviewed regularly by the BAPNET secretariat. INIBAP also upgrades the capacity of scientists/researchers and banana growers through training, particularly on the production and utilization aspects.

For sweet potato, collaborative arrangements are established through the International Potato Center's (CIP) Asian Network for Sweet Potato Genetic Resources (ANSWER). CIP supports germplasm conservation at national and global levels by monitoring duplicate collections, supplying clones as potential parent material for national breeding, and providing training and expertise support in germplasm characterization. ANSWER also employs various strategies (e.g. *ex situ, in vitro,* cryopreservation, and others) for the conservation of sweet potato genetic resources. ANSWER has also initiated capacity building among member-countries with regard to maintenance, characterization, evaluation and documentation of their respective sweet potato genetic resources. For coconut, the International Coconut Genetic Resources Network (COGENT) of Bioversity International (formerly IPGRI) has sub-regional networks for South Asia, Southeast Asia and the Pacific. The coconut accessions of the Asia and the Pacific are listed in the Coconut Genetic Resources Database (CGRD) established by Bioversity-COGENT.

In the above context, a key objective of the Crop Diversity Trust is to contribute to the development of an efficient and effective global system of *ex situ* conservation of PGRFA. A willingness to collaborate with others, e.g. through willingness to share facilities, resources and information, is essential to achieve this objective. Partnership may also be important for carrying out certain essential services which may be performed better somewhere else than at the institution where a collection is held.

For developing and implementing an effective conservation strategy at the regional level, the following are critical:

- **Credibility and trust among the collection holders in the region**
- **Willingness to collaborate with partners within and outside of the region**
- **Links with existing collaborative frameworks such as networks**
- **Adequate funding to support the system**
- **Agreed conservation standards**
- **Sharing of conservation responsibilities among partners for activities**

Country reports indicated that collaboration for evaluation, characterization, policy development and joint exploration is of high priority. However, there is a **prevailing perception that PGR networks are poorly managed, that benefits derived from networking are not clear and that bilateral arrangements are felt as more advantageous**.

8.3 Constructing comprehensive information systems for plant genetic resources for food and agriculture

Several country reports indicated the need for improved database and database management for PGRFA. This was similarly pointed out in SOW-1 and SOW-2.

Characterization and documentation are carried out by the national programmes in each country. The data on accessions are recorded and documented with computerized information systems accessible by breeders and other researchers. Most Asian countries have established national PGR documentation systems. Standard descriptors for passport data were used by all the institutes involved in PGR activities for documenting accessions. For example, China has set up the Chinese Crop Germplasm Resources Information Network (http://icgr.caas.net.cn/), including characterization distribution information system of crop genetic resources, fingerprinting automatic recognition system, regeneration monitoring system and image system for wild plants. In the Republic of Korea, characterization data based on the Rural Development Administration (RDA) crop-specific descriptors including image database are computerized for management and utilization of plant germplasm. Special software for collecting image data of stored accessions was developed to determine grain shape and measure their sizes. The seed image database has been developed for the 25 000 conserved accessions of about 100 species. The information system of RDA-GB can be accessed at http://genebank.rda.go.kr/. The database for vegetatively propagated PGR is under construction in collaboration with the institutions holding accessions in their field genebanks. In Mongolia, with the support of Bioversity International, electronic database management has been conducted since 1998 and at present passport data of over 8 000 accessions are stored in GMS system. As a result of activity in 1996-2000, the passport data of all accessions were completed at PSARI Genebank. Passport, characteristics and illustrated data from Japan can be accessed through the internet at http://www.gene.affrc.go.jp

It is important to point out again, at this point, that several countries in the Asian region have set up and are maintaining a National Information Sharing Mechanism which is providing the much needed

inputs for assessing and updating the implementation of the GPA. This is a very distinct advantage of the region but, at present, there is no assurance for the sustainability of the NISM unless the countries will find it useful and will commit to sustain its existence as part of a National Strategy for PGRFA. There is also the need to develop a NISM for the region.

8.4 Developing monitoring and early warning systems for loss of plant genetic resources for food and agriculture

Early warning may need to include early response as well before the loss of PGRFA becomes irreversible. It is worth noting that while many countries indicated the concern for loss of genetic resources for various reasons including disasters and climate change, there was no **mention of the need to develop tools and methods of assessing this loss, although there was mention of the need for indicators.** Perhaps this is because of the difficulty of assessing this loss over time. One country, Thailand, indicated the need to monitor ecosystems and populations. The **NISM can also serve this function especially if clear and commonly accepted indicators are identified and used.**

8.5 Expanding and improving education and training

Many countries in the region reported for all priority areas of GPA, the need for more, better and appropriately trained human resources to carry on the various activities in PGRFA conservation and sustainable use. It is worth noting that, in the recent past, there had been a swing in interest for human resource capacity development, from plants to molecular aspects of PGRFA, and from the field to the laboratory. Specialists in basic areas of PGRFA such as taxonomy or crop specialists are very few and need to be aware of their obligation to mentor their replacements so that wheels are not reinvented.

Other than plant breeding and basic fields of taxonomy, there are now existing higher level education specifically for PGRFA from various academic institutions in India, Nepal, Malaysia, the Philippines and Sri Lanka. These formal degree programmes are offered at the MSc level but some core courses being offered are also taken at the undergraduate levels by other curricula, which use it either as an elective course or as part of their major courses. The enrolment for these graduate programmes in PGRFA is quite limited as the current market for the graduates is also limited. However, the demand for some core courses in PGRFA degree programmes from other curricula is high. In addition, Bioversity International in collaboration with strong institutions on specific areas of PGRFA, have developed Centres of Excellence which offer short term courses on key areas of PGRFA on a regular basis. These Centres of Excellence are in China for Molecular Tools in PGRFA, India on *In vitro* and cryopreservation and Republic of Korea on Genebank Management. Nepal was earlier identified for *in situ* conservation and development.

Despite the availability of training on PGRFA, formal degree and short term training courses, this need for human resource capacity building was still identified clearly as a common one for many countries in Asia. This was also indicated in SOW-2. Why this is so was revealed in a survey conducted by IPGRI in 1995 and repeated in a commissioned study by the University of the Philippines at Los Baños, Philippines in 2002. **The gaps identified which did not allow the build-up of human resource capacity as needed in the region were: (a) the inability of countries to obtain financial support for their prospective staff; and (b) the shortage of human resources that prevents them from sending their staff for postgraduate training for a minimum of two years.** To help provide solution to these difficulties and to broaden the potential coverage of enrolment to the PGRFA programme, the offering of the MSc PGR programme in the distance mode was envisioned. The survey which involved all countries in Asia except Timor-Leste indicated the

willingness of respondent institutions to employ graduates of MSc PGR in distance mode except for South Asia where it has low acceptance. This study showing demand for the course programme by distance mode, led to the offering of a training programme on PGRFA at the University of the Philippines at Los Baños.

8.6 Promoting public awareness of the value of plant genetic resources for food and agriculture conservation and use

There seems to have been steady progress in enhancing public awareness on the value of PGRFA. Country reports also indicated that public awareness on PGRFA can facilitate policy and financial support from the government and the public sector. Public awareness on PGRFA is also tied up with environmental issues which, oftentimes, are in the limelight. Similarly, many countries in Asia are signatories to international platforms such as the International Treaty on Plant Genetic Resources for Food and Agriculture, the Convention on Biological Diversity, International Union for the Protection of New Varieties of Plants (UPOV) and others. This highlights the importance of PGRFA so that when these platforms are discussed, such awareness also comes to surface. The declaration of the United Nations of the Year for Biodiversity (2010) is one good example of a strategy to enhance public awarness at the local, regional and global levels. **A need expressed for enhancing public awareness on the value of PGRFA is better information coordination and the need for the right materials to be used for public awareness campaigns. The example in Nepal also indicates that the kind of strategy for public awareness, especially at the local level, must be attuned to local knowledge and practices such as integrating PGRFA public awareness materials into songs, plays and local drama.**

Acknowledgements

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References

Borromeo, Teresita and N.C. Altoveros. 2002. Survey of the Demand for the Offering of the MS Programme in Plant Genetic Resources Conservation and Management in Distance Mode at the Graduate School, University of the Philippines at Los Baños. UPLB, College, Laguna, Philippines.

Commission on Genetic Resources for Food and Agriculture. 2009. Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture. FAO, Rome.

FAO Plant Protection Division. 2010. Updating the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture. Working Document prepared by the Plant Protection Division of FAO for the Regional Consulatation for Europe.

FAO. 1996. Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture. FAO, Rome

GCP/RAS/240/JPN Project Document. 2009. Strengthening Information on Plant Genetic Resources in Asia. National Focal Point Meeting, 2009. FAO-RAP, Bangkok, Thailand.

Sajise, P.E. and R.V. Rao. 2005. Regional Strategy for the conservation and utilization of crop diversity in South, Southeast and East Asia. A Report to the Crop Diversity Trust, IPGRI-APO, Serdang, Malaysia.

Tao, Karling and A. Murthy Anishetty. 2001. The implementation of the Global Plan of Action in the APO Region. IPGRI Newsletter for APO, Serdang, Malaysia.

Appendix Table 1. Summary of regional gaps and needs on PGRFA in Asia: *In Situ* Conservation and Development

	Needs and gaps	Bangladesh	Bhutan	Cambodia	China	India	Indonesia	Japan	Lao PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Philippines	Sri Lanka	Thailand	Viet Nam
Gaps	Insufficient Number of Staff	■				■			■	■	■		■	■	■	■	■	
	Insufficient training of staff	■	■			■			■	■	■		■	■	■	■	■	
	Insufficient seed supply	■				■											■	
	Lack/Insufficient incentives for farmers					■				■			■	■	■			
	Insufficient focus on protection of losses on genetic diversity				■													
	Sustainability is not ensured														■			
	Insufficient financial support					■			■	■			■		■	■	■	
	Lack of coordinated approach					■	■			■			■				■	■
	Lack of baseline data/poor database					■				■								
	Lack of information on local seed system					■				■								
	Lack of support from public institutions							■										
	National priorities not identified									■							■	
	Lack of inventory for disturbed and inaccessible areas		■	■					■		■		■		■	■		■
	Developing markets for products from UUC and traditional varieties/landraces	■																
	Increase funds and international cooperation				■										■			
	Early warning system				■				■						■			
	IK documentation as it relates to seed supply and the materials					■			■						■			■
	Validate information on usage of materials					■												
	Partnership/stronger networking involving various SH					■	■		■						■		■	
	Promote and develop value addition for traditional varieties and landraces											■	■					
	Mapping for priority crops and CWR and upgrade inventories						■		■						■			
	Conduct surveys in critical/inaccessible and rapidly biodiversity eroding areas								■						■	■		■
	Link genebanks with disaster response mechanism												■		■			
	Public awareness and promotion of information, education and communication											■	■		■			■
	Restoration of mixed home-gardens																	■
	Integrate into educational curricula												■					

Appendix Table 2. Summary of regional gaps and needs on PGRFA in Asia: *Ex Situ* Conservation

	Needs and gaps	Bangladesh	Bhutan	Cambodia	China	India	Indonesia	Japan	Lao PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Philippines	Sri Lanka	Thailand	Viet Nam
Gaps	Lack of focused approach, planning and policies and interdisciplinary teams	■				■	■		■	■			■		■	■	■	
	Inadequate funding	■							■	■	■		■		■	■	■	
	Lack of clonal repositories												■	■	■			
	Better understanding of genetic erosion					■									■			
Needs	Strengthened and focused collecting activities including greater attention on wild species and underutilized crops	■			■	■		■	■		■	■	■	■	■	■		■
	Need for and upgrading of facilities and equipment including reliable electric supply	■		■		■			■	■	■		■		■	■	■	
	Better institutional linkages both within and between countries including international exchange	■		■	■			■	■	■	■			■	■	■	■	■
	Human resources developed and increased in number	■		■					■	■	■		■		■	■	■	
	Need to harmonize and improve documentation	■	■	■		■	■				■		■		■			■
	Increase funding	■							■	■	■		■		■	■	■	
	Identification of duplicates in and between collections, comprehensive safety duplication and processing of backlogs in collections		■			■	■						■		■	■		■
	Improved regeneration protocols as well as increased efforts to regenerate accessions					■		■			■				■		■	
	Disaster and climate change mitigation									■	■				■		■	
	Method need to take advantage and include IK								■						■			■
	Increased public awareness														■	■		
	Improved preservation technologies				■			■							■			
	Improved protection and maintenance of field genebanks														■			

Appendix Table 3. Priority crops and ranking (1 is highest priority) assigned by individual sub-regional PGR networks

Crops	SANPGR	RECSEA-PGR	EA-PGR
Rice	1	1	2
Citrus	10	4	7
Vigna	5	7	5
Eggplant	7	10	11
Wheat	3		1
Maize	2		3
Banana	8	2	
Barley	11		8
Sorghum	12		9
Coconut	13	5	
Potato	15		10
Sweet potato	19	3	
Cassava	18	6	
Yams	20	8	
Taro	21	9	
Breadfruit	24	11	
Apple			4
Medicago			6
Finger millet	6		
Chickpea	9		
Pigeon pea	4		
Lentil	14		
Beans	16		
Pearl millet	17		
Lathyrus	22		
Strawberry	23		

(*Source:* Sajise and Rao, 2005)

Appendix Table 4. Summary of regional gaps and needs on PGRFA in Asia: Utilization of Plant Genetic Resources

	Needs and gaps	Bangladesh	Bhutan	Cambodia	China	India	Indonesia	Japan	Lao PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Philippines	Sri Lanka	Thailand	Viet Nam
Gaps	Lack of facilities/equipment	■							■				■	■		■	■	■
	Lack of funding						■			■				■	■			
	Insufficient feedback from users					■												
Needs	Strengthen evaluation and characterization including special traits of elite materials, i.e. health and nutrition functions of crops	■	■		■	■	■	■	■	■	■		■	■	■	■	■	■
	Enhance human capacity related to evaluation and use of PGRFA including more plant breeders	■	■				■	■	■	■	■		■	■	■	■	■	
	Enhanced links between breeders, researchers, traditional and private sectors, national and international institutes	■					■	■			■			■	■		■	
	Improved linkages and dissemination of useful information	■				■			■					■	■	■		
	Improved seed systems through participatory selection, public sector seed systems and growers association	■					■		■	■	■		■			■	■	
	Develop systems for neglected crops, enhance crop diversification including incentives and market development	■							■				■		■			■
	Better integration of conservation and use	■					■						■		■			
	Need for policy development, e.g., related to seed systems						■			■			■					
	Attention to core collection	■					■								■		■	
	Speed up pre-breeding process														■			
	Reflect consumer demand							■										

Appendix Table 5. Summary of regional gaps and needs on PGRFA in Asia: Institutions and Capacity Building

	Needs and gaps	Bangladesh	Bhutan	Cambodia	China	India	Indonesia	Japan	Lao PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	Philippines	Sri Lanka	Thailand	Viet Nam
Gaps	Inadequate legislations								■									
	Limited number of staff and heavy workload								■									
	Insufficient laboratory facilities								■									
	Limited access to relevant literature								■									
	Lack of financial resources								■	■							■	
	Benefits derived from networking is not clear; bilateral felt as advantageous									■								
	National priorities not established/do not include PGRFA									■					■			
	Weak coordination at national level									■							■	
	Weak policy development and support, i.e., access to genetic resources												■		■			
	PGR Networks poorly managed																■	
	International cooperation is limited																	■
	Weak linkages and information sharing																	■
Needs	Stronger quarantine laws								■									
	Providing incentives for communities to protect forest and protected areas								■									
	Staff training	■		■					■		■		■				■	
	Identify priority areas for conservation								■									
	Establish monitoring and early warning system								■									
	Improve database management			■					■		■		■					
	Studies on IK and role of communities									■								
	Increased public awareness	■								■								
	Gazette areas designated as PGRFA conservation areas									■								
	National prioritization, i.e., crop species									■								
	Establish communication networks												■					
	Regional collaboration for germplasm improvement and evaluation															■		
	Education and training on PGR, i.e., systematics and ecology	■														■	■	
	Development of bioprospecting protocols															■		
	Coordination between environment and biodiversity programme													■				
	International support for training, infrastructure and collecting missions													■				
	Strengthening of networking for PGRFA													■				
	Monitoring ecosystems and population																■	
	Information coordination																■	
	Cooperation in evaluation, characterization and policy development										■							■
	Joint exploration											■						
	Access to outside germplasm											■						

Changes in PGRFA conservation and use: Challenges for the updated GPA

Stefano Diulgheroff

Changes in PGRFA conservation and use: Challenges for the updated GPA

Presented by

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FAO-AGP

1

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Introduction

A changing world

Challenges

INTRODUCTION

Changes and Challenges

2

Major global changes

- World population from 6.8 billion to 9.1 billion (34% increase)
- Urbanization rate acceleration: from 50% to 70% of total population
- Income levels are forecasted higher than today, but also disparities between rich and poor
- Temperatures over most land areas are likely to rise
- Global mean sea level rise
- Distribution and intensity of precipitation will change

3

Challenges faced by agriculture in the 21st century

- Increase food production to feed the growing population with a proportionally smaller rural area and labour force
- Climate change will lead to changes in production areas and practices, and in the crops and livestock produced in different areas
- Increased demand for biofuels for a growing bioenergy market will compete with food production
- Increased demand for agriculture to adopt more efficient and sustainable production practices and to reduce its negative impact on the environment and biodiversity

4

Food security

Food security is a *major priority* against a background of increasing population, globalization and climate change

⬇

GPA may need to strengthen activities which contribute more directly to improving food security and increasing agricultural production and productivity

5

Increasingly important role for PGRFA in securing continuing improvements in production and productivity through:

- Provision of new useful genes for improved crop varieties
- Development of seed systems
- Contributions to effective agro-ecosystem function
- PGRFA will also remain an essential component of livelihood strategies in poor rural communities

6

Food security

- Food security includes *stable availability, access and utilization of safe and nutritious food*. PGRFA activities may well need to focus on a wider range of crops and useful species to support both production and dietary diversity.
- Need for more accurate and reliable measures, standards, indicators, and baseline data that will allow for better monitoring and assessment of the progress made in these areas.

These aspects should be taken into consideration when discussing and updating the GPA PAA: 10, 11, 12, 13.

7

Industrialized production

- Throughout the developed world, industrialized production now supplies the majority of food.
- Strong consumer demand for cheap food of uniform and predictable quality has resulted in a focus on efficient and almost industrialized production methods.
- Modern breeding has resulted in crop varieties that meet the requirements of high-input systems and strict market standards.
- As a result, over the last decade multi-national food companies have gained further influence and much of the food consumed in industrialized countries is now produced beyond their national borders.
- This food production and consumption pattern is also spreading to many developing countries.

8

Low input/local production

- A substantial portion of the food in the developing world is still produced with few, if any, external inputs and is sold locally.
- Such farming systems generally rely heavily on diverse crops and varieties, and in many cases on a high level of genetic diversity within local varieties.
- This represents a traditional and widespread strategy for increasing food security and reducing the risks that result from the vagaries of markets, weather, pests or diseases.
- Through the continuing shift from subsistence to commercial agriculture, much of the diversity that still exists within these traditional systems remains under threat.

9

Niche or high-value markets development

- More economically affluent people, especially in Europe and North America, tend to prefer quality food that is *locally* produced in *ecologically* sound agriculture, under *low-input* but controlled (and *certified*) conditions, from sources they know and trust.
- This trend has seen the share of so-called niche or high-value markets expand and certification schemes such as '*organic*' or '*protected designation of origin*' have been established to help ensure standards and provide a reliable source information. There are even global movements that advocate the use of locally produced food, traditional crops and varieties by drawing attention to food traditions and recipes.

10

Seed systems (1/2)

Concentration of globally operating seed companies.

- International seed trade has increased
- Fewer and larger multinational seed companies
- Rapid advancements in molecular and genomic research and the resulting progress in the field of genetic engineering.

Focus

- Mainly on modern improved varieties farmers to purchases new seed each growing season

Efforts to harmonize seed regulations at regional levels (Europe, East Africa, Southern Africa, and West Africa) to

- Facilitate seed trading + foster development of the seed sector

11

Seed systems (2/2)

- *Traditional or informal seed systems* still remain a *key element* in ensuring that farmers in many parts of the world can access the crop varieties that they need. They ensure high diversity though limit the access to improved materials.
- Need to implement seed systems development approaches based on partnerships between the public and private as well as the formal and informal sectors.

In updating the GPA PAA: 13; 14; 20.

12

Increasing emphasis on sustainable production

- The need to adopt more sustainable production practices is now accepted.
- Future agricultural production increases will have to come from productivity increases achieved through greater efficiency and accompanied by reductions in external inputs.
- This will require much greater emphasis on use of PGRFA and agro-ecosystem function.

- GPA PAA 10, 11, 13, 15, 16, 17, 18, 19 and 20.

13

Climate change (1/2)

- CC represents an immediate and unprecedented threat to the livelihoods and food security of hundreds of millions of people who depend on agriculture, particularly small-scale farmers, and is likely to be a major barrier to achieving the required increase in food production by 70% from now to 2050.
- Agriculture and related activities contribute to climate change by intensifying greenhouse gas emissions and altering the land surface.
- CC is at the top of development agendas. It is a long-term phenomenon, the actions taken over the next decade will be critical. These must be built for responsive, adaptive agricultural technologies and policies that help reduce people's vulnerability to climate variability, while at the same time paving the way for the successful management of long-term changes.

14

Climate change (2/2)

- PGRFA will play a central role in helping societies cope with climate change.
- Genetic diversity in traditional and modern varieties and in CWR will be a major source for adaptation to climate change and for ensuring resilience and increased sustainability of production systems.
- This will involve plant breeding, farmer selection and improved deployment of diversity in production systems.
- CC poses a serious threat to genetic resources. It may increase the rate of loss of genetic resources as populations and species become extinct.
- Conservation strategies adjusted to take account of climate change.

15

Components of a strategy to secure and use PGRFA optimally to help cope with climate change:

1. An increased emphasis on *in situ* conservation of genetically diverse populations to provide adaptability and to allow evolution to continue
2. A significantly expanded programme of *ex situ* conservation to ensure collecting and maintenance of diversity of species, populations and varieties which cease to be adapted to the environments in which they occur
3. Improved availability of information on the characteristics of material held *ex situ* which will become useful under new conditions
4. Increased support for access and movement of materials to meet the need to develop crop varieties adapted to new environmental conditions
5. Increased support for building capacity in plant breeding and seed systems management that make effective and sustainable use of PGRFA

16

➡ All these will involve, *inter alia*, the increased application of molecular methods to screen germplasm, identify useful traits, explore the use of a wider range of crops, and the development of materials adapted to new environments, pests and diseases.

➡ PGRFA conservation and use programmes will need to explore how best to ensure that they contribute to crop adaptability, resilience and mitigation in changing agricultural production environments.

➡ The following GPA Activities should be seen as playing an important role in dealing with climate change: 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 15, 16, 17, 18, 19 and 20.

17

Technological developments

Most important advances have been:

- The rapid development of the Internet
- The management and analysis of information
- The developments in molecular biology

18

Information management and exchange

- Further development of global information resources is seen as an important contribution to the future implementation of the GPA and may be considered in updating all Activities of the GPA that have an information management component.
- In view of its strategic importance for most of the GPA PAA, especially 17 and 18, and its central role in implementing these, it may be worth exploring how the different information related actions could be linked.

19

Molecular methods

- Technologies for identifying and transferring genes between related and even unrelated species offer completely new horizons for the exploitation of genetic diversity.
- It is critically important that in the coming years genebanks apply molecular tools to routine operations and develop significantly improved methods of allele mining which will make searching entire collections for new useful traits a practical possibility.
- This, combined with MAS techniques will ++ enhance PGRFA use.
- Need for capacity development for supporting the increased availability of molecular methods to PGRFA workers throughout the world.

GPA PAA 1, 4, 5, 6, 8, 9, 10, 13, 15, 16, 17, 18, 19 and 20.

20

Biofuels

The significant increase of the agricultural production of fuels, including biogas, vegetable oil and others over the past few years is directly impacting on genetic resources and genetic diversity in a number of positive and negative ways.

21

Political and economic status of agriculture

- Conservation and use of PGRFA are intrinsically and in many ways connected with and dependent on the political and economic status of agriculture.
- Over the last few decades the importance of agriculture in national economies and in development agendas has declined and therefore with it the public support to agr. R&D. Private investment has increased though with R&D focus on more immediate profitable areas.
- Recent rise of food prices, food security and climate change concerns, biofuels have resulted in a renewed interest in issues related to agriculture.
- A real challenge in implementing the GPA in the future will be to build support in the changing political and economic climate that recognizes the importance of strengthening support for agriculture and expanding agricultural R&D.

In updating the GPA: PAA 15, 19 and 20.

22

Genetic erosion and vulnerability

- Since 1996 considerable information has become available with respect to the extent and nature of genetic erosion of PGRFA and the extent of genetic vulnerability.
- Several reported causes of erosion have been identified (replacement of local varieties, land clearing, over-exploitation, population pressures, etc.).
- The picture for erosion is rather complex.
- The estimation and monitoring of both erosion and vulnerability remain problem areas for GPA implementation where substantial additional research may be needed to identify protocols and indicators to provide useful estimates and plan response strategies.
- While updating the GPA PAA 1, 4, 7, 8, 15, 16, 17, 18, 19 and 20 are of particular importance to be considered.

23

A New Policy Environment that Supports Implementation of the GPA

Over the last 15 years there have been major developments in the international policies and instruments that can support the implementation of the GPA. These developments include:

- the adoption by the Conference of the Parties of the CBD of an Agricultural Biodiversity Programme of Work (1999) and of the Global Strategy for Plant Conservation (2009),
- the adoption by the Commission on Genetic Resources of its own Multi-Year Programme of Work (MYPOW) which includes work on PGRFA;
- the establishment of the GCDT in 2004 and,
- the entry into force of the ITPGRFA (2004).

24

ITPGRFA (1/2)

- A number of innovative measures for the conservation and sustainable utilization of the plant genetic resources are found in articles 5 (conservation) and 6 (use) of the Treaty, and may need to be taken into account in updating the GPA.
- Contracting Parties may also need to establish or update national programmes, policies and regulations to support Treaty implementation, including its Multilateral System, and this also needs to be taken into account in revising the GPA (e.g. GPA PAA 15).
- The strengthening of information systems (e.g. GPA PAA 17) will be required to support the Treaty's Global Information System.

25

ITPGRFA (2/2)

- At its 1st GB meeting (2006) parties have agreed that the initial priorities of the Treaty's Funding Strategy will be the priority activity areas of the rolling GPA for further development by the Governing Body.
- GB 2 (2007) identified three priority areas for support from its BSF, building on the GPA:
  1. Information exchange, technology transfer and capacity-building (reflecting GPA PAA 15 and 19)
  2. Managing and conserving plant genetic resources on farm (reflecting GPA PAA 2)
  3. The sustainable use of plant genetic resources (reflecting GPA PAA 9, 10, and 11).

26

The Global Crop Diversity Trust

- It is an essential element of the funding strategy of the Treaty;
- Funds activities within the context of building a rational global system of *ex situ* conservation;
- Supported the development of a set of conservation strategies (crop and regional);
- A number of key global and regional crop collections are currently being supported;
- Project support is being focused on *regenerating and securing* unique, threatened accessions worldwide, and on *building information systems* for effective management and use of collections.

27

Other international initiatives

- Svalbard Global Seed Vault (2008) provides secure facilities for the storage of back-up samples of accessions from genebanks around the world;
- Agreement between CGIAR and ITPGRFA, bringing their collections within the MLS of access and benefit sharing as foreseen in Article 15;
- CGIAR Centers have recently upgrade their *ex situ* conservation facilities and are currently developing ways of ensuring the long term sustainability of the collections;
- Global Partnership Initiative for Plant Breeding Capacity Building (GIPB) was launched in Madrid in 2006 (FAO)
- Crops for the Future (Bioversity) to support work on neglected and underutilized crops;
- Global Forum on Agricultural Research (1999) which has identified genetic resources management and biotechnology as one its four priority areas.

28

Regional frameworks and mechanisms

- New regional PGRFA networks (GRENEWECA; EAPGREN; etc.)
- Formulation of regional conservation strategies
- Implementation of collaboratively agreed regional conservation programmes has developed further ECPGR with EURISCO and AEGIS; APAARI; SANPGR; etc.

29

National implementation mechanisms

- At the heart of effective implementation of the GPA
- New National Programmes and 65 NISMs established
- Collaboration and coordination of PGRFA related activities among different organizations, state ministries and SHs still remains a serious impediment to effective GPA implementation
- The legislative framework has also changed in many countries in areas directly relevant to the implementation of the GPA (seed certification; variety release; IPR; biosafety regulations; farmers' rights)

30

CHALLENGES FOR THE UPDATING OF THE GPA

31

Linking *ex situ* and *in situ* conservation work

- Consensus on need to strengthen linkages and for complementary/integrated approaches.
- This is particularly important in the light of the need to respond to climate change through
  - *in situ* strategies which emphasize adaptability and strengthen evolutionary potential and
  - *ex situ* strategies that safeguard the diversity threatened by climate change.

32

Information management and use

Opportunities to use newly developed information and communication possibilities to manage conservation activities and to make available information quickly and easily to users.

33

Plant breeding

- Plant breeding (including the evaluation and research to identify desirable parents and genes, understand gene action and expression, and carry out the appropriate crossing and selection programmes) was probably under valued in the previous GPA.
- The new GPA provides an opportunity to address this gap and to identify work that supports base broadening and the increased use of diversity by plant breeders.

34

Seed systems and the availability of materials

- There is a greater understanding of the key role played by informal seed systems in the maintenance and exchange of diversity by farmers and communities.
- The local institutions that support these systems are central to effective on farm conservation of local crop diversity and ways need to be found to support them and, at the same time, facilitate their access to new diversity to meet the challenge of climate change.

35

Monitoring progress

- As with any plan it will be important for countries and the international community to remain aware of the progress, of implementation successes and difficulties.
- It may well be useful for the new GPA to improve current monitoring methodologies in the light of the past experience and the changes introduced in the new GPA.

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Regional Synthesis of Gaps and Needs for Updating the Global Plan of Action for the Conservation and Sustainable Use of PGRFA: Asian Region

Percy E. Sajise

Regional Synthesis of Gaps and Needs for Updating the Global Plan of Action for the Conservation and Sustainable Use of PGRFA: Asian Region

Percy E. Sajise
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1

Regional Background

- Comprising of 23 countries subdivided into South, Southeast and East Asia
- 5 out of 17 global mega-biodiversity centers are in the region; also considered as "biodiversity hotspots"
- Diversity center of many of the world's important crops and wild relatives
- Asian perspective on the conservation and sustainable use of PGRFA is important and critical for the above reasons

2

Regional Background

Reasons for rapid loss of biodiversity in the region:

1. Poverty
2. Rapid modernization of agriculture
3. Changing consumer tastes
4. Rapid urban population increase
5. Ageing rural population
6. Infrastructure development
7. Changing land use and destruction of habitat/ ecosystems
8. Frequent occurrence of disasters/climate change

3

Increasing demand for agriculture can only be met if we continue to have access to genetic diversity of crops and their wild relatives that will provide breeders and farmers with raw materials required to sustain and improve their crops.

4

PGRFA and Institutions in the Region

- Asian region is also very diverse in terms of socio-demographic features (population, area, GDP and institutional features)
- Important to consider in developing supportive and complementary networking for PGRFA in the region, i.e., economic, technological, human resource capacity and infrastructures

5

Typology of Countries in Asia with respect to PGRFA and Institutions

Type A	Type B	Type C
• National activities on PGRFA well coordinated • Relatively adequate human resource and infrastructure • PGRFA collection is substantial • Relatively good links between PGRFA users and genebanks	• National activities less coordinated • Less adequate human resource and infrastructure • Needs more PGRFA collecting, characterization, evaluation and exchange • Needs greater links between PGRFA users and genebanks	• National activities on PGRFA less coordinated but with well established crop genebanks • Requires additional human resource and infrastructure support • More focused collection needed • Needs greater links between PGRFA users and genebanks

6

Possible Sharing of Strengths and Complementary Activities

- Type A–mechanisms for effective coordination; human and infrastructure needs – for Type B and C countries
- Types B and C–experiences in *in situ* conservation and development and others

Through crop specific and PGR sub-regional networks which are already existing; with varying levels of effectiveness and sustainability

7

Will build up confidence and trust in the long run which could lead to further collaboration and eventually result in functional expansion of Annex 1 list of ITPGRFA

8

The Regional Synthesis Process

- Country reports to the SOW-2
- First National Focal Point Meeting, 2009, GCP/RAS/240/JPN
- FAO Survey 2001
- IPGRI-APO Report to the Global Crop Diversity Trust, 2005
- Experiences of Consultant and CTA, GCP/RAS/240/JPN
- Unavailable information for Brunei Darussalam, DPR Korea, Republic of Korea (English translation not seen), Singapore, Timor-Leste

9

GPA Regional Context: General Trends

- 2000 – survey showed that GPA focus was on *ex situ* conservation primarily on sustaining *ex situ* collection, collecting PGR and expanding *ex situ* collection
- SOW-2 report indicates significant progress in *in situ* conservation and development, strengthening of national programmes (NISM is in place or being developed); still needs to strengthen utilization of PGR; opportunities for human capacity development already exist in the region

10

In Situ Conservation and Development

Common Gaps:

1. Insufficient number of staff and weak technical capacity
2. Lack of or insufficient funding
3. Lack of incentives for people to participate in on-farm or protected area conservation/protection
4. Lack of or weak coordination of activities (identified in SOW-2)

11

Capacity building for GO staff (not necessarily extension workers) are also needed for *in situ* conservation and development

12

Needs

- Documentation of knowledge associated with PGRFA
- Enhanced networking/partnership/stakeholder participation
- Public awareness

13

Need to conduct surveys and inventory, especially of CWR, in remote, inaccessible and "disturbed" areas is a priority;

Restoration of homegardens as a form of on-farm conservation;

Integration of *in situ* conservation into school curricula; and

Greater sectoral integration of formal government sectors of forestry, agriculture and environment for *in situ* conservation

14

Ex Situ Conservation

Significant progress made in this area but varying technical and infrastructure levels of development in the region reflected as characters of the 3 typologies of countries in the region

15

Needs

- Common need expressed by several countries is in strengthened and focused collecting activities with greater attention to CWR and UUCs
- Countries belonging to Types B and C expressed the need for a more coordinated planning and policy development on PGRFA at the national level
- Interdisciplinary teams to pursue PGRFA activities
- Upgrading of facilities especially in terms of lack of a reliable power supply
- Identification of duplicates and improved regeneration protocols

16

Expanding *ex situ* conservation activities

- Identified and prioritized during the consultation process in 2005 initiated by the Crop Diversity Trust and Bioversity International
- Generally in the areas of regeneration, characterization, evaluation i.e. nutritional value (and nutriceutical?), documentation, core collections, human resource capacity building and targeted collecting
- Regional priority crops have been identified

17

Recent Developments

- Assistance by the Global Crop Diversity Trust not only for CGIAR Center's Genebanks but also with National Genebanks – regeneration assistance availed by several countries in the region
- Svalbard Global Seed Vault – for safety duplication of accessions
- ITPGRFA Funding on PGRFA

18

Use of PGRFA

- Common gap identified was on evaluation and documentation of PGR and the need to link PGRFA genebanks and users (identified in SOW-2)
- Category B countries – common gap is weak human resource capacity especially in the use of molecular tools in characterization, evaluation and establishment of core collections
- Common need: better understanding of seed systems, policy development and attention to core collection (identified in SOW-2)

19

Opportunities exist for sharing of strengths from countries in Category A to countries in Categories B and C which are members of the same Regional PGR and Crop Networks in human resource capacity building, technology and infrastructures for PGRFA conservation and sustainable use in the region, e.g., Centres of Excellence in the Region (Bioversity International).

20

Increasing genetic enhancement and base-broadening efforts – many good examples in the region to demonstrate its importance and relevance; multi-varietal rice cropping in China, home-gardens in Nepal, Indonesia, Viet Nam, Sri Lanka and Thailand

21

Need to enhance linkages between breeders, researchers, traditional and private sectors, national and international institutes were identified by most countries (also reported in SOW-2); insufficient feedback from users of PGRFA was also identified by one country

22

SOW-2 has probably over-emphasized climate change as a driver, however, disasters and the importance of PGRFA in disaster mitigation and adaptation is probably a more mounting and urgent concern in the region; the greater recognition of agriculture and provision of ecosystem services was more emphasized in SOW-2 but not in the country reports.

23

The need to develop markets and incentives for UUC* were only indicated by countries of Categories B and C; experiences in developing these mechanisms can probably be shared by Category A countries; limited examples in the region such as the case in Nepal

*Under-utilized crops

24

Institutions and Capacity Building

- NISM – 61 countries with NISM and a third of them is in the region
- Importance of NISM
  1. Development of a national strategy on PGRFA conservation and sustainable use
  2. Identify and share institutional or SH responsibilities
  3. Create/raise awareness on importance of PGRFA
  4. Promote research and action on identified gaps
  5. Draw long term financing for PGRFA conservation and sustainable use
- Need to develop regional NISM

25

There are existing sub-regional PGR and Crop Networks in the region – SANPGR, RECSEA-PGR, EAPGR; INGER (rice), BAPNET (banana), ANSWER (sweet potato), COGENT (coconut)

Needs – greater sustainability, more activities, funding, linkages between crop networks and sub-regional PGR Networks

Perception that PGR networks are poorly managed, benefits are not clear and general preference for bilateral arrangements

26

There are opportunities existing in the region for human capacity building in PGRFA – formal degree programmes and short term trainings

Main constraints: lack of financial support and shortage of human resources

27

Most countries identified public awareness on importance of PGRFA as a need;

Appropriate public awareness materials are needed especially at the community level, e.g., Nepal; and

After public awareness is raised, there is a need for follow-up to channel this to action!

28

"The library of LIFE is on fire and we must put it out"

- Gro Harlem Bruntland

The GPA as a platform for helping put out the "fire" which "burns" our PGRFA and ensure the survival of humankind must have the commitment of global society!

29

Thank you

30

Updating the Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture

Report of the Asian Regional Consultation
7-8 September 2010
Chiang Mai, Thailand

September 2010

Contents

I. INTRODUCTION

1. The updating of the Global Plan of Action (GPA) for the conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA) was agreed by the Commission on Genetic Resources for Food and Agriculture (Commission) during its Twelfth Regular Session in October 2009. The Commission requested the Food and Agriculture Organization of the United Nations (FAO) to prepare the updated GPA based primarily on the Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture (SOW-2), and in particular, on the identified gaps and needs, taking into account further contributions from Governments as well as inputs received from regional consultations**.** The updated GPA would be considered during the Thirteenth Regular Session of the Commission in 2011.

2. In line with the above, the Asian Regional Consultation for the Updating of the GPA was conducted in Chiang Mai, Thailand, on September 7-8, 2010. It was organized by FAO and was conducted back-to-back with the Second National Focal Point Meeting of Project GCP/RAS/240/JPN *Capacity Building and Regional Collaboration for Enhancing the Conservation and Sustainable Use of Plant Genetic Resources in Asia* and with a workshop on the implementation of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). The consultation was attended by representatives of 18 countries from the region, namely Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Japan, Republic of Korea, Lao PDR, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Viet Nam. International experts from FAO, Bioversity International, and the Global Crop Diversity Trust also attended the consultation as observers and facilitators. For the list of participants see Annex 1 at the back of this publication.

3. The consultation was organized in plenary and working group sessions and was conducted in English. A working document on the Updating of the GPA including gaps and needs identified in the SOW-2 and a synthetic analysis of gaps and needs for the Asia Region were distributed to the participants one month before the regional consultation, These documents were used as major reference during the working group sessions. The agenda of the consultation is attached as Annex 1 (page 109).

II. INTRODUCTORY PRESENTATIONS

4. The meeting was opened with remarks by Mr Dan Leskien, Senior Liaison Officer of the Commission's Secretariat, who outlined the international context under which the GPA is being updated and in particular the Multi Year Programme of Work of the Commission. He emphasized the importance and urgency of updating the GPA, one of the essential elements of the FAO global system on PGRFA conservation and sustainable use, in the light of socio-economic and environmental changes that have occurred since its adoption in 1996. In this regard he also noted the need to strengthen cooperation between the Commission and the ITPGRFA.

5. A presentation on the GPA updating process was subsequently given by Mr Stefano Diulgheroff, FAO, who informed that the Asian consultation is the fourth out of seven regional consultations scheduled in 2010. Based on inputs received from the regions and on the gaps and needs identified in the SOW-2, a first draft of the updated GPA will then be prepared by FAO. This first draft will be presented for review to the joint meeting of the Bureaus of the Commission and ITPGRFA and to the Fifth Session of the Inter-Governmental Technical Working Group on PGRFA, in March and April 2011, respectively. The revised updated GPA will finally be considered by the Commission at its Thirteenth Regular Session in July 2011. In a second presentation the FAO Officer briefly highlighted the changes that occurred to the conservation and sustainable use of PGRFA since the

adoption of the GPA in 1996. He also stressed the fact that evolving and challenging issues will contribute to making food security a major global priority for at least the next 20 years. These issues include population increase, accelerating urbanization rates, growing income disparities, global temperature changes, higher demand for biofuel and demand for more efficient and sustainable agricultural production practices. In this context the conservation and sustainable use of PGRFA is an essential component of a successful global food security strategy. The updating of the GPA offers an opportunity to:

i. further promote complementary and integrated *in situ* and *ex situ* conservation efforts;

ii. foster use of PGRFA including through enhanced plant breeding activities and strengthened local seed systems;

iii. take advantage of opportunities raised by newly-developed technologies of molecular biology, informatics and communication;

iv. strengthen local capacity and institutions.

6. Results from a regional analysis of gaps and need in the implementation of the 20 GPA priority activity areas for the conservation and sustainable use of PGRFA were presented by Mr Percy Sajise, FAO Consultant. The analysis was prepared based on country reports from Asian countries as part of the process for preparing the SOW-2. It was noted that gaps and needs identified in SOW-2 were sufficiently inclusive to reflect those from the region. Finally, Mr Duncan Vaughan, CTA, GCP/RAS/240/JPN explained the mechanics of the working group sessions which have been designed to ensure that all country representatives revise all the different sections of the GPA, namely its introductory parts, the priority activity areas under the *In situ* Conservation and Development, *Ex Situ* Conservation, Use of PGRFA, and Institutions and Capacity Building. Together with the above mentioned regional analysis (i) a document titled "Updating the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture", which verbatim, included the current GPA as well as sections of the SOW-2 that identified changes, gaps and needs; and (ii) a document containing all sections of the existing GPA except the Priorities Activity areas was also available to assist participants, in particular, to review and comment on the Introduction, Rationale, Aims and Strategies, Structure and Organizations, and Implementation and Financing sections of the current GPA. During the working group sessions, participants were divided into two groups; each of them were assisted by a facilitator and a rapporteur, who in plenary presented the group's results for the final discussion.

III. SUMMARY OF RESULTS

7. The regional consultation overall considered that the GPA is an important framework and that to a large extent its 20 priority activity areas (PAA) remain a valid guide for national programmes, as well as regional and international collaboration. Detailed suggestions for updating it were provided and are described in the following paragraphs. In general terms the region unanimously agreed on the need to improve and keep as clear and concise as possible the editorial style of the document. This was a particular matter of concern to all the countries whose official language differs from the six UN languages in which the GPA will be translated. In line with the approach to make the updated GPA accessible and understandable to a wide audience, it was proposed to add a glossary of terms that are commonly referred to in the GPA. Participants also stressed the importance of the GPA that retain its capacity to serve different realities, including national programmes in different developmental stages as they occur in the Asian region. They noted that new opportunities exist as a result of the rapid development in communications technology such as the internet and in data storage and processing which should be reflected in relevant activities of the GPA. They also expressed the desire

to see the cross-cutting role of the established National Information Sharing Mechanism (NISM) highlighted where it is most appropriate.

A. Review of the Leipzig Declaration and Introduction

8. The general sentiment of the Asian group is that the general principles of the Leipzig Declaration are still valid but there may be a need to develop a new declaration produced jointly by the Commission and the Governing Body of the Treaty which considers, in addition, the new imperatives of climate change and the various key international agreements and mechanisms such as the Treaty and the Global Crop Diversity Trust, among others.

9. The regional consultation suggested improvements in the introduction by including a more complete narrative up to 2010 and relevant statements from other international groups such as the G8, and emphasis on the climate change and the importance of nutritional aspects while addressing food security. There was also a suggestion on the need to indicate the major progress made since the GPA was implemented and the rationale for updating the GPA which may require a new section. There was also a discussion on the relevance of forestry to GPA implementation especially, as it relates to *in situ* conservation of PGRFA in Protected Areas which are in the administrative jurisdiction of the forestry sector.

B. Review of the Rationale of the Global Plan of Action

10. The regional consultation suggested that a further elaboration of the rationale section is needed to include the current role of PGRFA in food security; the role of GPA for Treaty implementation and also the on-going threats to loss of PGRFA diversity.

C. Review of the Aims and Strategies of the Global Plan of Action

11. Concerning the aims, participants suggested that, for consistency, the wordings of the Treaty should be used in the third aim of the GPA concerning the benefit-sharing. The aims should also capture the spirit of the Treaty, particularly the principle of facilitating access to PGRFA materials and information taking advantage of the development in information technology. The Asian consultation also suggested that the strategies should be reviewed in the light of the entry into force of the Treaty and the establishment of the Global Crop Diversity Trust.

D. Review of the Structure and Organization of the Global Plan of Action

12. The Asian group consultation affirmed that the 4 main groups of the GPA are still valid. As per the sections on Long Term and Intermediate Objectives in each PAA it was suggested to reorganize them into a "Goal" and an "Objectives" section. Participants agreed that the section which describes how a particular activity is related to other activities in the GPA can be deleted.

E. Review of the Priority Activity Areas of the Global Plan of Action

In Situ Conservation and Development

13. There was a general consensus in the Asian group that *in situ* conservation, especially on-farm conservation involving small farmers, is very important in the region considering the backdrop of poverty and livelihood requirements on one hand, and abundance of PGRFA on the other hand, where these small farmers have been the custodian all along. However, on-farm conservation has just gained scientific attention and is at various stages of implementation in several countries in the region.

PAA 1. Surveying and inventorying PGRFA

14. The Asian regional consultation affirmed that this activity is still of high importance and the long term objective remains valid and relevant. The group, however, suggested that the intermediate objective should state that methodologies be developed and existing methodologies should also be applied and further refined.

15. The regional consultation highlighted the importance of the use of participatory methods and approaches which have been developed to ensure the participation of farmers and resource users in on-farm and other forms of *in situ* conservation. It also reiterated the importance of giving high priority to PGRFA surveying, inventorying and collecting in remote and "disturbed" areas, which due to a combination of factors including area accessibility, topography and security have not been adequately covered, in particular as far as CWR and under-utilized crops are concerned.

PAA 2. Supporting on-farm management and improvement of PGRFA

16. The group suggested the title of the activity should be changed by replacing "supporting" by "promoting". This is because supporting implies providing something to initiate or strengthen on-farm management and improvement of PGRFA, whereas promoting offers a wider range of leverages and interventions to bring about on-farm management and improvement of PGRFA. The consultation also suggested including the need for enhancing resilience to stresses of farming systems at the end of the first sentence. There is also the need to update reference to the International Undertaking (IU) to reflect Treaty provisions on Farmer's Rights.

17. The consultation highlighted the following needs in the Asian context: (a) policies which should facilitate on-farm management and improvement of PGRFA through marketing of products thereof; (b) need to apply grass roots knowledge in the on-farm management and improvement of PGRFA; and (c) need to mention private sector as possible supporter of research and promotion of on-farm management and improvement of PGRFA (Paragraph 31). The participants also pointed out the importance of the community-based approach in promoting *in situ* and on-farm conservation and sustainable use of PGRFA in response to the dominant constraints of poverty, the need to strengthen livelihoods options of local communities. The successful application of community based approaches in other areas of natural resource management should be recognized.

PAA 3. Assisting farmer's in disaster situation to restore agricultural systems

18. There was a suggestion from the Asian group to replace "agricultural systems" by "agricultural plant diversity" in the title of this PAA, though no consensus was reached on this proposal. The group affirmed the validity and relevance of the long term and intermediate objectives of this activity while highlighting the role of community seed banks in restoring agricultural systems. Participants indicated that there are now several countries in the region which are promoting the establishment of community seed banks to serve both as community bioregisters as well as source of materials for agricultural systems restoration after natural disasters. There was also the recommendation to include "*local* varieties and *populations* that are adapted..." in the last extract from the SOW-2 after para. 50.

PAA 4. Promoting in situ *conservation of wild crop relatives and wild plants for food production*

19. The group recommended to insert in the title "and management" after "conservation" to indicate the need to manage properly the wild crop relatives and wild plants which are mostly in Protected Areas. The term "wild crop relatives" also needs to be changed throughout the document to "crop wild relatives". The long term objective remains valid and relevant. The Asian consultation suggested

to insert "or further develop" after "initiate" in the first sentence of para. 67 in the intermediate objectives section. The group also indicated the need to highlight the vulnerability of CWR and wild plants for food production to climate change's effects. In Line 701, the suggestion was to change to "recognize that women are active participants and …".

Ex Situ Conservation

20. The consultation noted that the definition and delineation of what constitutes *ex situ* conservation has evolved considerably since the mid-1990. Hence it was suggested that the present reality is carefully elaborated to explain, for example, DNA banks, bio-banks and others. This could be included in the list of common definitions as earlier suggested.

21. It was also recommended to merge PAA 8 "Expanding *ex situ* conservation" with PAA 5 "Sustaining *ex situ* conservation activities".

PAA 5. Sustaining existing ex situ collections

22. It was suggested that this activity should consider the issue of duplication and safety back-up and these two aspects of duplication could be treated separately in the context of new developments such as the Svalbard Global Seed Vault. The participants also recommended that this activity needed to highlight the fact that PGRFA collections in National Programmes often have different emphasis from major collections found in the CGIAR Centers and their importance should not be under-appreciated in the updated GPA. A case in point is the collection of native forages in Mongolia.

23. The group recommended that the long term objective is out of date and needed careful revision. One comment was whether the word "develop" is still relevant.

24. There were recommendations by the group referring to specific areas of the document. Paragraph 80 needs updating in relation to the Multilateral System of the Treaty and in Paragraph 81, exchange of information is more relevant than "Use of PGRFA". Gaps and needs from SOW-2 as indicated under lines 978-996 (after para. 84) are relevant; however, the group consensus is that the word "additional" in Line 989 is not needed. Gap from SOW-2 in lines 1018-1024 (after para. 87) is considered relevant though the group strongly felt that this point should address more the need for building up and conserving collections. In lines 1049-1053 (after para. 92), the group stressed the importance of the "national" dimension too.

PAA 6. Regenerating threatened ex situ collections

25. The delegates recognized the very high importance of this aspect of *ex situ* conservation. However, this "unglamorous" aspect of *ex situ* conservation has difficulty attracting funding except for some limited support from the Global Crop Diversity Trust. However, it should also be recognized that there might be important national collections which are not attracting funding from the Trust which will, therefore, require long term funding.

26. Following the above premise, the Asian group suggested that the long term objective should emphasize regeneration of all PGRFA since many crops of national importance have not been studied in relation to regeneration protocols. The delegates also suggested the following:

a. Extract from the SOW-2 in lines 1106-1108 emphasizes that maintaining viability of materials in the hot humid tropics, which many countries in the region experience, is a major challenge and there is lack of scientific work for developing conservation technologies for this kind of situation. The lack of "green technologies" for genebanks

was also indicated by participants in this regional consultation. In addition, the importance of developing research and development technologies for maintaining viability of accessions was emphasized by participants. The contrast between easy and rapid genotyping compared with the laborious and unchanging methods of viability testing was considered an issue which must be addressed *urgently*. In this regard, a re-examination of regeneration guidelines and ways of reducing the tedium of regeneration was suggested.

b. Last sentence in para. 97 was deemed by the group as requiring review in the light of the developments since the supposed "first world wide regeneration".

PAA 7. Supporting planned and targeted collecting of PGRFA

27. The delegates suggested that this activity should have an expanded section to reflect the need for all relevant information to be included during collecting such as indigenous knowledge and environmental factors. It was also suggested that there might be a need to update guidelines for collecting germplasm especially in relation to information that should be included with the use of new collecting tools and methods. For example, Global Positioning System (GPS)-aided collecting can leverage more information from a collecting site.

28. The value of repeated collecting in areas which have been previously collected was suggested as a useful means of understanding the real situation regarding genetic erosion for germplasm of national and international importance. This point is also relevant to paragraph 120. It was suggested that there is a need for emphasis in collecting broadly to include under-utilized crops and wild plants used for food, medicinal food and others.

29. The high importance of a wide range of crop wild relatives (CWR) in countries and regions where animals are central to agriculture was also raised by the group. In such situations, there are a range of issues needing attention, i.e., from knowing species identity to lack of knowledge on how best to conserve these rangeland germplasm materials closely associated with animal production.

30. The long term objectives should reflect the importance of CWR and under-utilized crops.

31. The group recommended that intermediate objectives should be recast to reflect that some countries do not have or have just recently established germplasm collections. This is more than just gaps.

32. Delegates mentioned the need to leverage partnership both within and across countries with experts in PGRFA, such as taxonomists, to help correctly identify germplasm. In order to promote inter-country partnership, it was recommended to regularly update expert directories.

33. Second gap in the extract from SOW-2 (lines 1325-1326) seems to belong more appropriately to *in situ* conservation.

PAA 8. Expanding ex situ conservation activities

(suggested by the group to merge with PAA 5. Sustaining existing ex situ collections)

34. The delegates felt that the wording for long term objectives was too general. It should focus on integration of new developments in *ex situ* collection, e.g., DNA banks and bio-banks.

35. The group also suggested recasting the intermediate objectives to reflect the development of strategies for non-orthodox germplasm because current wording is too narrow and may exclude some

intended germplasm. In addition, it was felt that the intermediate objectives need to reflect the increasing demand many genebanks are facing to conserve the products of research such as mutants, RII populations, GMOs and others.

Utilization of Plant Genetic Resources

36. The delegates emphasized the importance of establishing the linkages between germplasm conservation, plant breeding and seed delivery as a key guideline for enhancing the use of PGRFA. The consultation also recommended merging PAA 12 and PAA 14 as they have a lot of common elements and relationships. This integration will require reformulation of objectives and the whole write up while retaining the basic elements in the original separate PAAs.

37. It was also noted that "Plant Breeding" which is a very important vehicle for use of germplasm is not explicitly mentioned in any one of the PAA's titles. The consultation considered the title of PAA 10 and suggested to replace it by "Enhancing plant breeding and related activities".

PAA 9. Expanding the characterization, evaluation and number of core collections to facilitate use

38. There was considerable discussion of the title by the Asian delegates and two points were finally agreed: a). "and number of core collections" could be dropped from the title; and b) the current definition of core collection should be reconsidered. The core collection concept has evolved and now includes "special germplasm sets" "mini" and "micro"-core collections. The updated GPA should reflect what genebanks are currently doing to facilitate use of germplasm. The definition of these special germplasm sets should be included in the glossary of basic terms earlier suggested.

39. The delegates also suggested the need to highlight the importance of collaboration between genebank curators and other scientists in order to include data arising from other specialized types of characterization beyond the usual passport data.

40. This additional data can help direct germplasm evaluation as a result, for example, of soil type where germplasm was collected. In some cases, this is referred to as "satellite data". It should reflect, in very clear terms, that the key to the use of PGRFA is greatly enhanced by the ability to access relevant information and there is a need to leverage current information technology to serve this purpose. As a consequence, the current guideline for evaluating and characterizing germplasm must be updated to reflect current technologies that have become available.

41. The delegates expressed the need for the wordings of the long term objectives to be succinct and simple.

42. The group suggested that paras. 148-152 need recasting. Base broadening should not be used as its meaning is open to conjecture (before para. 155).

PAA 10. Increasing genetic enhancement and base-broadening efforts

43. The Asian group is in agreement on the importance of increasing the capacity of plant breeding in the public sector in order to address the dwindling number of plant breeders. The delegates then suggested incorporating the following statement in this activity: "there is now a dearth of conventional plant breeders in the public sector due to increased demand in the private sector and declining enrolment in conventional plant breeding in schools and universities. Also, there is aggressive promotion of modern methods of molecular breeding programmes with more lucrative work offers". The group also took notice that the term "base broadening" needs to be defined or included in the glossary of terms.

44. The delegates noted that Asia and other regions are prone to several kinds of natural disasters that effect agricultural lands. They therefore recommended that in addition to climate change (as it is mentioned in the changes reported from the SOW-2 after para. 168), also effects of natural disasters such as salt affected lands from tsunami's, ash deposits from volcanoes, etc. should be addressed by breeders. In this connection, there should be a narrative added to emphasize this point.

45. It was also suggested to recast the objectives to emphasize aspects related to plant breeding by using terms such as "To reduce genetic uniformity" can easily be misconstrued. The recommendation of the group was to be positive and call, for instance, increasing genetic diversity. Objectives should also emphasize the vital roles of participatory plant breeding and molecular techniques. It should also reflect the current understanding and strategies of addressing climate change and variations.

46. Some specific recommendations were as follows: recast para. 172 to reflect that the need is to make genetic variation available to the breeder using several strategies; the need extracted from SOW-2 in lines 1850-4 (before paragraph 173) emphasizes clearly that efforts must be invested to ensure access to the widest possible variation in order to have the tools for breeding crops adapted to extreme weather conditions and novel biotypes of pests and diseases.

PAA 11. Promoting sustainable agriculture through diversification of crop production and broader diversity of crops

47. The title of this activity needs to be changed since diversification and diversity are in the same sentence but being used in different contexts. The Asian group suggested the change in title such as "Reducing the vulnerability of agricultural systems by diversification". The importance of the title of this activity is well recognized but the objectives do not seem to match the current trends. Mongolia, for example, is introducing new crops in order to address the consequence of increasing temperatures.

48. Specific comments of the group are the following: Paragraphs 179-80 – the suggestion is to change "reduce genetic erosion and possible genetic vulnerability" into "promote agrosystem diversity to enhance productivity and reduce threats that may be posed by pests and diseases". The meaning of para. 181 is not clear at all and needs to be recast.

PAA 12. Promoting development and commercialization of under-utilized crops and species (suggestion is to merge with Activity 14)

PAA 13. Supporting seed production and distribution

49. The Asian group suggested to change the title of this activity to "Supporting *local* seed production and distribution" to emphasize the relevance and importance of this activity at the local level. It was also noted that there is a need to emphasize enhancing local capacity for producing seeds as large enterprises will not cater to small volume of seed requirements by small farmers especially in situations where farmers save seeds. The consultation also recognized the reality that there exist considerable variations among the countries in Asia in terms of level of development of the seed sector. Country to country variations in terms of seed production and distribution were elaborated by some delegates including varying degrees of involvement of the private sector. In some countries the increasing role of the private sector was mentioned while in others the government has to respond to this need.

50. Specific comments and recommendations of the group are the following: delete Line 2355 as it does not belong here; recast Paragraph 200 as meaning is not clear.

PAA 14. Developing new markets for local varieties and "diversity rich" products (suggestion is to merge with Activity 12)

Institutions and Capacity Building

PAA 15. Building strong national programmes

51. The suggestion of the Asian group is to change the title by adding "strengthening" to read "Building and strengthening national programmes".

52. The delegates noted that, in the long term objectives under para. 222, the term equitable and, under para. 223, the phrase "share in the benefits" need further clarification.

53. The Asian group affirmed that the intermediate objectives remain valid and relevant. The group further emphasized the need to link *in situ* and *ex situ* strategies for PGRFA conservation especially in the Asian context where the two are often not well integrated. During the discussions in the plenary session, the group highlighted the importance of the NISM in the context of strengthening national programmes, not only to bring together scattered information on PGRFA within the country, but also as a national platform for promoting collaboration and partnerships among various PGRFA stakeholders. They strongly recommended the inclusion of a reference to NISM in the updated PAA.

PAA 16. Promoting networks for plant genetic resources for food and agriculture

54. The Asian group suggested a change in the PAA title to read *"Strengthening the Multilateral System and* promoting networks for plant genetic resources for food and agriculture".

55. The delegates suggested to revise the long term objectives under para. 243 (*in situ* oriented networks) and under para. 244 to clarify the scope of the "scientific exchange". They also emphasized the need under this PAA to promote compatibility among information systems; to address and promote the Multilateral System of Access and Benefit Sharing, as well as networks for underutilized and neglected crops.

PAA 17. Constructing comprehensive information systems for plant genetic resources for food and agriculture

56. The Asian group suggested changing the title to read "Constructing *and strengthening* comprehensive information systems for plant genetic resources for food and agriculture".

57. The delegates suggested to have an introduction mentioning the various existing information systems on PGRFA such as EURISCO and others.

58. The delegates affirmed that the long term objectives remain valid and relevant, though the concept of "useful information" expressed in para. 260 may need some elaboration. As per the intermediate objectives, the group suggested to highlight the importance for ensuring compatibility among information systems, and to emphasize the importance of strengthening NISMs and the need for linkages of NISMs with accession level information systems.

PAA 18. Developing monitoring and early warning systems for loss of plant genetic resources for food and agriculture

59. The Asian group suggested changing the title to read "Developing *and strengthening* monitoring and early warning system for loss of plant genetic resources for food and agriculture".

60. The delegates affirmed the validity and relevance of the long term objectives. With regard to the intermediate objectives, the group had the following suggestions for improvement: monitor and report genetic erosion in *ex situ* collections; monitor and report genetic erosion of *in situ* plant genetic resources for food and agriculture and develop indicators for genetic erosion of *in situ* and *ex situ* plant genetic resources for food and agriculture.

61. The group also suggested highlighting the following areas:

- Contamination of PGRFA either by geneflow from genetically modified plants or wild relatives needs to be considered as genetic erosion;
- Climate change and other factors should be considered for monitoring and in developing an early warning system;
- Information dissemination should be a two-way process to and from germplasm users.

PAA 19. Expanding and improving education and training

62. The Asian group recommended changing the title to "Building up human resource capacity".

63. The delegates affirmed the validity and relevance of the long term objectives.

64. The group suggested to address the "brain drain" in the intermediate objectives considering that countries in the region experienced not only lack of human resources in some basic areas of PGRFA such as taxonomy and molecular biology but also the on-going recruitment of human resources in these areas by countries which can pay higher salaries and offer better benefits. In consideration of this brain drain phenomenon coupled with the basic lack of human resources in taxonomy and molecular biology, the delegates recommended assistance in training their staff in these two critical areas, as well as other needed areas.

PAA 20. Promoting public awareness of the value of plant genetic resources for food and agriculture

65. Asian group suggested changing the title into "Promoting public awareness on the *importance* of plant genetic resources for food and agriculture *for sustainability and food security*".

66. "Final" objective should be changed to "long term objectives". The group affirmed the validity and importance of both the long term and intermediate objectives.

F. Implementation and Financing of the Global Plan of Action

67. The Asian delegates considered financing as very important in the implementation of the GPA in the region which must be addressed in the updated GPA. In addition, there are now new internationally-based financing mechanisms which need to be included such as the Global Crop Diversity Trust, Benefit-Sharing Fund of the Treaty, and others which need to be mentioned in the updating of the GPA.

68. The group also felt that more detail is needed regarding implementation arrangements such as what kind of mechanisms can be used to implement GPA, how will GPA activities be coordinated at the international level such as by FAO, and involvement of regional networks at regional and national levels.

Annex 1

Agenda and schedule for the regional consultation and working group sessions for the Asian region

Overall facilitator Stefano Diulgheroff

Faciliator for *In Situ* Conservation and Development – Percy E. Sajise
Rapporteurs for *In Situ* Conservation and Development – Dan Leskien and Godfrey Mwila

Facilitator for *Ex situ* conservation – Duncan Vaughan
Rapporteur for *Ex situ* conservation – Chikelu Mba

Facilitator for Utilization of Plant Genetic Resources – Duncan Vaughan
Rapporteur for Utilization of Plant Genetic Resources – Chikelu Mba

Faciliator for Institutions and Capacity Building – Percy E. Sajise
Rapporteurs for Institutions and Capacity Building – Dan Leskien and Godfrey Mwila

Tuesday 7 September – GPA consultation

08:30-09:20	GPA revision process Changes and challenges for GPA – Stefano Diulgheroff (FAO) **Plenary**
09:20-09:50	*The Synthesis* – Percy E. Sajise (FAO consultant) **Plenary**
09:50-10:00	Dynamics of Working Groups – Duncan Vaughan (FAO) **Plenary**
10:00-10:20	Coffee
10:20-12:00	Working Group 1* In-situ/Ex-situ
12:00-13:00	Lunch
13:00-14:40	Working Group 2* Ex-situ/In-situ
14:40-15:00	Coffee
15:00-16:40	Working Group 3* Use/Capacity Building/Introduction
18:30	**Reception**

Wednesday 8 September 2010 – GPA

09:00-10:40	Working Group 4* Use/Capacity Building/Introduction
10:40-11:00	Coffee
11:00-12:40	Working Group 5* Use/Capacity Building/Introduction
12:40-14:40	Lunch
14:40-15:40	Discussion – In-situ and Ex-situ **Plenary**
15:40-16:00	Coffee
16:00-17:00	Discussion – Synthesis Sections, Use Capacity Building and Introduction **Plenary**

Evening free

PART 3

Workshop on the International Treaty on Plant Genetic Resources for Food and Agriculture

Part 3

International Treaty on PGRFA Workshop

9-10 September 2010
Royal Princess Hotel
Chiang Mai, THAILAND

Thursday, 9 September 2010

Objectives and expected results of the workshop

09:00-09:10 Secretariat of the International Treaty on Plant Genetic Resources for Food and Agriculture – Mr Mario Marino

Session 1: The Multilateral System of Access and Benefit-sharing

Chair: Mr Lim Eng Siang (Malaysia)

09:20-09:40 Challenges for the implementation of the Multilateral System – Mr Lim Eng Siang

09:40-10:00 The application of the Standard Material Transfer Agreement (SMTA) – Secretariat of the ITPGRFA – Mr Mario Marino

10:00-10:15 The outcomes of the Brasilia's meeting on SMTA (31 August – 2 September) – Mr Lim Eng Siang

10:15-10:45 Discussion

10:45-11:00 Coffee Break

11:00-11:40 Experience of International Centres in the implementation of the Multilateral System – Mr Edilberto Redoña, IRRI

11:40-12:40 National experiences in the implementation of the Multilateral System:
Indonesia: Mr Muhamad Sabran
India: Mr D.C. Bhandari

12:40-14:00 Lunch

14:00-15:30 Working group session on progress made and existing needs for the implementation of the Multilateral System

15:30-15:45 Coffee Break

15:45-17:30 Discussion in plenary and conclusions

Friday, 10 September 2010

Session 2: The Funding Strategy

Chair: Mr Purnomo Chandra (Indonesia)

09:00-09:20	Projects funded under of the Benefit-sharing Fund: the first and the second Call for Proposals Secretariat of the ITPGRFA – Mr Mario Marino
09:20-10:20	Other projects and programmes on conservation and sustainable use of plant genetic resources for food and agriculture developed in the Region: Mr Godfrey Mwila – Global Crop Diversity Trust
10:20-10:50	Discussion
10.50-11.10	Coffee Break
11:10-11:40	Benefit-sharing for agricultural plant genetic resources: commercial and non-commercial means Secretariat of the ITPGRFA, Mr Mario Marino
11:40-12:00	Discussion
12:00-13:30	Lunch
13:30-15:30	Working group session on progress made and existing needs for the implementation of the Funding Strategy
15:30-15:50	Coffee Break
15:50-16:30	Discussion in plenary and conclusions
16:30-17:00	***Close of the meeting***

The Standard Material Transfer Agreement (SMTA)

Dr Mario Marino

The International Treaty

The Standard Material Transfer Agreement (SMTA)

Dr. Mario Marino
ITPGRFA Secretariat

Workshop on International Treaty on Plant Genetic Resources for Food and Agriculture

Chiang Mai (Thailand)
9-10 September 2010

1

The special nature of plant genetic resources for food and agriculture (PGRFA)

1. A combination of factors distinguishes PGRFA from other categories of genetic resources;
2. Parties to the Treaty have agreed to facilitate access to the genetic resources of the crops and forages listed in Annex I of the Treaty for the purposes of research, breeding and training for food and agriculture

2

1. Introduction

- Adopted by the FAO Conference, November 2001
- Entered into force, June 2004
- 125 Contracting Parties (July 2010)

3

1. Introduction

2006 – First Session of the GB (Madrid)
SMTA & Funding Strategy adopted

2007 – Second Session of the GB (Rome)
Annexes of Funding Strategy adopted

2009 – Third Session of the GB (Tunis)
First 11 BSF projects approved

2011 – Fourth Session of the GB (Bali)

4

The International Treaty on Plant Genetic Resources for Food and Agriculture

– a unique, high impact, fully operational global instrument –

5

2. Special Features of PGRFA

- *Food security*
  - Global population reaches 9 billion by 2050
  - 50-70% of the sixfold increase in US maize production since 1930s is owe to breeding
- *Climate change adaptation*
  - Estimated temperature changes ranging from 1.1-2.9°C to 2.4-6.4°C in 2090-2099 (IPCC)
- *Biodiversity*

6

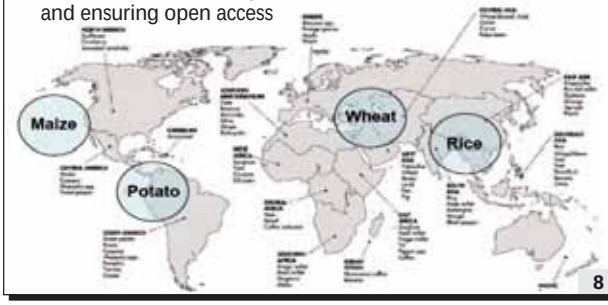
2. Special Features of PGRFA

- Reservoir of various traits of crops
- Raw material for plant breeding
- Insurance against unexpected future needs
- Man-made and ever-growing diversity; may not survive without human intervention
- Farmers play a key role, in terms of breeding, use and conservation
- Need for strategic conservation, both *in-situ* and *ex-situ*

7

2. Special Features of PGRFA

- Uneven distribution and interdependence
- Need for internationally coordinated efforts for conservation and ensuring open access



8

The Multilateral System and the SMTA

The Multilateral System is an operational mechanism which currently has 1.3 million Accession's;

Daily, the Secretariat has been informed of the conclusion of 600-800 under the material transfer agreement Material Transfer Standard;

The inclusion of material in Annex 1 in the Multilateral System is an obligation and not an option for the country party to the Treaty

9

The Multilateral System of Access and Benefit-sharing

- The Treaty establishes a Multilateral System, both to facilitate access to plant genetic resources for food and agriculture, and to share, in a fair and equitable way, the benefits arising from their use.
- It applies to a list of crops established according to criteria of food security and interdependence (64 crops of importance to food security)

These provide about 80% of our food from plants

10

The Multilateral System "pools" these crucial plant genetic resources

- They are available under a Standard Material Transfer Agreement (SMTA);
- The SMTA is the key tool for translating the language of the Treaty into contractual obligations;
- Adopted at the 1st Session of the Governing Body (Madrid, June 2006)
- Standard contract that regulates Access and Benefit-sharing in exchanges of PGRFA in the MLS

11

What is a material transfer agreement?

A material transfer agreement (MTA) is the legal contract between a provider and a recipient that sets out the terms and conditions under which plant genetic resources are transferred.

12

What is the SMTA?

- The SMTA is a commercial contract drafted through international negotiations.
- It has been adopted at the 1st Session of the Governing Body (Madrid, June 2006)
- It's not perfect, but it's all we have and we have to make it work.
- The SMTA looks complicated, but in fact the obligations are quite simple and not too onerous.

13

The content of the SMTA

- Preamble
- Parties
- Definitions
- Subject Matter
- General Provisions
- Rights and Obligations of Provider
- Rights and Obligations of Recipient
- Applicable Law
- Dispute Settlement
- Additional Items
- Signature/Acceptance
- Annexes

14

Obligations of the provider

- To make material under the multilateral system available and free of charge;
- To do so under the SMTA;
- To list the material provided in the SMTA annex
- To inform the Treaty's governing body

15

Obligations of the recipient

1. Shall not claim any IPRs or other rights that limit the facilitated access to the Material provided from the multilateral system, or its genetic parts or components, in the form received
2. To make available to the multilateral system non-confidential information resulting from research and development on the material
3. To make a mandatory payment to the multilateral system if the recipient…
   - develops a new PGRFA product derived from the genetic material ***and***
   - commercializes the new product ***and***
   - restricts the availability of the new product to others for further research or breeding

16

Rights of the recipient

- Recipient can use the material for research or for breeding or training.
- Recipient can develop new PGRFA products from the material and can protect them and commercialize them.

17

Types of restrictions that trigger mandatory payments

- Patents of the US type that restrict availability for research or breeding
- Technological restrictions like genetic use restriction technologies (GURTs)
- Contractual or licence restrictions

18

Types of payment schemes

- Normal payment scheme
  - 1.1% of gross sales less 30% (i.e., 0.77% of the gross income from sales of the product)
- Alternative payment scheme
  - 0.5% of all sales of PGRFA of same crop
  - Payable whether or not availability of new products is restricted
  - Option for period of 10 years renewable
  - Exercise of option must be notified to the Treaty's governing body

19

The SMTA in the mechanism of the Multilateral System

Slide 20 see page 118

20

Methods of acceptance

- SMTA allows for three methods of acceptance:
  - Signature
  - 'Click-wrap' acceptance for internet orders
  - 'Shrink-wrap' acceptance (current practice)

21

PGRFA under development

- Basically, breeders' lines in process of development
- PGRFA under development to be available at discretion of developer during period of development
- If PGRFA are made available, must be under the terms of the SMTA

22

What is the experience with the SMTA to date?

- CGIAR Centres
  - Centres' Guide
  - Summaries
  - FAQs
- Countries
- FAO/Bioversity Joint Programmes
  - Information systems
  - Assistance

23

Third-party beneficiary

- Benefits under SMTA flow to multilateral system not to individual providers
- Providers have little incentive to enforce benefit-sharing obligations
- Multilateral system is the third-party beneficiary under the SMTA
- SMTA gives FAO the right enforce third-party beneficiary rights
  - Arbitration – Provides solution to problems of compliance

24

Impact of MLS and SMTA

- MLS and SMTA
  - provide legal certainty to providers and recipients
  - serve as prototypes of exchange of other PGRFA (non-Annex 1)
  - serve as models outside the PGRFA domain
    - * e.g. UNCLOS, Antarctica
  - contribute to development of International Regime on ABS
    - * for entire domain of food and agriculture

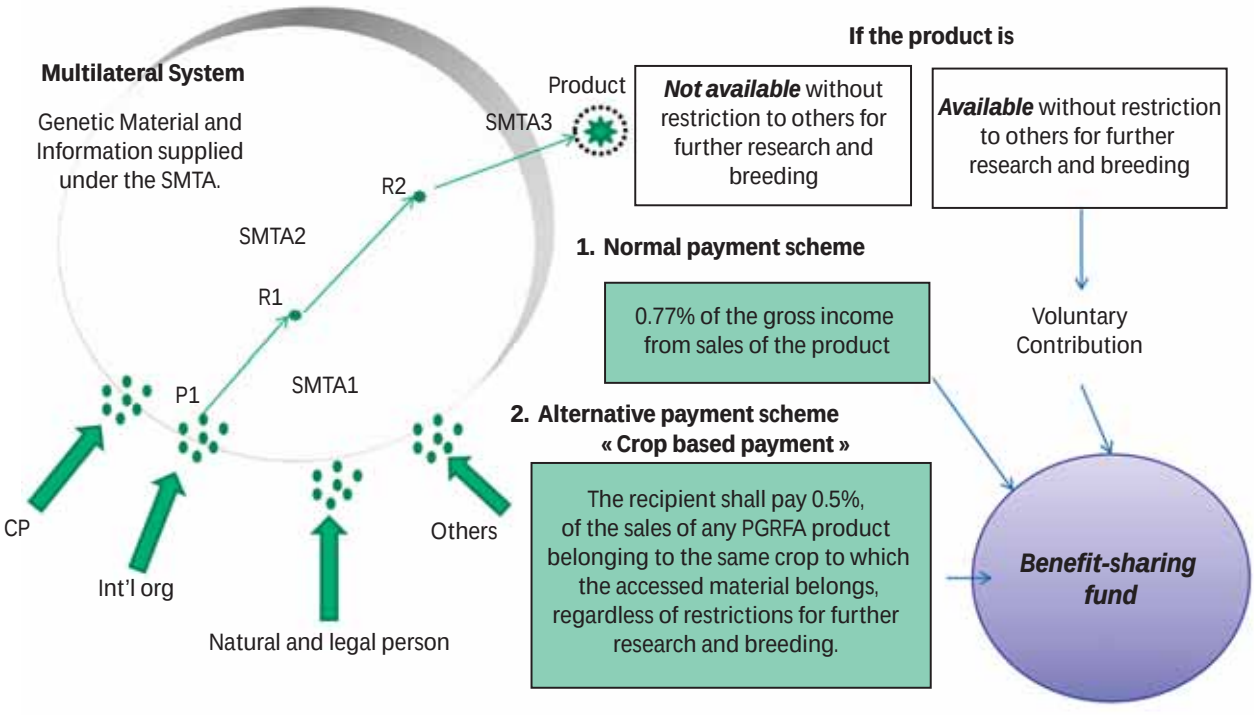
25

Conclusions

- The SMTA could be simpler, but at least it is simpler than the other alternative.
- We need to gain experience of any problems with the SMTA and then improve its implementation.
- We need to do our best to make the SMTA and the multilateral system work

26

The SMTA in the mechanism of the Multilateral System



20

Challenges for the implementation of the Multilateral System

Lim Eng Siang

Challenges for the implementation of the Multilateral System

Lim Eng Siang

9-10 September 2010
Royal Princess Hotel
Chiang Mai, THAILAND

1

Facilitated access and exchange
of germplasm
is one of the important critical factors
for the development of
new varieties
to improve the food security situation
and to cater for the adaptation
of agriculture
to climate change in the world

2

Need for an International Regime On Access and Benefit-sharing of Plant Genetic Resources

An international ABS regime for a rules-based international system that provides for

- Uniform conditions in national legislations
- Enhanced access and exchange for research and development
- Reduce transaction costs for users
- Streamlined time-consuming and costly procedures
- Reduce differences between national legislations in benefit-sharing agreements
- Better monitoring and enforcement could be implemented throughout the flow of genetic resources in both provider and user

3

The International Treaty
on Plant Genetic Resources
For Food and Agriculture
was adopted
after seven years
of negotiation
by the
FAO Conference
on 3 November 2001

4

Asian countries participating to the Treaty

FAO's Asian sub-region comprises 25 members out of which 9 are not party to the Treaty (including **China, Japan, Kazakhstan, Mongolia, Sri Lanka, Timor-Leste, Uzbekistan** and **Viet Nam**; Thailand having signed but not ratified the Treaty).

Total Parties: **125**
Total Asia: **16**

5

Asian countries participating to the Treaty

Slide 6 see page 121

6

Macro Challenges In Asian Region

- **Reducing Poverty** – More than 641 million people, half of the world's extreme poor, live in the region
- **Reducing incidence of child malnutrition** – South Asia has the highest level of underweight prevalence in the world, with almost half (46 percent) of all children under five being underweight.
- **Providing adequate nutrition** – Asia and the Pacific accounts for 63 percent of the world's undernourished
- **Controlling commodity prices** – World price of food is estimated to become 30 to 50 percent higher in coming decades and have greater volatility.
- **Enhancing energy security** –The potential role of biofuel demand for food crops greatly complicates the picture of crop demand

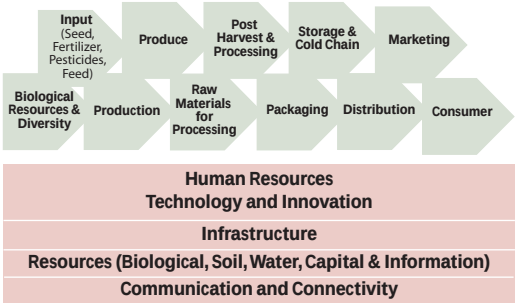
7

Macro Challenges In Asian Region

- **Increasing Yield Per Unit Area**
- **Controlling Input Prices**
- **Controlling Population Growth**
- **Providing for Rapid Diversification of Diet**
- **Planning for Impact of Globalization** – Trade and urbanization affect retailing and consumer preferences
- **Mitigating and Adapting to Climate Change** – Climate change could increase the variability in annual crop production, leading to greater price volatility and subsequent risk of speculation

8

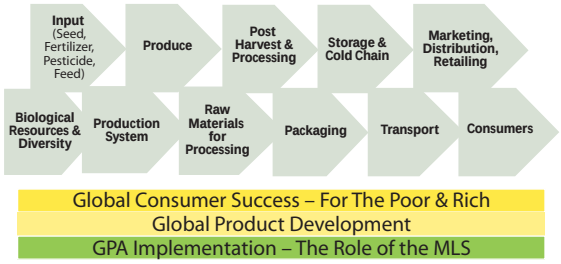
The Role of GPA in the Value Added & Supply Chain



Value Addition to Increase Competitiveness, Food Security and Sustainability in terms of economic, social, environment, and institution along the whole value chain

9

Strategy in Asian Region – The Role of MLS in the Implementation of the GPA



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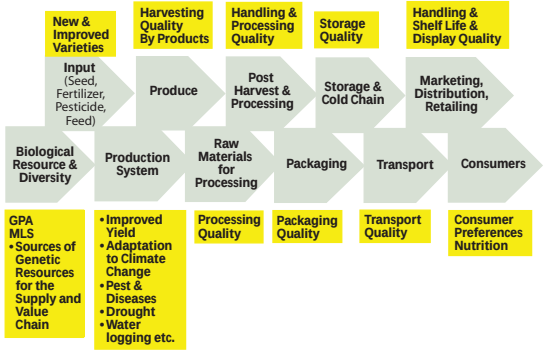
Strategy in Asian Region – The Role of MLS in the Implementation of the GPA For the Poor & Rich



11

Sources of PGRFA – Percentages of Regional Food Production Dependent Upon Crop Species Originating in Other Regions of Diversity

Regions	Percentage of dependence	Regions	Percentage of dependence
Chino-Japanese	62	Mediterranean	99
Australian	100	African	88
Indochina	34	Euro-Siberian	91
Hindustanean	49	Latin-American	56
West Central Asiatic	31	North American	100

Source: Kloppenburg & Kleinman (1987)

12

Challenges in the Implementation of the MLS

- Developing a common framework of implementation at the national level (difficulty because of need to safeguard national interests)
- Operational efficiency and transparency in the implementation of the MLS
- Legal certainty in the interpretation of provisions in the MLS and the SMTA (provisions are still very general and can be interpreted differently to suit national interests)

13

Challenges in the Implementation of the MLS

- Negotiation and further elaboration by the Governing Body which has to agree on a common framework for implementation at the national level, in particular:
  - Article 12.3 (e) PGRFA under development
  - Article 12.3 (d) IPRs and other rights
  - Article 12.3 (a) and SMTA uses of PGRFA other than those uses provided for in the MLS
  - Article 13.2 a), b) and c) Mechanism for the sharing of non-monetary benefits

14

Challenges in the Implementation of the MLS

- Creating legal space in national legislation on ABS including Article 11.1 and Article 11.3 and practical and legal implication of natural and legal persons putting material into the MLS as well as Article 12.3 (h) Article 12.3 (h) Access to In-situ PGRFA
- Assess and Review of the MLS – Article 11.4, Article 13.2 (d)
  - Integrated policy and planning, between line ministries and the private sector, and within and beyond national jurisdictions – Balancing national interests of competitiveness, food security, sustainability and MLS obligations

15

Challenges in the Implementation of the MLS

- Integrated policy and planning, between line ministries and the private sector, and within and beyond national jurisdictions – Balancing national interests of competitiveness, food security, sustainability and MLS obligations
- Common but differentiated responsibilities – fulfilling the MLS obligations of access and benefit sharing

16

Conclusion

- Asia recognises that countries have the common responsibilities in the conservation and sustainable use of PGRFA for food security, quality of life and environment well-being. The operational common interests to achieve the objectives of conservation and sustainable use of PGRFA for food security cover the strategic need to have access to genetic resources for research and development, technologies and information. The differentiated responsibilities lie in the strategic need of countries to provide for access to genetic resources, technology, information and financial resources in accordance to their capabilities and capacities.

17

Asian countries participating to the Treaty

Participant	Signature	Ratification/ Acceptance/ Accession
Afghanistan		9 Nov 2006
Bangladesh	17 Oct 2002	14 Nov 2003
Bhutan	10 Jun 2002	2 Sep 2003
Cambodia	11 Jun 2002	11 Jun 2002
Democratic People's Republic of Korea		16 Jul 2003
India	10 Jun 2002	10 Jun 2002
Indonesia		10 Mar 2006
Iran (Islamic Republic of)	4 Nov 2002	28 Apr 2006
Lao PDR		14 Mar 2006
Malaysia		5 May 2003
Maldives		2 Mar 2006
Myanmar		4 Dec 2002
Nepal		19 Oct 2009
Pakistan		2 Sep 2003
Philippines		28 Sep 2006
Republic of Korea		20 Jan 2009
Thailand	4 Nov 2002	

6

Projects Funded under the Benefit-sharing Fund: the first and the second Call for Proposals

Dr Mario Marino

The International Treaty

Projects Funded under the Benefit-sharing Fund: the first and the second Call for Proposals

Dr. Mario Marino
IT-PGRFA Secretariat

Workshop on International Treaty on Plant Genetic Resources for Food and Agriculture

Chiang Mai (Thailand) 9-10 September 2010

1

Contents

- The Benefit-sharing fund as one part of the Funding Strategy of the Treaty;
- The First Project Cycle of the BSF
- The Strategic Plan for the implementation of the BSF of the Funding Strategy of the Treaty
- The Second Project Cycle of the BSF

2

Funding Strategy

- Adopted by the GB of Treaty in 2006
- Two parts of the Funding Strategy:
  (1) Funds not under direct control of GB:
    – Relationship agreement with Global Crop Diversity Trust (GCDT)
  (2) Funds under direct control of the GB

3

Benefit-sharing Fund

- Established by Contracting Parties to invest in high impact projects supporting smallholder farmers in developing countries (Article 18.3, 18.5, 19.3(f)).
- Clear focus on food security, adaptation of crops to climate change and conservation and sustainable use of agricultural biodiversity.
- Financial support from Spain, Italy, Norway and Switzerland to the Fund – 11 global projects funded under the first Call for Proposals.

4

Benefit-sharing

- Because these genetic resources are pooled, there is no individual owner with whom individual contracts for access and benefit-sharing must be negotiated

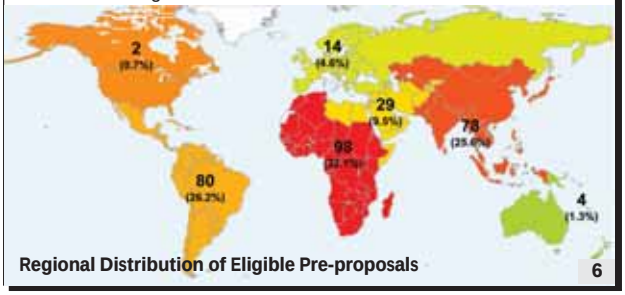
This means there are very low transaction costs, to the benefit of farmers, plant breeders and researchers, and ultimately of consumers

It also means that benefits must be shared in a pooled, multilateral way

5

Benefit-sharing Fund: First Project Cycle

- The GB opened the Call for Proposals under the Benefit-sharing Fund for the biennial cycle of 2008-2009
- The Secretariat received hundreds of pre-proposals, representing all seven FAO regions



Regional Distribution of Eligible Pre-proposals

6

Fund priorities

- Sustainable use of plant genetic resources
- On-farm management and conservation of plant genetic resources
- Information exchange, technology transfer and capacity building for the conservation and utilization of plant genetic resources for food and agriculture

7

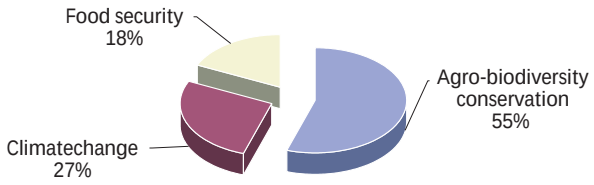
Benefit-sharing Fund: First Project Cycle

Slide 8 see page 125

8

Benefit-sharing Fund: First Project Cycle

Challenge addressed in 11 approved projects



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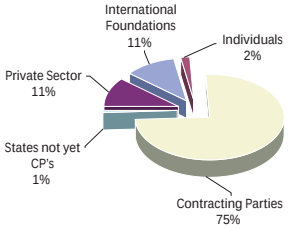
GB3 Strategic Plan to raise US$116 million



Tier	Annual investment level
Tier I	Up to $2.6 million
Tier II	Up to $870 000
Tier III	Up to $345 000

Year	2010 (15 months)	2011	2012	2013	2014
Cumulative	$10 m	$27 m	$50 m	$80 m	$116 m

10

Leadership investments since GB3

- Spain – US$2.2 million
- Italy – US$1.2 million
- Australia – US$870 000
- UNDP – US$10 million
- Norway committed % of seed sales annually
- Kenya recently confirmed its intention to support the initiative

11

Leading the Field

Keeping farmers ahead of the climate change curve

Leading the Field is a new and innovative benefit-sharing funding mechanism managed by the International Treaty on Plant Genetic Resources for Food and Agriculture. Leading the Field prioritises high impact projects addressing food security, adaptation to climate change and agricultural biodiversity.

It is committed to helping keep small-holder farmers in the developing world ahead of the climate change curve. On the strength of initial investments in Leading the Field, the Treaty has opened the 2010 call for porposals, with plans to invest more than USD10 million in projects around the world. Submission to: Dr Shakeel Bhatti, Treaty Secretary (Treaty-Fund@fao.org).

12

Expert Advice

- The Bureau oversees the execution of the project cycle of the Benefit-sharing Fund during the biennium 2010/2011.
- The Bureau sought expert advice on the execution of the Benefit-sharing Fund's next project cycle
- Advice was provided by high-level experts: Dr Geoffry Hawtin, Prof. Swaminathan, Dr Roberto Acosta, Dr David Hegwood, Dr Bala Ravi Sekhara Pillai
- To have a more substantial impact, it is important that, fully consistent with the BSF priorities, the use of funds be highly focused thematically
- The thematic focus should be on the conservation and use of PGRFA to help ensure food security in the face of climate change

13

Information on the Call

- Deadline for submission of pre-proposals – last **8 September 2010**
- The expected funding available for the call 2010 is at least US$10 million
- Any governmental or non-governmental organization, including genebanks and research institutions, farmers and farmers' organizations and regional and international organizations, based in countries that are Contracting Parties.

14

Priorities of the call for proposal 2010

- Information Exchange
- Technology Transfer
- Capacity Building
- On-farm conservation and management of plant
- Genetic resources for food and agriculture
- Participatory plant breeding and
- Distribution of appropriate seed and planting materials.

15

Information on the Call

- Eligible Contracting Parties are developing countries, according to the most recent World Bank's classification of economies
- Pre-proposals and full projects had to be submitted to the Secretary through the National Focal Points or the Permanent Representatives

16

Information on the Call

- Window 1
  Development of strategic action plans
- Window 2
  Immediate action projects

17

Window 1: Development of strategic action plans

The role of plant genetic resources in adapting to climate change must be addressed strategically, planning and structuring action plans and effective policy responses.

It is necessary to agree the priorities for a wide range of stakeholders.

The action plans should set priorities at different levels, including regional, sub-regional, eco-regional, etc.

Project Value: Maximum $400 000
Duration: 1 year
It covers all plant genetic resources for food and agriculture

18

Window 1: Development of strategic action plans

Focus on agro-ecological zones or eco-regions e.g. dry-land marginal floodplains, areas of coastline, high mountain

Could concentrate on the basis of crops (cereals, legumes, vegetables)

19

Window 1: Development of strategic action plans

Should aim to identify needs for information exchange, technology transfer and capacity building

Should clarify how the proposed activity areas will help to assist farmers to adapt their crops to climate change.

Should be developed and implemented by national, regional, international, efficient networks, new partnerships or stakeholder groups.

20

Window 2: Immediate action projects

The proposals are expected to focus on plant genetic resources for food and agriculture in the Annex I of the Treaty

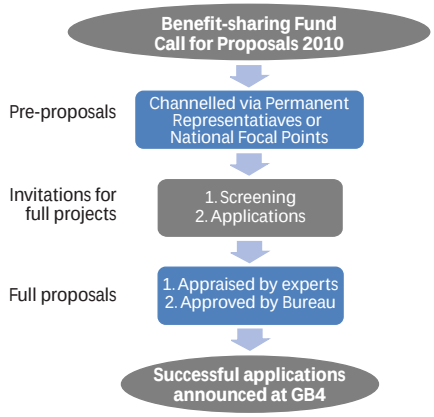
Value of Projects: not to exceed $300 000

Project duration: 2 years

Immediate impact projects or short term

Projects for the management and conservation on-farm, participatory plant breeding and distribution of seeds and planting material

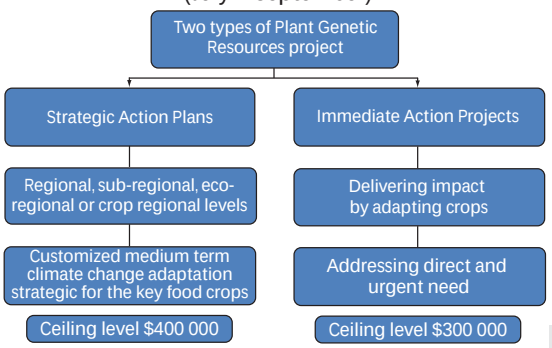
21



22

Pre-proposals applications

(July – September)



23

Information on the Call for Proposals

- The Bureau, according to recommendations made by the Ad Hoc Advisory Committee, will screen the pre-proposals according to agreed eligibility criteria
- The Bureau will decide what applicants will be invited to submit full project proposals before 29 October 2010
- Full project proposals should also be submitted to the Secretary through the National Focal Points or Permanent Representatives by 27 January 2011
- Full projects will be appraised by a Panel of Experts nominated by the Contracting Parties
- The Bureau will approve projects to be funded
- Announcement of projects funded during GB4: 14-18 March 2011

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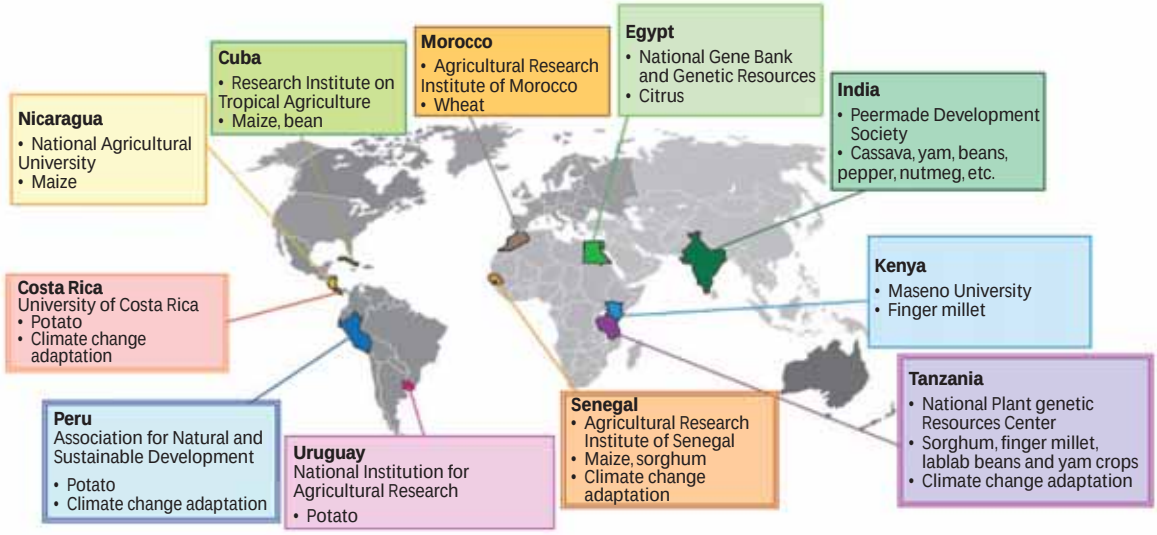
Benefit-sharing Fund: First Project Cycle

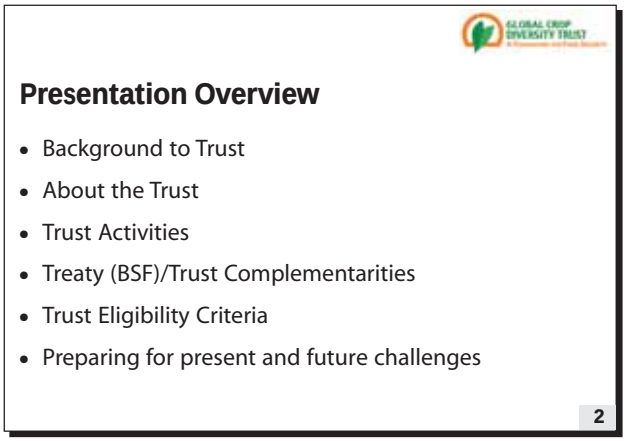
- 11 projects were approved by the Bureau of the GB
- The GB has set funding targets over the next five years to continue supporting high impact projects addressing global issues

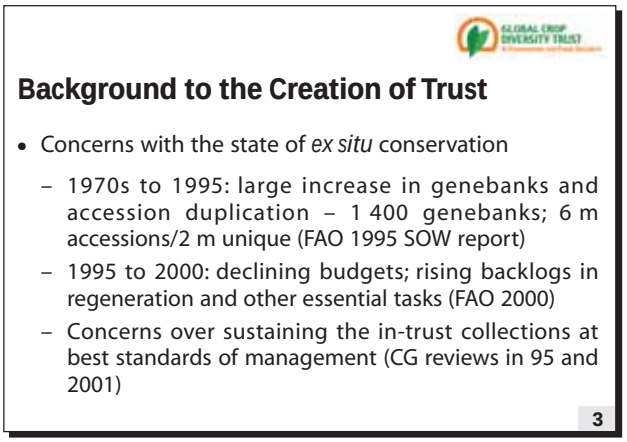


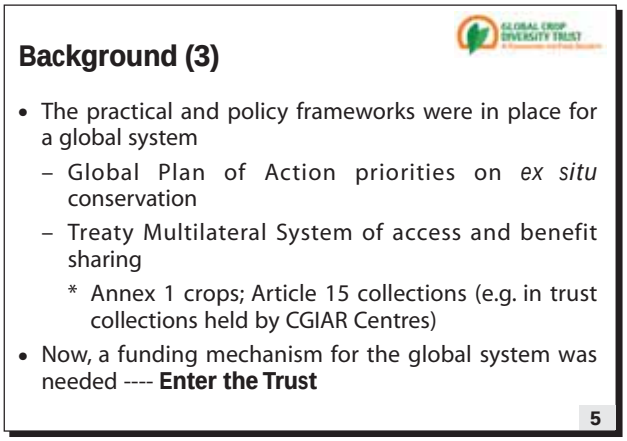
8

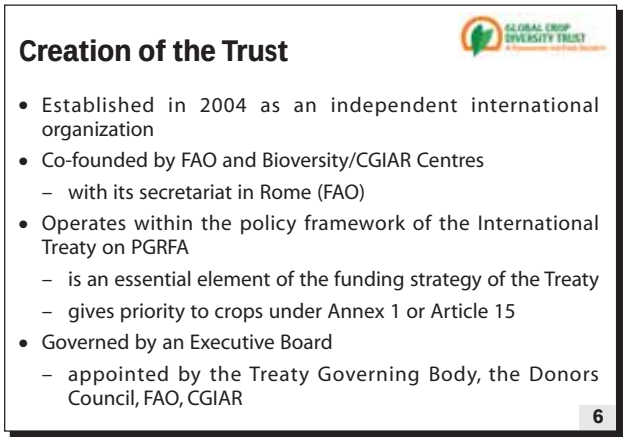
Role of the Trust in implementing the Treaty

Godfrey Mwila









What the Trust Does?

- Ensure the long-term conservation and availability of plant genetic resources with a view to achieving global food security and sustainable agriculture
- More specifically:
  - Safeguard ex-situ collections of crop diversity of global importance (Annex 1, Art 15)
  - Rescue threatened valuable diversity
  - Promote the use of diversity

With the overall aim of:

- Promoting the development of an effective, efficient and sustainable global system for conserving and making available PGRFA
  - **Global system particularly necessary because of interdependence of countries on each other for PGRFA**

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% of World *Ex-Situ* Collection for Selected Countries and Crops

Country	Wheat (*Triticum*)	Rice (*oryza*)	Maize (*Zea*)	Bean (*Phaseolus*)	Pea (*Pisum*)	Soybean (*Glycine*)	Potato (*Solanum*)
Australia	3	0	0	1	4	1	0
Canada	2	0	0	0	0	0	1
USA	5	3	5	1	4	13	5
UK	1	0	0	0	4	0	4
Ethiopia	1	0	0	0	1	0	0
Brazil	1	2	2	2	2	2	4
China	1	11	3	3	5	14	0
India	2	5	10	0	2	1	8

Source: FAO 1998. State of the World's Plant Genetic Resources for Food and Agriculture. Rome

8

Trust's approach *assumptions*

- The global system must carry-out a range of activities (acquisition-storage-regeneration-characterisation-documentation-distribution-safety duplication-promotion of use/links to users)
  - Partners in a global system will go beyond those directly providing storage
- Existing institutions and genebanks are the starting point
- Actions must be scientifically & technically sound, and also take account of political and social realities
- Efficiency & effectiveness can be increased by specific actions such as developing common databases, reducing unnecessary duplication, strengthening collaboration

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Trust's approach *steps*

- Strategy development for decision-making on conservation priorities and approaches
  - global crop strategies developed for 22 Annex 1 crops
  - regional strategies developed by the regional PGR networks
- Primary focus on securing globally important collections
  - long-term grants from endowment fund proceeds
- Project/capacity-building support to the development and implementation of a global system

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Trust Activities

- Securing globally important PGRFA
  - supporting collections that meet standards for conservation and availability, but are in need of long-term funding
    - 17 crop collections by 2009 (Aroids, banana, barley, beans, cassava, faba bean, forages, grasspea, lentil, P/millet, rice, sorghum, wheat, yam, maize, chickpea)
  - upgrading collections to meet standards where this is a cost-effective way to proceed
    - Supported upgrading of facilities at Centre for Tropical Agriculture (CATIE) and World Vegetable Center (AVRDC)

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Trust Activities *(continued)* Rescuing Threatened Diversity

Regeneration and Safety Duplication Projects (Global):

- 95 000 accessions
- 230 collections
- 89 institutes
- 74 countries

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Regeneration and Safety Duplication – Asia-Pacific Region

- 21 countries
- >40 collections
- 30 989 accessions (seed 22 703, veg field 5 146 and invitro 3 140)

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Regeneration projects in Asia

Pakistan: chickpea, grasspea, lentil, rice (2 567 accs)

Philippines: s/potato, cowpea, p/pea, yam, taro, maize, rice (2 861accs)

Bangladesh: lentil, chickpea, grasspea (1 455 accs)

Indonesia: rice, s/potato, taro, maize (1 350 accs)

Democratic People's Republic of Korea (DPRK): maize, rice, (5 740 accs)

Mongolia: barley, wheat (835 accs)

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Regeneration projects in Asia *(continued)*

India: banana (200 accs)

Myanmar RECSEA): banana, lima bean, rice (2 861 accs)

Papua New Guinea: banana, s/potato, aroids, yam (1 760 accs)

Solomon Island: yam (365 accs)

Vanuatu: sweet potato, breadfruit, yam, (380 accs)

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Regeneration projects in Asia *(continued)*

Viet Nam: yam, rice (2 130 accs)

Nepal: barley, beans, chickpea, f/millet, grasspea, lentil, maize, rice wheat (5 275 accs)

Taiwan-(AVRDC): various veg species (6 000 accs)

Lao (RECSEA): rice, s/potato (244 accs)

Malaysia (RECSEA): cassava, s/potato, rice (1 243 accs)

Thailand (RECSEA): mungbean, blackgram, vigna sp. (750 accs)

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Trust Activities *(continued)*

Enhancing Value of Diversity

Evaluation Projects (global):

- 32 projects
- 51 countries
- 61 collections
- 22 crops
- >100 traits

Photos: International Rice Research Institute (IRRI); Philippine Rice Research Institute (PhilRice). 2009.

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Trust supported evaluation projects in Asia

Pakistan: chickpea and wheat – Screening for disease and pest resistance, drought tolerance and nutrient qualities

Philippines: banana and Rice – Screening for drought and heat tolerance

Bangladesh: grasspea – Screening for ODAP and protein content

Sri Lanka: coconut – Screening for pest and disease resistance and drought tolerance

India: banana/plantain, P/millet and rice – Screening for drought and heat tolerance and Fe uptake under aerobic conditions

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Trust supported evaluation projects in Asia *(continued)*

Viet Nam: rice – Screening for drought and salinity tolerance and pest and disease resistance

Nepal: barley and rice – Screening for disease resistance and sub emergence tolerance

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Trust Activities *(continued)*

- Promoting participation & increasing benefits (use)
  - building information systems: genebank management system and global accession-level system
    - GRIN-Global and Genesys
  - supporting activities to promote use: capacity for pre-breeding & breeding
    - support to the Global Plant Breeding Initiative led by FAO
      - 6 pre-breeding projects
      - 4 pre-breeding courses (Belgium, Philippines, Venezuela, Thailand, Bangladesh-134 scientists trained)

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Trust Activities *(continued)*

- Increasing efficiency and effectiveness
  - improving conservation methods for problem crops (cryopreservation for roots & tubers)
    - Supported projects with 6 institutes to develop cryo protocols for yam (IITA & IRD), sweet potato (CIP & KUL), cassava (CIAT & KUL) and taro (SPC & KUL) and cocoyam embryo transfer technique with COGENT

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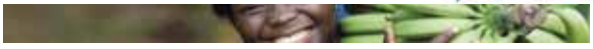

Trust Activities *(continued)*

Emergency support

NPGRL after Trust funded support – back in business

Philippine National gene bank hit by a typhoon

- infrastructure
- equipment
- materials to secure and restore collections

Photo: National Plant Genetic Resources Laboratory (NPGRL), Philippines

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National Plant Genetic Resources Laboratory (NPGRL), Philippines, after typhoon Milenyo, 2006

23

Trust Activities *(continued)*

- supporting the Svalbard Global Seed Vault, an ultimate safety back-up
  - long-term operation of the Svalbard Global Seed Vault:
    - * supporting operational costs
    - * supporting deposits from developing countries and the in-trust collections held by CGIAR Centres

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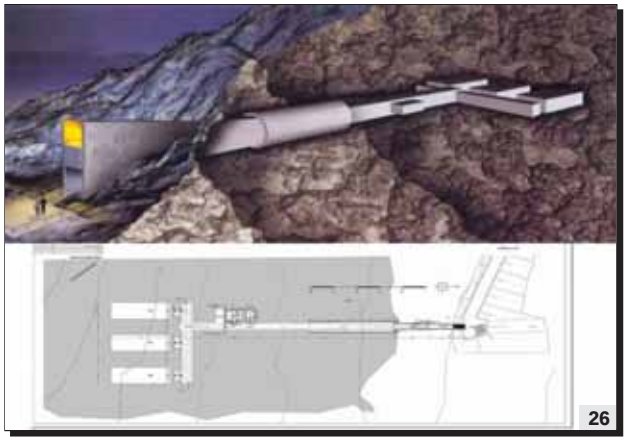

26

Trust Activities *(continued)*

- Filling collection gaps
  - targeted collecting: through a competitive Grant Scheme, support has been provided to 7 institutes in 6 countries targeting crop wild relatives.

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Trust/Treaty (BSF) complementarities

Trust work (ex situ focus)	Interface	Treaty/BSF work (in situ, sustainable use focus)
• Gap filling collections (CWR) • Secure long term storage • Safety duplication • Regeneration • Informatics • Enhancing PGR value (chara & eval) • Upgrading • Conservation research • Pre-breeding	• NARS/farmer interactions • NARS/CGIAR interactions • Access to diversity • Participatory plant breeding • Active breeding • Training for breeders • Enhanced capacity/ networks	• Farmer interactions • In situ/on-farm conservation • Sustainable use of PGR • Information exchange • Access to/transfer of technology • Capacity building

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Trust's Eligibility Principles

- PGRFA are of crops included in Annex 1 or under Article 15 of the International Treaty on PGRFA
- PGRFA are accessible under terms of access and benefit sharing in accordance with the Treaty's Multilateral System
- Holder is committed to the long-term conservation and availability of the collections
- Holder undertakes to work in partnership with others to develop an efficient and effective global system

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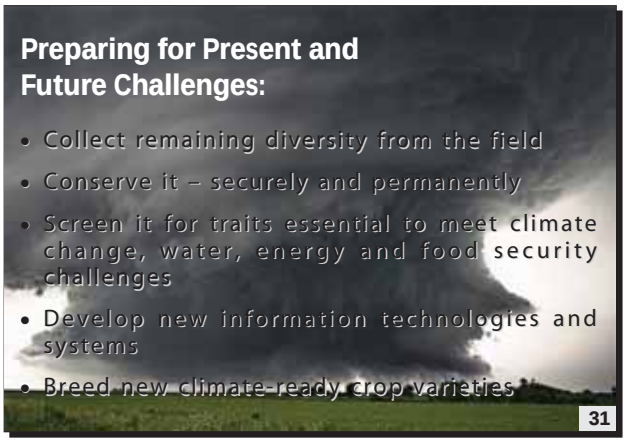
Global Coverage of Trust funded projects

30


Preparing for Present and Future Challenges:
• Collect remaining diversity from the field
• Conserve it – securely and permanently
• Screen it for traits essential to meet climate change, water, energy and food security challenges
• Develop new information technologies and systems
• Breed new climate-ready crop varieties
31


Thank you for your attention
www.croptrust.org
32

Experience of IRRI in Implementing the Multilateral System – An INGER Perspective –

Ed Redoña

Experience of IRRI in Implementing the Multilateral System – An INGER Perspective –

Ed Redoña
Senior Scientist and INGER Coordinator

1

Multilateral System

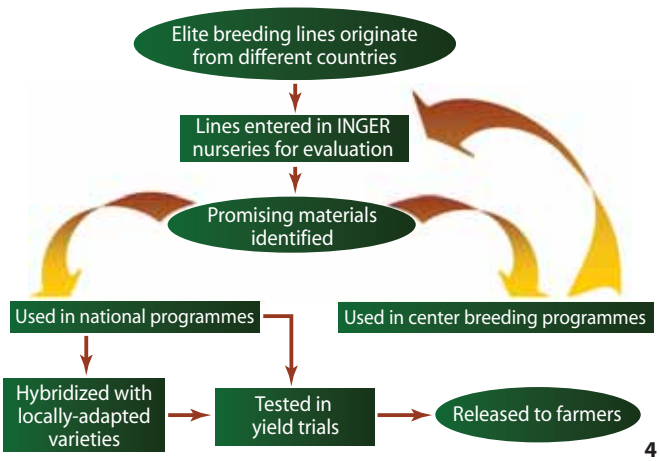
- 'Multilateralism' – an international relations term that refers to multiple countries working in concert
- ITPGRFA context: to facilitate access to PGRFA, and to share, in a fair & equitable way, the benefits arising from their utilization
  - All member countries agree to be bound by the same set of rules
  - Legally binding agreement between governments
- Single instrument governs germplasm transfers: Standard Material Transfer Agreement (SMTA)
  - Legally binding agreement between provider & recipient (individual/organization)
  - Rights & obligations specified
    - Recipient free to use the material fairly
    - Benefits to be shared fairly and equitably
    - Same conditions apply to subsequent recipients

2

INGER: Oldest MLS on Rice (1975) 85 countries

3

Primary Mechanism



4

Germplasm Exchange thru INGER

- Last 5 years:
  11 ecosystem-based & 9 stress-oriented nurseries conducted at 115 sites in 31 countries

	NURSERY	2006	2007	2008	2009	2010
Ecosystem based	INTERNATIONAL IRRIGATED RICE OBSERVATIONAL NURSERY (IIRON)	X	X	X	X	X
	INTERNATIONAL BORO RICE OBSERVATIONAL NURSERY (IRBON)	X	X	X		
	INTERNATIONAL NURSERY OF EXAMPLE VARIETIES FOR DISTINCTNESS, UNIFORMITY AND STABILITY TEST (INEVDUST)	X	X	X	X	
	INTERNATIONAL TEMPERATE RICE OBSERVATIONAL NURSERY (IRTON)	X	X	X	X	X
	INTERNATIONAL FINE GRAIN AROMATIC RICE OBSERVATIONAL NURSERY (IRFAON)	X	X	X	X	X
	INTERNATIONAL HYBRID RICE OBSERVATIONAL NURSERY (IRHON)	X				
	GREEN SUPER RICE (GSR) PROJECT					X
	INTERNATIONAL RAINFED LOWLAND RICE OBSERVATIONAL NURSERY (IRLON)	X	X	X	X	X
	INTERNATIONAL UPLAND RICE OBSERVATIONAL NURSERY (IURON)	X	X	X	X	X
	AEROBIC RICE (AERON)	X	X	X	X	X
	INTERNATIONAL RAINFED LOWLAND YIELD NURSERY – SUBMERGENCE SET (IRLYN-SS)				X	X
Stress-oriented	INTERNATIONAL COLD TOLERANCE NURSERY (IRCTN)		X		X	X
	INTERNATIONAL RICE BACTERIAL BLIGHT NURSERY (IRBBN)		X		X	X
	INTERNATIONAL RICE BLAST NURSERY (IRBN)	X		X		X
	INTERNATIONAL RICE BROWN PLANT HOPPER NURSERY (IRBPHN)		X		X	X
	INTERNATIONAL RICE DROUGHT TOLERANCE NURSERY (IRDTN)		X			
	INTERNATIONAL RICE HEAT TOLERANCE NURSERY (IRHTN)		X	X	X	X
	INTERNATIONAL RICE SOIL STRESS TOLERANCE NURSERY (IRSSTN)				X	X
	INTERNATIONAL RICE STEMBORER NURSERY (IRSBN)		X		X	
	INTERNATIONAL RICE TUNGRO NURSERY (IRTN)	X		X		X

5

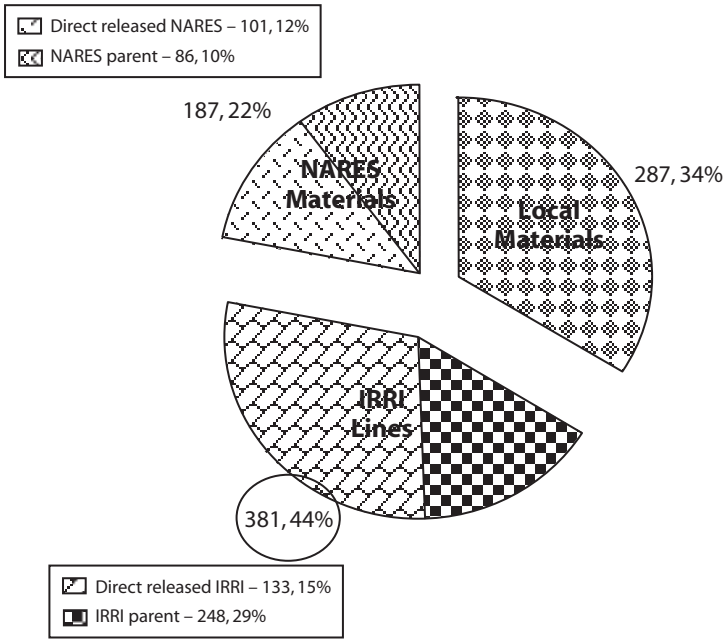
Varieties Directly Released thru INGER 2006-2010

Country	Year	INGER Entry Name	Released Variety Name	Pedigree
Bangladesh	2007	IR63307-4B-4-3	BRRI dhan 47	IR51511-B-B-34-B/TCCP266-2-49-B-B-3
Bhutan	2010	OR 367-SP 11	Wengkhar Raykaap 1	MAHSURI/IR 30
Bhutan	2010	IR 72102-3-115-1-3-2	Bhur Raykapp-1	IR 1561*2/O BARTHII//4*IR 64
Bhutan	2010	KARJAT-3	Bhur Raykaap 2	IR 36/KARJAT 35-3
Bhutan	2010	APO	Bhur Kambja 1	UPL RI 5/IR 12979-24-1 (BROWN)
Bhutan	2010	IR 70181-5-PM1-1-2-B-1	Bhur Kambja 2	IR 43524-55-1-3-2/IR 57519-PMI 5-B-2-2//IR 43487-11-2-3-2
Indonesia	2009	IR70213-9-CPA 12-UBN 2-1-3-1	Inpara 3	IR 57519-PMI 5-B-2-2/IR 52555-UBN 3-2-1//IR 43524-55-1-3-2
Indonesia	2009	IR730012-15-2-2-1	Inpari 8	IR 68064-18-1-1-2-2/IR 61979-138-1-3-2-2
Iran	2007	LD183 (IRSSTON92)	Donial	BW 300-6/IR 50
Myanmar	2005	RP 1674-690-39-14	Shwe Myanmar	M 63-83/IRAT 8
Myanmar	2005	PSBRc 68	Shwepyitan	IR 43581-57-3-3-6/IR 26940-20-3-3-3-1//KHAO DAWK MALI 105
Myanmar	2005	IR 53936-60-3-2-3-1	Sin Thwe Latt	IR 25912-30-2-3-2-3/IR 29723-143-3-2-1//IR 68
Myanmar	2007	B6149F-MR-7	Konemyint 4	ITA 117/B 1050 C-MR-18-2
Myanmar	2007	IR 55423-01	Yezin Yar-9	UPL RI 5/IR 12979-24-1 (BROWN)
Pakistan	2006	Taisen Yu 255	Fakhr-e-Malakand	IR 29/I GEO GEN//2*TAICHUNG SEN 10
Philippines	2006	IR78386H	NSIC Rc136H (Mestiso 7)	IR68897A/IR71604-4-1-4-4-4-2-2-2R
Philippines	2006	IR77298-5-6	NSIC Rc140 (Tubigan 6)	IR64/ADAY Sel//3*IR64
Philippines	2007	IR71137-243-2-2-3-3	NSIC Rc148 (Mabango 2)	IR44699-21-1-3-4/IR66438-167-3-3-2-3
Philippines	2007	IR77186-122-2-2-3	NSIC Rc158 (Tubigan 13)	IR73885-1-4-3-2-1-6/IR70479-45-2-3//IR64680-81-2-2-1-3
Philippines	2008	IR68333-R-R-B-22	NSIC Rc170 SR (MS 11)	JINMEBYEO/CHEOLWEON 46
Philippines	2008	IR68144-2B-2-2-3	NSIC Rc172 SR (MS 13)	IR72/ZAWA BONDAY
Philippines	2009	IR63307-4B-4-3	NSIC Rc182 (Salinas 1)	IR51511-B-B-34-B/TCCP266-2-49-B-B-3
Philippines	2009	IR74371-54-1-1	NSIC Rc192 (Sahod-ulan 1)	IR55419-4/WAY RAREM/IR55419-4
Philippines	2009	IR84194-139 (IR64 Sub1)	NSIC Rc194 (Submarino 1)	IR40931-33-1-3-2/3*IR64
Philippines	2009	IR83199H	NSIC Rc206H (Mestiso 21)	IR 73328 A/IR 60912-93-3-2-3-3 R
Philippines	2009	IR77495-10-2-6-2	NSIC Rc212 (Tubigan 15)	IR68077-82-2-2-2-3/IR59548-122-1-4-1
Philippines	2009	IR78566-1-2-1-2	NSIC Rc214 (Tubigan 16)	IR72890-70-2-3-3/IR57301-195-3-3

- 27 INGER entries directly released as varieties in 7 countries
- 21 of 27 (78%) are IRRI lines
- 24 of 27 (89%) have at least one IR line as parent

6

IRRI Contribution Based on Pedigrees 1975-2008



- 855 released varieties from 14 countries
- 44% direct & indirect IRRI contribution

7

MTAs IRRI Used Before the SMTA

Type of germplasm	What we do	Why we do it
Germplasm held in trust (FAO)	IRRI distributes small quantities of seed free on demand to anyone who accepts the terms and conditions of the FAO MTA.	This germplasm is not owned by IRRI. The Institute thru the Genetic Resources Center (GRC) holds it under the auspices of the FAO. IRRI conserves and distributes it as covered by an agreement with the FAO.
IRRI-developed seeds (IDS)	IRRI distributed small quantities of seed free on demand to anyone who accepts the terms and conditions of the IRRI MTA.	As breeders of this germplasm, IRRI is entitled to claim associated IP. In accordance with IRRI's mission, IDS shall be distributed freely without others claiming ownership.
Non-IRRI-developed seeds (NIS)	IRRI distributes seed subject to terms and conditions agreed with the germplasm owner, usually as set out in IRRI's "3rd party MTA" – non-IRRI-developed seed MTA	This germplasm is not owned by IRRI. Distribution is permissible only to the extent that it complies with the conditions set by the owner of the seeds as well as IRRI's policy and mission.
Germplasm not for distribution	IRRI does not distribute this germplasm.	This germplasm is not owned by IRRI. We must respect the conditions and rights of the germplasm owner.

8

SMTA Process Flowchart

Transfer arranged

Provider and Recipient
- Agree on list of materials to be transferred
- Agree to accept conditions of SMTA
- Negotiate additional conditions, if any, for PGRFA under Development

Provider
- Verifies that transfer with SMTA Is legally permitted for each sample to be transferred
- Identifies MLS ancestors of PGRFA under Development
- Prepares SMTA and, as required, phytosanitary certificate, export permit, and GMO declaration
- Prepares data, seeds, and shipment

Recipient
- Verifies that use will be only research, breeding, and training for food and agriculture
- Undertakes not to claim IPR that restrict access to the material provided
- If required, prepares and sends to provider an import permit to be attached to the shipment

Transfer
- ***Provider*** sends seed, providers all associated non-confidential data, files for report to Governing Body
- ***Recipient*** ensures compliance with national quarantine/import regulations, chooses between standard and alternative payments scheme

Recipient uses material for research, breeding, and training:
Recipient must make non-confidential information available to (as yet non-existent) information system

If Recipient sends sample of the material received to someone else.
Recipient now becomes Provider in a new SMTA

If Recipient sends pre-commercial breeding lines derived from the material received to someone else.
Recipient now becomes Provider (of PGRFA under Development) in a new SMTA

If Recipient commercializes a product and makes it available without restriction to others for further research and breeding, the product is no longer PGRFA under Development and is available with SMTA

If Recipient opts for alternative payments scheme: Recipient sends signed annex 4 to GB, immediately starts annual reporting and payment to the GB, with payment based on crop sales from date of SMTA

If Recipient did not opt for alternative payments scheme and commercializes a product that was developed from material received with SMTA and that is not available without restriction to others for further research and breeding:
Recipient must make payments annually to FAO amounting to 0.77 percent of sales of the product

http://shareportal/sites/sh/default.aspx

9

3 Ways of Accepting SMTA

- **Signed**

- Signed by authorized person
- Can be slow/bureaucratic

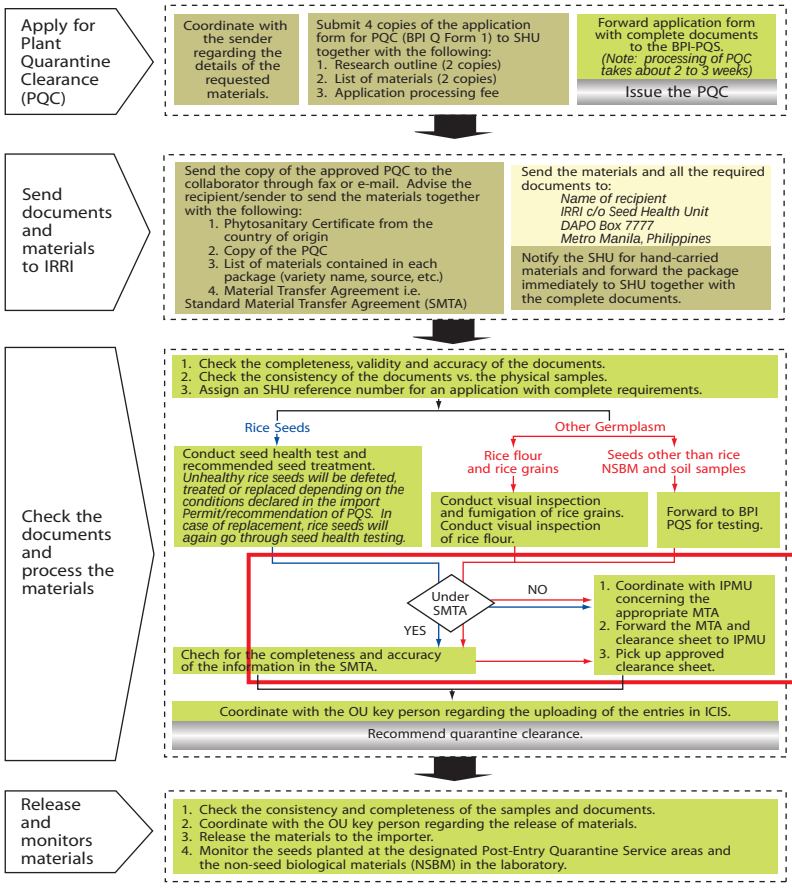
- **Click-wrap**

- Online ordering being developed
- Simple and quick

- **Shrink-wrap**

- Opening shipment constitute acceptance
- Verified by prior e-mail
- Fastest

10



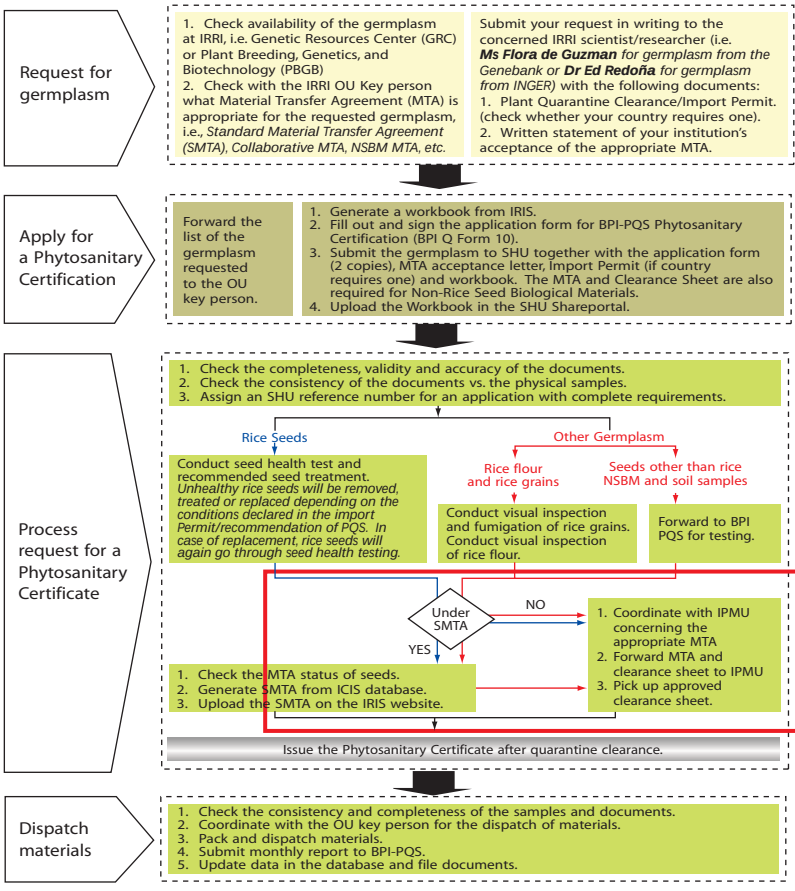
Getting Seeds TO IRRI:

IMPORT

- SMTA is obligatory for most germplasm from countries that are party to the Treaty
- Other countries are free to choose between SMTA and another MTA but they are encouraged to use the SMTA.
- A germplasm provider who chooses to use a different MTA must be asked by the receiving unit to provide justification for not using the SMTA and the IPMU office must be consulted for all shipments that are not covered by the SMTA.

Source:
http://shareportal/sites/sh/default.aspx

11



Getting Seeds FROM IRRI:

EXPORT

- An SMTA shall be used for all classes of *Oryza* germplasm-genebank accessions, breeding lines developed by IRRI, and other materials develop outside IRRI and sent to IRRI for joint research and redistribution such as INGER materials.
- In cases wherein the SMTA is not applicable or materials requested for other purposes, a modified Material Transfer Agreement (MTA) will be used and to be discussed with the Intellectual Property Management Unit (IPMU) for the terms and conditions of the MTA.

Source:
http://shareportal/sites/sh/default.aspx

12

IRRI's policy on distributing rice germplasm

Type of germplasm	What do we do?	Why?
Is the germplasm marked as MLS? **Yes**	IRRI distributes small quantities of seed free on demand to anyone who accepts the terms and conditions of the ***Standard MTA***	This germplasm is not ours. We hold it in trust for the benefit of the international community by agreement with the Governing Body of the Treaty, and we conserve and distribute it as specified in the agreement
No → Is the germplasm IRRI or INGER? **No**	IRRI does not distribute this germplasm	This germplasm is not ours. The owner of the germplasm has not permitted us to exchange the material. We must respect the wishes and rights of the germplasm owner.
Yes → Does the germplasm have known MLS ancestors? **Yes**	IRRI distributes small quantities of seed free on demand as PGRFA *under development* to anyone who accepts the terms and conditions of the ***Standard MTA***	This germplasm was developed by IRRI and/or its national partners in the INGER network. In the exercise of our discretionary rights under the Treaty, we distribute it with the SMTA as PGRFA under development.
No	IRRI distributes small quantities of seed free on demand to anyone who accepts the terms and conditions of the ***Standard MTA***	This germplasm was developed by IRRI and/or its national partners in the INGER network. In the exercise of our discretionary rights under the Treaty, we distribute it with the SMTA.

- **MLS germplasm** = Germplasm managed under the Multilateral System of the ***International Treaty on Plant Genetic resources for Food and Agriculture.*** For rice conserved in the genebank, this includes all accessions that used to be held under the auspices of the FAO. However, non-genebank lines are being added to the MLS, so this category now includes more than just the accessions from the genebank.
- **INGER germplasm** = Germplasm developed through the International Network for the Genetic Evaluation of Rice, the network of national rice breeding and research programmes coordinated by IRRI. One of its primary functions is to exchange germplasm of breeding lines and improved varieties for the purposes of international research trials and breeding.
- **IRRI germplasm** = Germplasm bred by IRRI scientists

Source: http://www.irri.org/GRC/requests/Distribution_policy.htm

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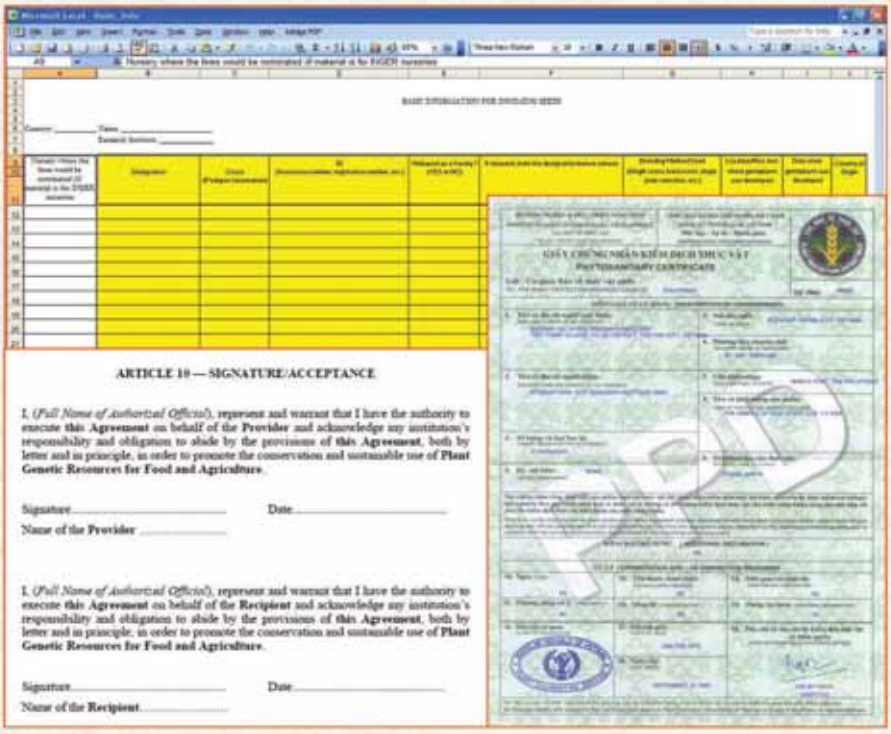
Simplifying Seed Exchange Procedures

- Sending Seeds to IRRI
  - Phytosanitary Certificate
  - SMTA
  - Incoming seed details
- Getting seeds from IRRI
  - Request Letter
  - Import Permit
  - Agreement to the SMTA



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Incoming and outgoing shipments and seedlots using the SMTA at IRRI (2007-2010)*

	2007		2008		2009		2010		TOTAL	
	Shipments	Seedlots	Shipments	Seedlots	Shipments	Seedlots	Shipments	Seedlots	Shipments	Seedlots
Incoming	26	2 883	62	7 409	58	7 021	24	4 912	170	14 191
Outgoing	470	44 496	581	58 909	673	82 726	491	67 913	2 215	254 044

- Outgoing: 95% of seedlots, 93% of shipments
- Increased outgoing shipments since 2007

Incoming and outgoing shipments using the SMTA by different units at IRRI (2007-2010)*

	CESD		GQNPC		INGER		PBGB		GRC		TOTAL	
	Shipments	Seedlots	Shipments	Seedlots	Shipments	Seedlots	Shipments	Seedlots	Shipments	Seedlots	Shipments	Seedlots
Incoming	17	1 344	42	2 208	53	1 798	55	7 204	3	1 637	170	14 191
Outgoing	84	2 546	163	5 101	495	116 783	837	91 991	636	37 623	2 215	254 044

- INGER + PBGB: 82% of seedlots; 60% of shipments
- Genebank accessions: 15% of seedlots; 29% of shipments

**As of September 1, 2010*

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Incoming and outgoing IRRI shipments using the SMTA by country (2007-2010)**

Country	Incoming	Outgoing
Afghanistan		2
Argentina		5
Australia	8	41
Austria	1	6
Bangladesh	7	77
Belgium		14
Belize		3
Benin	7	21
Bhutan		5
Bolivia		4
Brazil	1	8
Burundi		4
Cambodia		11
Canada		24
Chile		9
China	16	283
Chinese Taipei (Taiwan)		28
Colombia	7	13
Cuba		3
Czech Republic		6
Denmark		6
East Timor	1	
Ecuador		1
Egypt	2	18
Ethiopia		7
Fiji		2
France	3	38
Gambia		5
Germany	2	49
Ghana		6
Guinea		2
Guyana		3
Hong Kong		1
Hungary		2

Country	Incoming	Outgoing
India	9	263
Indonesia	13	44
Iran	3	
Iran, Islamic Republic of		42
Iraq		4
Israel		1
Italy		11
Japan	1	94
Kenya		3
Korea, Democratic People's Republic of		14
Korea, Republic of	11	31
Lao People's Democratic Republic		25
Laos	12	
Malawi		3
Malaysia	3	24
Mauritius		4
Mozambique		23
Myanmar	2	24
Nepal	4	35
Netherlands	1	20
New Caledonia		2
New Zealand		3
Nigeria		13
Norway		1
Pakistan	6	43
Papua New Guinea		3
Paraguay		1
Peru		3
Philippines	26	356
Portugal	1	10

Country	Incoming	Outgoing
Romania		1
Russia	2	
Russian Federation		6
Rwanda		2
Senegal	3	20
Sierra Leone		1
Singapore		2
Solomon Islands		2
Spain		13
Sri Lanka	1	19
Sudan		1
Suriname		6
Sweden		1
Switzerland		6
Tajikistan		1
Tanzania, United Republic of		19
Thailand	3	30
Turkey	3	9
Uganda	1	4
United Kingdom	1	62
United States		130
Uruguay		6
USA	2	
Uzbekistan	1	5
Venezuela		8
Viet Nam		53
Viet Nam	6	
Zambia		1
TOTAL*	**170**	**2 215**

- Total of 93 countries
- 7% incoming

***As of September 1, 2010*

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IRRI's portal for the SMTA (http://www.iris.irri.org/smta/)

Summary of all shipments of germplasm sent by IRRI under the SMTA since 2007

SMTA Full text

List of entries shipped from IRRI under SMTA

Other information available in the portal:

- SMTA Date
- SMTA full text
- Recipient of IRRI materials
- Country where IRRI materials were sent
- Number of samples per shipment
- List of all entries per shipment

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Self-study course on TRANSFER of PGRFA (Plant Genetic Resources for Food and Agriculture) – http://www.knowledgebank.irri.org/smta/

Also available in CD format.

This online self-study guide was designed to help researchers better understand the intellectual property rights and phytosanitary issues involved when moving rice germplasm to or from IRRI. It aims to avoid breaches of legislation when germplasm is exchanged.

It contains the following modules:

- Procedures for moving rice PGRFA
- Intellectual Property Rights and PGRFA Exchange
- Importance of Seed Health in PGRFA Exchange

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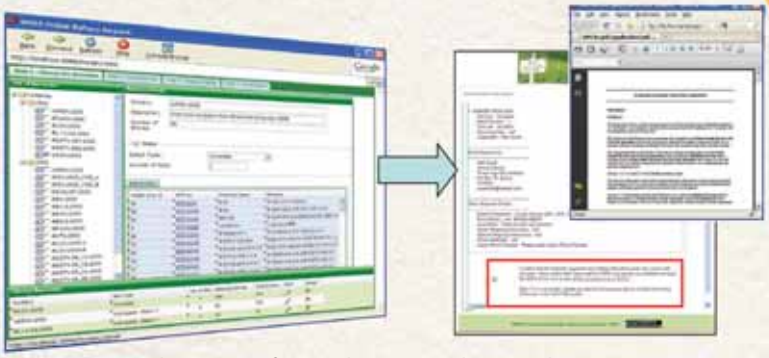
Online germplasm ordering system



- Development of an online germplasm ordering system is underway for INGER nursery requests
- ITPGRFA-compliant

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Enhancing SMTA Awareness@INGER

- Training Courses at IRRI
- Online learning modules/ CD
- Briefings
  - All India Cooperative Rice Improvement Programme
  - IRRI-Indonesia Workplan Meeting
  - Temperate Rice Research Consortium
  - China National Rice Research Institute
  - Thailand Department of Rice
  - UPOV Asian Regional Technical Meeting for Plant Variety Protection in Malaysia
  - INGER Technical Advisory Committee Meeting etc.

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Issues

- Some requesters (e.g. farmers) not familiar with the SMTA; worried about associated costs
- Delays in SMTA acceptance due to bureaucracy/hesitancy in some countries
- Restrictions in distributing pre-SMTA materials
- Individuals not authorized to sign by their institutions even in party countries
- SMTA per request vs. blanket SMTAs to cover all present/future requests

Needs

- Increased ITPGRFA/SMTA understanding among key players (e.g benefit sharing; PGRFA vs. Farmers rights-, PVP-, IP-, Biodiversity-related laws)
- Integration of databases (e.g. traceability of SMTA-covered germplasm)
- Online seed ordering systems (need for examples)
- Training and implementation support
- Policy maker-sensitization to facilitate PGRFA exchanges

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Workshop on International Treaty on Plant Genetic Resources for Food and Agriculture – Summary of perspectives from participants

9 and 10 September 2010
Chiang Mai (Thailand)

Below is a summary of the discussions that were held in the working groups on the implementation of the *Multilateral System*.

- The majority of the countries have raised awareness campaigns and training workshops on the importance and implementation of the Multilateral System. Still there remains a need to promote activities with regards to the benefits derived from the MLS and the participants to the workshop suggested that guidelines should be prepared by the Treaty Secretariat for better understanding of the strategic importance of this topic.

- Only a few countries have some policies, legal and/or administrative measures to include genetic materials in the Multilateral System. It was suggested that a legal framework be developed at the national level as a pre-condition of implementing the MLS. To further strengthen the system, the public and private sector needs to be encouraged to put materials into MLS.

- There are national networks and organizations which have the responsibility to coordinate the inclusion of material in the Multilateral System and to sign the SMTA. National Information System Mechanisms are now in place in most countries in the Asian region and they represent a good source of information.

- The MLS is yet to be properly implemented. For this purpose awareness campaigns and confidence measures need to be undertaken. It is suggested that FAO representative in each member country may be asked to strengthen these activities in collaboration with National Focal Point of the Treaty.

Below is a summary of the discussions that were held in the working groups on the implementation of the *Funding Strategy of the Treaty*.

1. National Programmes and Funds

- Many countries have some national programmes but not directly aimed at the implementation of the ITPGRFA. Appropriate measures of ensuring due priority to the effective allocation of financial resources for the implementation of plans and programmes under the International Treaty (IT) should be encouraged. In the short-term specific budget and funds may be a solution for the implementation of the main topics of the IT.

For the time being, national and local governments, have few available funds for PGRFA

2. The dissemination of the Call for Proposals of the Treaty Benefit-sharing Fund

- There are communications and exchange of information on the BSF of the IT through the regional networks, such as RECSEA-PGR (Regional Co-operation in Southeast Asia for Plant Genetic Resources), TF-NET (Tropical Fruit Network), EA-PGR (East Asia Network

on PGR) and FAO regional office. The principal authority involved is the Ministry of Agriculture but a major coordination among different ministries (Agriculture, Environment and Foreign Affairs) might be a first step for raising awareness about the IT. The participants underlined the role of the National Focal Point and that person needs to receive support from the IT Secretariat.

- The participants indicated that the dissemination of the information is the key to underlining the strategic importance of the IT and that, in order to spread the information to all potential interested people, websites and stakeholders' networking should be used, in particular the National Information Sharing Mechanism project.

ANNEX 1
Second Nation Focal Point Meeting GCP/RAS/240/JPN,
Asian Consultation on updating the Global Plan of Action and
International Treaty on PGRFA Workshop
Chiang Mai, Thailand
6-10 September 2010

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(** Participant that only attended ITPGRFA workshop)

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National Information Sharing Mechanism


National Information Sharing Mechanism
What's the National Mechanism and what information does it focus on?
What is the Mechanism useful for?
What instruments does the Mechanism use?
How does it operate?
Who can participate into the Mechanism and how?


NATIONAL INFORMATION SHARING MECHANISM
on PLANT GENETIC RESOURCES for FOOD and AGRICULTURE
in the PHILIPPINES
INTRODUCTION
What's the National Mechanism and what information does it focus on?


National Information Sharing Mechanism


What's the National Mechanism?
What's New
National Links
International Links