SADC Plant Genetic Resources Centre (SPGRC)

SPGRC/NPGRCs Annual Technical Review and Planning Meeting Report

Lusaka, Zambia
September 2011

Acronyms

ADP	Agricultural Development Project, Malawi
ARC	Agricultural Research Council, South Africa
BBTV	Banana Bunchy-Top Virus
CACESA	Cassava Central, Eastern and Southern Africa (Project)
CICOD	Circle for Integrated Community Development, Malawi
CIMMYT	International Maize and Wheat Improvement Centre
COSPE	Cooperazione per lo Sviluppo dei Paesi Emergenti (Cooperation for the Development of Emerging Countries), Italy
CTDT	Community Technology Development Trust, Zimbabwe
DAFF	Department of Agriculture, Forestry and Fisheries, South Africa
DAR	Department of Agricultural Research
DRC	Democratic Republic of Congo
EPA	Extension Planning Area, Malawi
FAO	Food and Agriculture Organisation
GCDT	Global Crop Diversity Trust
GEF	Global Environmental Facility
GIS	Geographic Information System
GPS	Global Positioning System
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IBPC	Interim Bio-prospecting Committee, Namibia
IFAD	International Fund for Agricultural Development
IIAM	Instituto de Investigação Agrária de Moçambique (Agricultural Research Institute of Mozambique)
INERA	Institut National pour l'Etude et la Recherche Agronomique (National Agricultural Research Institute), DRC
IOC	Indian Ocean Commission
IPGRI	International Plant Genetic Resources Institute (now Bioversity)
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
JICA	Japanese International Cooperation Agency
LUSIP	Lower Usuthu Small-holder Irrigation Project
MACO	Ministry of Agriculture and Cooperatives, Zambia
MSBP	Millennium Seed Bank Project
NAIST	Nara Institute of Science and Technology, Japan
NBRI	National Botanical Research Institute, Namibia
NEPAD	New Partnership for Africa's Development
NGO	Non Governmental Organisation
NordGen	Nordic Gene Bank
NPGRC	National Plant Genetic Resources Centre
NPGRCom	National Plant Genetic Resources Committee
NTSYSpc	Numerical Taxonomy SYStem for personal computer
PGR	Plant Genetic Resources
PGRFA	Plant Genetic Resources for Food and Agriculture
RTC	Regional Training Centre, Malawi
SAA	Seychelles Development Agency
SADC	Southern African Development Community
SANBio	Southern African Network for BioSciences
SDIS	SPGRC Documentation and Information System
SPGRC	SADC Plant Genetic Resources Centre
SPO	Senior Programme Officer, SPGRC
UNDP	United Natyions Development Programme
UPS	Uninterruptible Power Supply
ZARI	Zambia Agricultural Research Institute

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Report of SPGRC/NPGRCs Technical Review and Planning Meeting, 5th – 9th September 2011, Lusaka, Zambia

1. Objectives

The SPGRC/NPGRCs Annual Technical Review and Planning meeting was held in Lusaka, Zambia with the objective to:

- review the implementation of the technical activities for 2010/2011 cropping season;
- evaluate the technical and budgetary plans for the 2011/2012 cropping season; and
- facilitate information sharing on any other technical and networking issues.

In addition to the routine discussions and deliberations on conventional SPGRC network activities, the meeting also discussed draft report of the PGR policy through a project funded by the Southern African Network for Biosciences (SANBio) as well as on FAO activities in the southern African region, focusing on potential collaboration programmes.

2. Attendance

In attendance were forty three (43) participants from NPGRCs, SPGRC, FAO, SANBio, NordGen/Sida and invited consultants. All SADC countries except Mauritius were represented.

3. Programme

The meeting was held at the Protea Hotel – Cairo Road, Lusaka from 5th to 9th September 2011 with the first 2½ days being dedicated to purely core network activities, followed by 1½ days set aside for presentation and discussions of the regional PGR policy guidelines. The last day dealt with issues of FAO activities in the region including seeds and biotechnology and in the general management of PGRFA.

A detailed meeting programme is found in Appendix I.

4. Opening Ceremony

The meeting was called to order by the Session Chair at around 09:10 by welcoming all participants to this year's annual technical review and planning meeting with the hope that they will enjoy their stay in Lusaka and have fruitful discussions and deliberations. He also invited the cooperating partners including FAO, SANBio and NordGen/Sida representatives.

He announced the logistics by directing where the SPGRC Secretariat was in the Hotel and asked participants to hand in any claim forms so that they are processed in time.

4.1 Welcome Address by Head of SPGRC

The Head welcomed the participants to the meeting hoping that they had had rested following long travel from their respective countries. He apologized for not having translation facilities (into French and Portuguese) because they could not be made available through the SADC Secretariat as promised last year. He promised that all will be done to get the facilities in future. He thanked FAO for generously agreeing to fund this year's meeting which could have otherwise proven difficult to hold.

The Head outlined some of the major achievements scored during the reporting time. These include successful training of network scientists in Information Technology and in server management in 2010; implementation of the SANBio policy guidelines project; close collaboration with FAO which culminated into the later funding this meeting; SPGRC senior officers successful backstopping NPGRCs. He also informed the meeting that SPGRC was discussed as an agenda item during the last (June 2011) SADC Ministers responsible for food agriculture and natural resources, who re-affirmed their commitment to support the network.

The Head informed the meeting that money that was promised last year by Sida (*in lieu* of constructing biotechnology laboratory at SPGRC) could not be secured and this has affected

anticipated procurement of vehicles and generators for needful NPGRCs as well as other facilities and consumables.

He reminded participants that SPGRC is required to submit a 5th Phase Project completion report and that a questionnaire was circulated to NPGRCs to collect information for this purpose. There was very little feedback from NPGRC and he urged all those who have not responded to do so as soon as possible.

4.2 Welcome Remarks by FAO Representative

The representative from the FAO - Southern Africa Sub Regional Office (FAOSFS), Dr Joyce Mulila-Mitti thanked SPGRC for inviting FAO to be present and share at this meeting.

She indicated that FAO was looking forward to a long term working relationship with SPGRC and NPGRCs as FAO also believed that PGR conservation and sustainable utilization is the basis for improved crop production. She then mentioned that FAO was looking at the whole spectrum of PGR conservation, utilization and seed systems

Ms Mulila-Mitti highlighted initiatives by the FAOSFS that could be tapped into by SPGRC network and NPGRCs. She expressed her wish for more resources being availed in support of SPGRC network. She finally thanked the network members for their commitment to PGR conservation activities.

4.3 Remarks by SANBio Representative

The Chair announced that the SANBio representative was not yet in but promised that he/she will be given opportunity to greet the audience at a later opportune time

4.4 Programme and Logistics Announcements

The Session Chair made logistical announcements regarding the filling and submission of registration forms, about the complementary availability of Internet at the hotel, and that before the morning tea break a group photo will be shot by the hotel front.

5. Matters Arising from the Last (2010) Meeting

5.1 SDIS Updates

Concern was raised by SPGRC that very few SDIS updates were received. Countries were asked to send updates so that the database can be updated.

Action: Still very few countries sent in their SDIS updates and those that have not sent are being asked to submit

5.2 Publications

Angola, Mauritius, Mozambique and Swaziland were earmarked and requested for articles for the Networks newsletter.

Action: This, not barring other countries to submit articles for the newsletter, SPGRC received article from South Africa and Swaziland (incomplete).

Reaction from the Floor:

- First, There was an agreement that a Publications committee be formed to help with the editorial works. In response, SPO – Documentation said the Committee was formed and their ToRs and budget were done which await Board's approval. However, he reminded participants that in preparation for the work of the Committee, he had requested for publications (mainly theses, dissertations, and others by network scientists) from NPGRCs through the Curators and to this moment none has been submitted;
- Secondly, the floor asked as to why it has taken so long to have the newsletter published. The SPO – Documentation response was that no articles have been received for publishing and only recently (a month ago) that one article was received from South

Africa. He requested scientists to send in their articles for publishing in the newsletter.

5.3 Guiding Document for SDIS Use

A request was made to have a guiding document for use in SDIS and the response was that a manual exists needs updating.

Action: SPGRC updated the manual though not thoroughly because it was in anticipation of launching the new web-based system that would have a slightly different manual.

5.4 Dispatch of Regeneration Project (GCDT) Materials to Svalbard

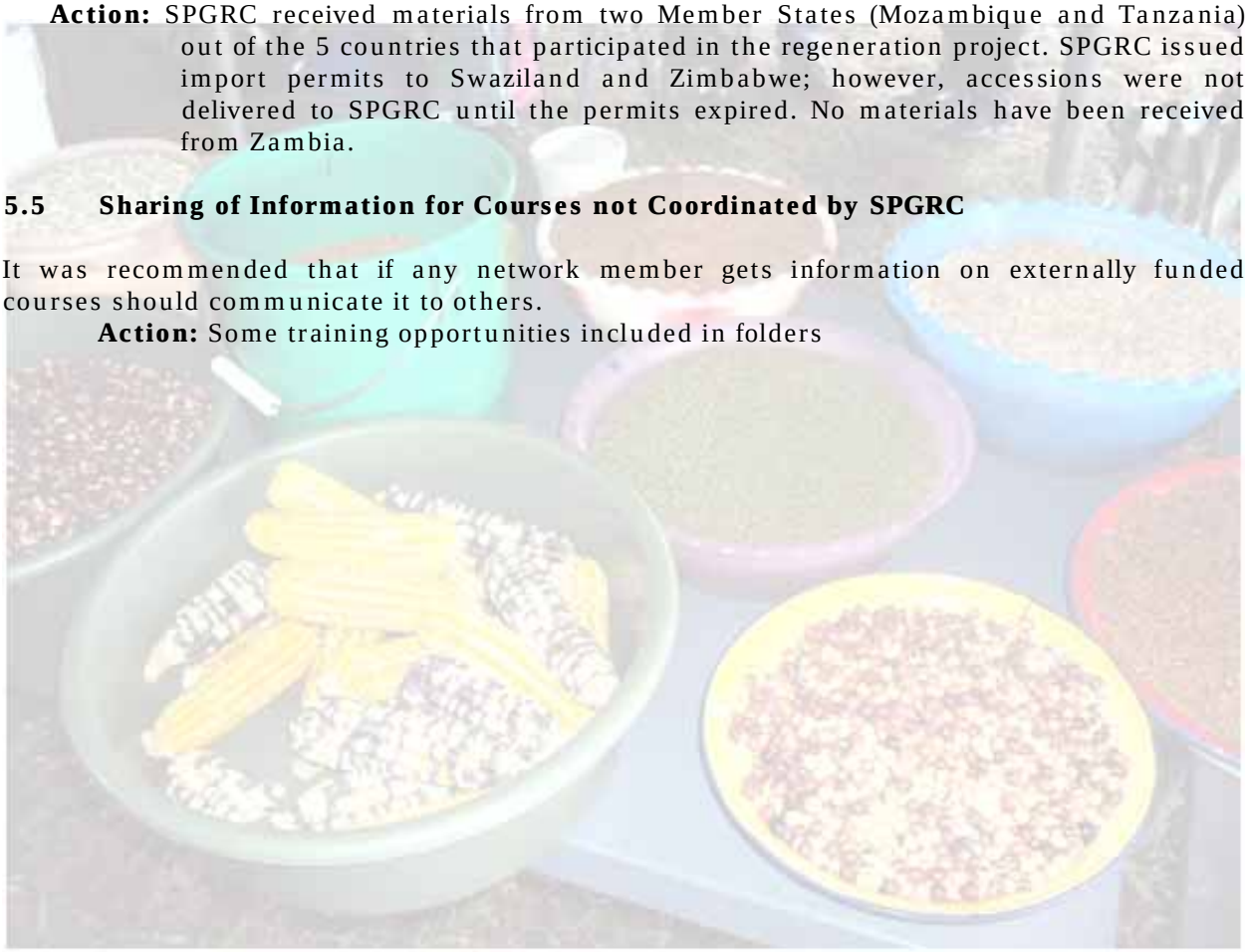
It was agreed that Member States send materials to SPGRC and SPGRC will dispatch them to Svalbard.

Action: SPGRC received materials from two Member States (Mozambique and Tanzania) out of the 5 countries that participated in the regeneration project. SPGRC issued import permits to Swaziland and Zimbabwe; however, accessions were not delivered to SPGRC until the permits expired. No materials have been received from Zambia.

5.5 Sharing of Information for Courses not Coordinated by SPGRC

It was recommended that if any network member gets information on externally funded courses should communicate it to others.

Action: Some training opportunities included in folders



6. NPGRC PROGRESS REPORTS

Angola

General

(i) Introduction

Angola NPGRC has been actively working on conservation activities including collection, multiplication and characterisation of germoplasm. The centre is encouraging small scale farmers to manage the local varieties of food crops in their original habitat as a contribution to the food security for the population.

(ii) Staffing

Mrs. Domingas Tomás is still studying in Brazil since March 2010. Dr. Pedro Moçambique has finished his PhD in Brazil in October 2010 and has rejoined the NPGRC.

(iii) National Plant Genetic Resources Committee (NPGRCom)

The NPGRCom met once in March 2011 with the objective of discussing the itens related with the International Treaty of PGR such as farmer's rights, the compliment of ITPGR articles, the equitative and benefit sharing funds and financial problems. There is no change in the institutions that are members of Angolan NPGRCom.

(iv) Training, Workshops and Meetings

- Mrs. Domingas Tomás is still on study leave for her Masters degree at University of Santa Catarina, Brazil. She is expected to finish December 2011.
- Mrs. Elizabeth Matos, Dra. Antonieta Coelho and Dr. Pedro Moçambique attended the 4th session of the Governative Body of ITPGRFA in Bali, Indonesia from 14th to 18th March 2011.
- Mrs. Elizabeth Matos, Dr. Pedro Moçambique from NPGRC, Mr. Dibanzilua Nginamau from Agriculture Research Institute and Mrs. Nilsa Silva from Ministry of Agriculture, Rural Development and Fisheries attended the FAO meeting in Rome, Italy from 14th to 22nd July 2011.

(v) Equipment, Supplies and Facilities

The Centre reported of a Nissan Terrano II being in a reasonable working order for use in town; whereas, 1 Toyota Hilux, is in excellent working order and used only for collecting missions.The NPGRC received a new 4x4 vehicle through funding by the Government.

It also acquired 4 new vertical freezers, making a total of 42 freezers that are all functioning properly. It has five desktops computers, three notebooks, five printers, and a photocopier that are functioning properly. The first "Termaks" dryer received from SPGRC is not working and appears to be beyond repair. The second one requires technical repairs. The "Termo kyl" dryer received from Global Crop Diversity Trust is working well. In addition, the NPGRC has two working sealers and a functioning scientific germinator.

(vii) Requirements

The Centre is in requirement of 500 large, 1,000 medium and 2,000 small size laminated foil bags, as well as 1000 large pollination bags.

(vi) Constraints

It is becoming progressively more difficult and slower to obtain necessary reagents for the molecular characterisation laboratory and it is virtually impossible to recruit staff for NPGRC. However, the difficulty in establishing an experimental field previously reported now been overcome as NPGRC has been granted 2 ha of land at the new University Campus site and funds for its establishment released.

Technical Progress Reports

(i) *Ex-Situ* Conservation

Conservation
After this year's collections of more than 245 accessions, leads to the current holding of accessions in the active collection into 3,670 including the last collections made this year in March and June. There are still plans to collect more in remaining areas of Kwanza Norte, Lunda Norte, Lunda Sul and Moxico provinces.

In 2010/11, the NPGRC sent to the base 140 accessions that include 47 maize, 33 common beans, 23 bambara nuts, 5 sorghums, and 14 groundnuts.

Regeneration and Multiplication
During the year under review, multiplied 13 bambara and 6 okra accessions.

(ii) Field Genebank Maintenance

The Centre maintains field banks in the Agricultural Research Stations of Malange and Mazozo (root and tuber crops), Benguela (fruits – mango, banana), and Huambo, Kwanza Sul and Uige (coffee).

(iii) Utilisation of Plant Genetic Resources

NPGRC distributed 36 accessions of maize, 25 accessions of cowpea and 24 accessions of common bean for molecular characterisation purpose of a final thesis of three students. The principal requests for this material was from the Science Faculty.

(iv) Germplasm Collection

During the period 2010-2011 the Angola PGR Centre organised three collection missions to Huambo, Huíla and Cunene at the beginning of March and June. 245 accessions were collected and brought to the Centre.

A total of 3,670 accessions is conserved in the active collection of Angola genebank.

(v) Documentation and Information

The SDIS is working very well and NPGRC ensures that back up is made very often as soon as new data is added to the system. The Diva-GIS version 7.1 is still in use to produce maps for location sites of the material collected. The server for online communication between Angola NPGRC and the rest of the regional network is not functioning because of the erratic energy supply in Luanda and frequent changes between town supply and generator.

Botswana

General

(i) Staffing

The staffing for the NPGRC remained without change from the previous reporting last year.

(ii) National Plant Genetic Resources Committee (NPGRCom)

One Committee meeting was held, to sensitize about the seed fair activity.

(iii) Training, Workshops, Courses and Meetings

Both Mr Gwafila and Ms Molefe attended the SDIS, Diva-GIS and NTSYSpc training course that were held in Pretoria, South Africa in November/December 2010. The two also participated in the stakeholders' consultative meeting for the development of Regional Plant Genetic Resources Policy held in Pretioria in April 2011.

(iv) Visits

The Centre was privileged to be visited by a number of dignitaries, including a courtesy visit by H.E. the President of Malawi, Prof. Bingu wa Mutharika. It was also visited by the SADFC Ministers for Agriculture and Natural Resources to see the facilities.

It was also visited by Japanese researchers (NAIST and JICA) who were on a mission to kick-start a jatropha biodiesel project; Cecilia Amusso from the University of Italy on developing germination protocol for wild plants species mission; and by a number of pupils from Lesirane primary school to learn on PGR conservation.

(v) Equipment, Supplies and Facilities

The NPGRC has maintained two types of storage facilities: 10 upright freezers and a cold room all of which are functioning well. While the drier room and two has been condemned obsolete. The germinator, seed counter and seed grinder are still in good working condition. The newly received database server is in place but not yet installed. The NPGRC received a new desktop computer through Government resources.

(vi) Requirements

The NPGRC is need of support for installation of the database server. It also needs a standby generator, germination trays, aluminium foil bags, irrigation facilities, and a label printer.

(vii) Constraints

The NPGRC has continued succumbing to the shortage of qualified staff as well as lack of funds for short and long courses training for gene bank staff.

Technical Activities

(i) Conservation

The genebank now has 6,000 accessions in the active out of which, 5230 are cultivated species and the remaining 770 species are wild plants. Seed samples are conserved in the freezers at -20^0 C and cold room at -5^0 C.

(ii) Regeneration and Multiplication

The Centre multiplied/regenerated a total 130 accessions that were harvested out of the 150 planted. These include of sorghum (50), tepary beans (10), bambara nuts (60), water melon (5), bottle gourd (3), cowpea (2). Five pumpkin accessions were planted but none was harvested..

(iii) Characterization of Bambara

Twenty five (25) accessions bambara groundnuts were planted in December 2010 at Sebele Research Station and characterization of for both quantitative and qualitative data were recorded. Characterisation data for the trial was subjected to cluster analysis using the NTSYSpc.

Problems experienced with the characterization included stalk borer that were controlled by

spraying with cypermethrin; whereas, quelea quelea birds which seriously damaged the pollination bags were controlled by scaring.

(iv) *In-situ*/On-farm

In the year being reported, a seed fair was held in order to provide a platform for displaying indigenous varieties by farmers and a forum for the national plant genetic to assess diversity amongst farmer's varieties. Materials conserved at the genebank in Sebele were displayed for farmers to access and at the same time provide a forum for exchange of landraces and provide information on their merits and demerits.

The seed fair was held in Serowe village, 300 Km north of the capital city Gaborone. Farmers will exhibit seed of various crops they have in store. 23 accessions of 6 cultivated species were collected at the Agricultural Show from Farmer's exhibits.

(v) Utilization

The Legume Improvement Programme of DAR requested 10 accessions of local cowpeas for evaluation trials; Botswana College of Agriculture (BCA) requested 11 cowpea accessions for evaluation resistance/tolerance against cowpea seed beetle. The Swedish University of Agricultural Sciences requested 52 accessions of sorghum for academic purposes.

(vi) Documentation and Information

There are 3,356 accessions registered in the main registers, and 1,554 accessions are in the active collection. The Centre has now characterisation data for 81 groundnuts accessions.

A groundnuts catalogue was compiled from the previous characterisation data and it has been submitted to the stakeholders for edition for the second time. The printed catalogue will be availed to SPGRC before end of December 2011.

Democratic Republic of Congo (DRC)

(i) Introduction

The National Plant Genetic Resources is cross-cutting program that deals with all species and thematic programmes in DR Congo. Genetic resources are *in-situ* and *ex-situ* species collected or developed by thematic programmes.

The bottleneck remains on conservation of these genetic resources and availability of adequate facilities and equipment.

(ii) National Plant Genetic Resources Committee (NPGRCom)

The NPGRCom which is now formal comprises of participants from three Ministries: Ministry of Agriculture (Chair), Ministry of Research (Implementation), and Ministry of Environment and Tourism.

(iii) Staffing

The staff is composed of Prof Mbikayi Nkonko, Mr Ramazani Lumbe, at INERA's Headquater which coordinates all research centres and stations. Considering difficult to reach all, at present they collaborate only with Mvuazi Centre that has staff in the INERA's National Plant Genetic Programme.

(iv) Training, Workshops, Meetings

Mr. Mbikayi Nkonko and Mr. Ramazani Lumbe attended a short training course in Information Technology (SDIS, GIS, NTSYSpc) held Pretoria, South Africa in November 2010.

(v) Facilities and Equipment

The last year's (2010) meeting promised an opportunity for DR Congo to claim its equipment and facilities which has unfortunately, until today, not been received through the NordGen/Sida funding.

(vi) Constraints

Having not participated in SPGRC network activities has kept DRC with insufficient funding and without reliable communication, transportation as well as Internet access between centres/stations, Head office and other SADC network members, i.e. NPGRCs.

The dilapidated infrastructure of the designate genebank needs massive renovations. It will also need to have its documentation and information system installed and used after some initial training

(vii) Germplasm Conservation and Collection

There are a number of constraints being faced by INERA which include lack of inventory of collections, loss of PGR especially in stations that are not functioning and in eastern region where there was war, degeneration of seeds, lack for equipment to conserve and preserve seeds (genebank, freezers, *etc*.), difficulty in conserving root plants; lack of manpower and basic documentation.

The DR Congo is therefore proposing that an evaluation be conducted on abandoned research stations to ascertain availability of collected germplasm materials which an must be inventoried and eventually transfer duplicate INERA's germplasm to SPGRC for base conservation.

DR Congo is also interesting in prospecting and collecting fruits and traditional crops amongst others.

Lesotho

General

(i) Introduction

This was another very difficult year for the Lesotho National Plant Genetic Resources Centre (LNPGRC) due to inadequate government budget, which was exacerbated by lack of external funding. On the other hand field activities were unsuccessful due to unfavorable weather conditions including the wet weather and the early frost.

(ii) NPGRC Staff

The staffing situation has not changed from last year. There are five officers in total including the NPGRC Curator, In-situ officer, the Documentation and Information officer, Laboratory technologist and technical research officer. Support staff includes two field attendants bringing the total number of staff at the NPGRC to seven.

(iii) National Plant Genetic Resources Committee (NPGRCom)

The Lesotho NPGR committee comprises of 12 members with a representation of the Ministry of Agriculture and Food Security, Forestry and Land Reclamation, The National University of Lesotho, Non Governmental Organizations, Farmers, the National Plant Genetic Resources Centre and the Department of Agricultural Research as the Secretary and the Chair person

respectively. No committee meetings were held due to lack of funds.

(iv) Training, Workshops, Meetings

The Curator attended the SPGRC/SANBio training on policy development in South Africa and the NEPAD/SANBio training workshop on technology transfer held in Livingstone, Zambia in July, 2011. The Curator and the *In – situ* officer attended the stakeholders consultative workshop held in South Africa in April 2011. The Curator attended a meeting on exploring strategic priorities for regional agricultural research and development in South Africa in February, 2011.

(v) Equipment and Facilities

The NPGRC building has eleven rooms including four offices, seed storage room for active collection, receiving/ temporary seed storage room, a seed processing and drying room, a storage room for the NPGRC equipment and tools, a kitchen, ladies and gents rooms.

Freezers x 12, Seed drying cabinet, Precision weighing balance, Aluminium bag sealer, Computer, Altimeter, Seed grinder, Camping equipment, GPS , Photocopier, vehicle, printer for labels, camera and moisture analyzer. Equipment procured during the current year include a non - destructive moisture analyzer.

More power cuts are recently experienced at the main research station leaving the material in active storage at the risk of losing viability. The need for a stand by generator has even increased to ensure safety of material currently conserved in the seed gene bank.

Technical Activities

***(i)* *Ex-situ* Conservation**

The total number of accessions that are currently maintained in cold/active storage is 1,372. A number of factors have contributed to this low number including delayed completion of the NPGRC building as a result of which the seed drier could not be installed and frequent power cuts that interrupted the drying process.

***(ii)* Multiplication and Characterization**

Funds requested from SPGRC were not received. In the absence of external funding the site was changed to an easily accessible research station and the proposed number of accessions for multiplication and characterization was reduced to 110 sorghum accessions and one accession of sweet reed given the very limited government budget. The activity was however not successful due to excessive rains that resulted in poor crop stand, left the crop stunted, yellowish and weak due to delayed weeding.

This activity also suffered the consequences of early frost just prior to seed maturity hence the few accessions that had survived the wet weather were hardly hit by frost. No accessions were therefore brought to SPGRC for base collection.

***(iii)* Field Gene Bank Maintenance**

No new species were collected. However the medicinal plants field gene bank established at the main research station is recovering from last year's burning by the wild fire.

***(iv)* *In-situ*/On farm**

In situ conservation: Establishment of the wild plants community conservation gardens is still a major challenge due to lack of commitment by communities.

On- farm conservation: The activity was not pursued because of the unfavourable weather

conditions.

(v) **Germplasm collection**

64 seed samples of wild species including 20 different species were collected in Mokhotlong at Polihali catchment. Overgrazing, wide variation of maturity and the difficult terrain were major constraints.

(vi) **Documentation and Information**

The SDIS database still runs smoothly. Activities undertaken include updating of the country profile, active collection module, germplasm collection module and updating SDIS with SPGRC Numbers for accessions duplicated at SPGRC. DIVA-GIS programme was used to map sites for 2009 collection expeditions. Lack of power at the Department was the main constraint resulting in no access to the internet and virus infection.

The linux server is still not connected.

(vii) **Achievements and Constraints**

- Power cuts at the department are a serious constraint which has resulted in seed backlog in the gene bank, slowed down data entry in the SDIS
- Unfavourable weather conditions had a negative impact on field activities
- Lack of awareness campaigns and local legal frameworks on pgr conservation and utilization.

(viii) **Requirements**

The NPGRC requests for a germinator, a laptop, colour chart, seed counter, moisture analyzer, aluminium foil bags (large, medium, small), and carton boxes.

Malawi

General

(i) **Staffing**

During the reporting period, the Malawian NPGRC Curator left for further training (PhD) in New Zealand. Otherwise, the rest of the staff compliment did not change.

(ii) **NPGRCom**

No meeting was held since last year, but one is expected to be held end of September 2010.

(iii) **Training and Workshops**

- Mr J. Chikasanda and W. Bickiel attended Information Technology Training (Server Management, SDIS, DIVA-GIS and NTSYSpc) training courses in Pretoria, South Africa from 15-26 November, 2010; and
- Mr K. kapila attended a stakeholders' consultative workshop on developing and implementing PGR Policy: 25-27 April, 2011, Pretoria, South Africa.

(iv) **Visitors**

The Centre was visited by the SPGRC Head, SPGRC Project Technical Advisor, SPO – In-situ and a group of students from Bunda College

(v) **Equipment and Facilities**

Requirements

The Centre is requesting for pollination bags, carton boxes, aluminium foil bags, toner and drum head cartridge for sharp photocopier, and eight (8) deep freezers.

Technical Activities

(i) Gap Filling

Malawi NPGRC planned to conduct multiplication of cucurbits and bambara on behalf of other NPGRC. This activity will be implemented this year considering that money came very late. The NPGRC is requesting NPGRCs with problems in multiplying these two crops to send samples to Malawi for multiplication. Botswana, Namibia and Zambia were identified in need.

(ii) Multiplication and Regeneration

During 2010/11 season, seed multiplication and rejuvenation activities were conducted at Chitedze and Namasalima (Domasi) irrigation scheme. At Namasalima, 54 accessions of water melon from Namibia NPGRC are under multiplication while at Chitedze 246 accessions were multiplied.

Activities previously proposed for Chitala, Makoka and Mbawa Research Stations were put on hold due to logistical hiccups. The water melon accessions from Namibia are currently in the field at Namasalima Irrigation Scheme with logistical support from SPGRC provided 2 years ago.

Multiplication of other crops as proposed was not implemented because NPGRCs did not send the samples.

(iii) Seed packaging, processing and storage

This year we have dried and packaged 78 samples. Processing and drying of samples continues and by the end of the season 204 samples will be dried, packaged and stored.

Duplicate samples of the gene bank materials are sent to SADC Plant Genetic Resources Centre (SPGRC) in Zambia for long term storage and to date 1441 samples have been sent. This year samples will be sent from 5 different crop species

(iv) On-farm conservation of crop landraces

During the year, the genebank conducted on-farm demonstration, through twenty demonstration plots that were managed during the season. Out of this number, Six are newly formed Clubs (3 in Rumphi and 3 in Chiradzulu). All the demonstrations were successfully managed.

The genebank successfully conducted a field day in Mzimba, Bulala EPA where farmers were involved in a participatory variety selection on finger millet. The Team also participated in another field day in Ntchisi which was organized by CICOD.

Gene bank will also participate in a seed fair on September 22, 2011 organized by CICOD at Chibvala EPA, Dowa.

(v) Public awareness on conservation and sustainable utilization of PGRFA

Different methods are used to capture the attention of clientele and get them interested in utilization of plant genetic resources. In the case of Malawi the genebank participated in three field days at Chitedze, Mzimba and Ntchisi. It also participated at a Seed Fair in Dowa being organized by CICOD.

Student from three institutions (Bunda College, Mwimba Farm Institute and Mbwatalika

Secondary School) visited the genebank as part of education visits.

Genebank activities were broadcast on Radio 1 and published in the *Daily Times* newspaper. The Programmes covered the importance and benefit of conserving and sustainably utilizing plant genetic resources.

(vi) Management of Field Genebanks

Banana Field Gene Bank at Bvumbwe

Much of the work involved weeding and rouging. Accessions 2581, (Phwazi), 2746 (Kholobowa), 2747 (Sukali), 2748 (Maria) and 2757 (Makumbuka) were destroyed because they were infected by Banana Bunchy-Top virus (BBTV). This means that between March 2010 to date, including two accessions, (2519 –Sukali and 2752- Makumbuka that were destroyed last cropping season, a total of 10 accessions have been uprooted because of the BBTV and the problem is reported in almost all parts of the country. In fact as of now there are proposals to destroy all the banana materials at the research station. Due to this idea to destroy all bananas, a proposal has been prepared for submission for funding as an attempt to save the Gene Bank banana germplasm.

Sugarcane Field Genebank at Kasinthula

The main management activity that was done on the sugar cane materials at Kasinthula was the transferring of the accessions from the site where they were established continuously for a period of over 10 years to a new site. This was necessary in order to invigorate the growth of the stools. The transfer of the materials was ably done by the Kasinthula Research Management.

Management of Field Genebank at Chitedze

Most of the work was routine maintenance of root and tuber crop germplasm.

Mauritius

The Mauritius delegates did not attend the meeting and their report not made available to SPGRC.

Mozambique

General

(i) Staffing

During the reporting period, there was no change on the staffing.

(ii) NPGRCom

No meeting was held since last year, and there was no change on the Committee composition.

(iii) Training, Workshops and Meetings

- Ms. Carla do Vale attended a 2 weeks training course on "Agricultural systems for family operated small holder farms, community seed production and water conservation for small holder farmers" in Embrapa (Brazil), April, 2011.

- Ms. Camila de Souza, a forest researcher, based in IIAM attended the SIDA course on Intellectual Property Rights on PGR, in May 2011, in Sweden.

- Dr. Paulino Munisse successfully completed his PhD studies, last May 2011. The title of his dissertation is ''Diversity and traditional uses of watermelon (*Citrullus lanatus*) landraces in Mozambique''.

- Mr. Abilio Afonso is pursuing his studies at MSc. level in Sweden. He started the course in January 2011 and is expected to complete the studies by the end of 2013.

- Mr. Mauricio Francisco and Ms. Carla do Vale, attended the '' Information and Technology Workshop'' held in South Africa during 2010.

- Mr. Ausvaldo Magaia, an IT expert from IIAM, has attended the ''SDIS Server Workshop'' held in South Africa, in 2010.

- Mr. Francisco Reis and Ms. Carla do Vale attended the ''PGR Policy Project Workshop'', held in South Africa in 2011.

- Mr. Mauricio Francisco attended the workshop on ''Rice Production in Mozambique'' held in Maputo in 2011.

(iv) Visitors

- Honourable Minister of Agriculture of Mozambique, Mr. José Pacheco.
- Dr. Moneim Fatih - NordGen
- Mr. Barnabas Kapange and Mr. Kennedy Hamudulu - SPGRC
- Students from the Eduardo Mondlane University, Polytechnic Institutes and Agrarian Institute of Boane.

(v) Equipment and Facilities

The Mozambican NPGRC is currently in possession of working 12 deep freezers, one functional precision weighing balance and 2 aluminium sealing machines. It also possesses a moisture analyzer, seed grinder, 2 desktop computers, 2 printers, 2 UPS. In addition, it has 3 air conditioners and 3 sets of camping equipment.

(vi) Requirements

The NPGRC is in need of the following items: 1 GPS, 1 altimeter, 1 laptop computer, 1 germination cabinet, 1 seed drier, 3 air conditioners, pollination bags (maize, millets), paper labels, 1 external drive USB 2.0, 4x4 vehicle and 7 thermometers.

(vi) Constraints

The transportation to the field plots or collection target sites is still a challenge to the NPGRC due to lack of reliable transport. During the last Board Meeting held in Zambia in 2010, it had been decided and approved by the Board the purchase of a new vehicle, but no feedback has been given to the NPGRC on the same.

Technical Activities

(i) Germplasm Conservation

Currently, the NPGRC holds a total number of 2,823 accessions. A total of 30 seed samples have been deposited at SPGRC for safe duplication.

(ii) Regeneration and Multiplication/Characterization

Nothing to report.

(iii) **Field Gene bank maintenance**

Currently, the NPGRC does not have a field gene-bank.

(iv) Utilization of Plant Genetic Resources

A total of 66 maize seed samples were processed and distributed to various end-users. In general, the requesters are students attending Msc. degrees.

(v) In situ/On-Farm

Nothing to report.

Germplasm collection

Nothing to report.

Namibia

General

(i) Staffing

The staffing status at NPGRC remained unchanged from last year's reporting.

(ii) National Plant Genetic Resources Committee (NPGRCom)

No NPGR Committee meetings were held during the reporting period and the Committee composition remained unchanged.

(iii) Training, Workshops and Meetings

- Dr. Maggs-Kölling, the SPGRC board member and chair of the NPGRCom chaired the SPGRC Board meeting in October 2010.
- Mr. Steve Carr, who is a member of the NPGRCom and the head of the Plant Product Development section at the NBRI, was nominated to be the Focal Point of the ITPGRFA and he will attend the regular sessions of the Governing Body in future.
- Ms R. Moses and S. Sikute attended a training course on Information Technology (SDIS, NTSYSpc, DIVA GIS and server management course) in November / December 2010.
- Mr Lerotholi Qhobela visited the NPGRC in October 2010 to verify that correct procedural activities are being followed in the Genebank.
- Mr B. Kapange and Mr K. Hamudulu visited the NPGRC in September 2010. Some clarifications were shed on SDIS new version and the batch reference system.
- Ms R. Moses and Mr B. Strohbach attended the Workshop on National Plant Genetic Resources Policy formulation in April 2011.
- Ms S. Loots, Ms R. Moses and S. Sikute attended the Forestry Symposium on 17-18 August 2011 at the Government Office Park, Namibia.

(iv) Equipment, Supplies and Facilities

The NPGRC that occupies the building next to the NBRI is in good condition and has a strong extraction fan that facilitate outflow of dust, pollen, spores and plant debris during the threshing process.

The NPGRC is currently in possession of two 4x4 vehicles. The Toyota Hilux is a 1996 model and the Nissan is a 2006 model. Both are regularly used for field work, but the Toyota Hilux is about to give in.

There are currently a total of 48 upright freezers in the NPGRC of which nineteen are filled. Currently, the storage capacity of the NPGRC in terms of freezers is sufficient. The oldest

Bosch freezers are giving trouble with regards to maintaining a temperature of -20 °C. The NPGRC is investigating the possibility of having digital controls installed.

The NPGRC currently has three computers and one printer in working order. They are linked to a network that is maintained by a consultant. All have access to internet. The NPGRC is currently featuring its own web page in the website of the National Botanical Research Institute at the following address: www.nbri.org.na. The website has links to the SPGRC website as well as that of the ITPGRFA. The SPGRC server is not connected yet.

The NPGRC currently has two dehumidifiers. The new dryer is not functioning properly. The old Jermaks is now used as a drying cabinet with the aid of silica gel.

The NPGRC currently has two sealers, two grinders, two growth chambers (germination cabinets), 4 electronic scales, two moisture content analysers, an autoclave and a laminar flow cabinet, which was tested and the filters replaced so that it too is in working condition.

(v) Requirements

The Namibian NPGRC has the following requirements:

- Small and large laminated foil bags
- GPS
- Pollination bags

(vi) Constraints

The major constraint the NPGRC has is the shortage of pollination bags to carry out Pearl millet multiplication trials at Mahenene Research Station. The nearby Research stations to the NPGRC either do not have expertise in crop trials or the climate and/or soil is not suitable. Sandveld Research Station is now being used for multiplication and characterisation of *Citrullus* accessions, but additional fencing is needed to control animal movements into the plot.

(vii) Awareness seminars

During this year the NPGRC was visited by different schools and also several tertiary institutions from Namibia and from other countries like the USA.

Technical Progress Reports

(i) *Ex situ* Conservation

Conservation

The NPGRC and collaborators added 126 new accessions of crop, wild endemic, threatened and useful species to the collection. The number of accessions in the national collection has increased from 3,790 to 3,916. The number of batches also increased to 4961.

The accessions of wild species comprise approximately 1000 species and will not be multiplied or characterised in the near future.

(ii) Germplasm Regeneration and Multiplication

Pearl Millet

Most pearl millet accessions have been multiplied, but several hundreds still need to be characterized.

From the total of 2008 crop accessions, 1780 (87%) have been multiplied and 849 (42%) have been characterised to date. Theoretically, only the 193 of crop accessions need to be multiplied (9.3%) and those that did not yield enough seeds during multiplication. Some seeds were lost in the process of multiplication and there are no longer seed left.

Approximately half of the crop accessions remain to be characterized, the NPGRC would appreciate any support in this regard, especially with accessions of pearl millet.

(iii) Characterization

The seed characterisation and processing of the 60 accessions planted 2010 main season was completed in August 2011.

Multiplication and Characterisation of 5 accessions of *Citrullus lanatus* at Sandveld Research Station

The results of the multiplication in terms of seed multiplication, the fruits were just recently extracted and therefore the data on the number of seeds extracted from these fruits are not available. Despite all the problems the seeds seem to be physiologically mature. It must be noted that some fruits were very small.

Maturity of fruits varied but also due to frost it was difficult to determine the maturity of the fruits. The data is still to be analyzed.

There were pests that attacked the plants and the fruits, most notably the porcupines. Other pests included pumpkin fly and the stalk borer (green worms) and normal insecticides was used. The porcupine fed on the fruits leaving it severely damaged. Porcupines were the biggest challenge and only fencing can minimise their coming to the plants. A trap was set but did not catch any porcupine.

Towards the end of the growing season, the plants were attacked by mildew. The affected leaves where removed manually.

The seed characterization and processing of the five accessions planted during 2011 main season was just extracted. With the changing weather in Namibia, the *C. lanatus* germplasm suffered from both too much rain and frost and so did not yield enough seeds for both the NPGRC and SPGRC.

The recommendation is to replant the same accessions again next season. The trial should be planted early enough to avoid going into the frost season. Fencing before planting will be the very first thing to be done.

(iv) Utilisation of Plant Genetic Resources

Dispatch of germplasm samples from the Namibian NPGRC is dependent on the signing of a comprehensive Material Transfer Agreement. Namibia has draft legislation on access and benefit sharing. The draft bill on Access to Genetic Resources and Associated Traditional Knowledge was initiated in the 1990s and considers mainly indigenous species. An Interim Bio-Prospecting Committee (IBPC) was established and considers applications for access to genetic resources that are to be used for commercial purposes.

(v)* On-farm / *In-situ

Documentation of farmer's crop conservation practices in Namibia through a participatory methodology

Generally, most farmers farm with the following crop species: *Pennisetum glaucum, Sorghum bicolour,* Zea mays, *Vigna unguiculata, Vigna subtteranea, Citrullus lanatus, Cucumis melo, Cucurbita maxima, Cucurbita moschata* and the *Lagenaria sp.*

When it comes to selecting seeds for planting most people still select the seeds after harvesting while a small group of people select the seeds while plants are standing in the field.

It is a common practice to store seeds for planting mixed with ashes to prevent seed decay. More care is taken in storing *Sorghum bicolour* and *Vigna unguiculata* as they are prone to

insects' infestation. The *Vigna unguiculata* and *Vigna subtteranea* can effectively be stored in their pods. Most people store their seeds in bottles, left outside where it can get sun light. All in all most people have kept their old practices.

The data are not analyzed, as there is a need for a simple database to be developed to for such data. SPGRC officers promised to assist the NPGRC in this regard.

Funds requested from SPGRC for the on-farm project have all been used up. SPGRC is requested to develop a database for the on-farm project or provide funds to pay somebody local to develop a database.

Seed collection of crop species in Omusati Region

The seed collection mission was carried out in Omusati region where most of the farmers are still using their old traditional varieties.

The NPGRC staff member Ms R. Moses and the *in situ* programme officer Ms T. Lupupa from SPGRC successfully carried out this mission with the assistance of the extension officers in the regions.

About 122 species were collected including pearl millet (19), maize (14), sorghum (20), cowpea (34), groundnuts (3), *Lagenaria* (10), water melon (12), pumpkin (9), and sunflower (1). The predominant species that are used as staple food are *Pennisetum glaucum* followed by *Sorghum bicolour* and *Vigna unguiculata.*

(vi) Germplasm Collection

The NPGRC had an unplanned crop diversity-collecting mission, but did not carry out any wild collecting missions. The current phase of the Millennium Seed Bank Project has ended in December 2009 and new funding proposals were developed for the next phase. Seed collecting as a component of the new phase will continue.

(vii) Documentation and Information

The country profile was updated and the the manual register contains 3916 accessions. The number of accessions in the registration and active module contains 3916 accessions.

The challenges facing documentation activities include the fact that the germplasm collection information system is still behind, but 79 accessions were added and the module now stands at 3781. Most characterisation data still need to be re-entered into the SDIS characterisation module

Lastly, it was reported that the database server wais not yet connected

Seychelles

General

(i) Country Background

For the past three years Seychelles has been participating in the SPGRC/NPGRC review and planning meeting in order to gather gain experience knowledge and best practice in order to setup own Local Chapter.

Seychelles has faced lots of challenges till now to initiate work on the NPGRC. Despite the numerous difficulties it is still working and putting together all efforts possible to meet target.

(ii) Staffing

There is only one staff at present but slowly having the help of Miss Oreddy with documentation. One recruitment for 2011 has been approved but not yet materialized. Efforts are underway to engage an NGO and other individuals to help handle most of the ground work.

The NPGRCom will help guiding the activities of the NPGRC once established.

(iii) List of NGOs and Other Individuals

A number of NGOs are involved in the conservation work in Seychelles and these include Plant Conservation Action Group, Nature Seychelles, and Sustainability for Seychelles.

There are also individuals committed to contribute to NPGRC Seychelles. A few prominent ones are listed below:

- Mrs. Helda Antoine (Seychelles only MSc graduate in PGR Management/Biotechnology from Birmingham University)
- Mr. Jose Lalanne (Ex-Director for Plant Genetic Resource Development Section of the Department of Natural Resource)
- Mr. Lewis Julie (Ex-Curator for SPGRC in Seychelles)
- Mr. Denis Matatiken (Chief Executive Officer for Seychelles National Park Authority)
- Mrs. Veronique Herminie (Ex-Principal Secretary for the Department of Natural Resources)

(iv) The National Plant Genetic Resources Centre

The NPGRC Seychelles is still in its very early stage with just an office being maintained by the Curator. An area has now been secured to establish the NPGRC and the existing building being used by the soil laboratory will be dedicated for the genebank and the office of the Curator and Documentation Officer will be located at the Soil Diagnostic Laboratory.

The NPGRC has also secured Rs 400,000 (US$ 33,333.00) and has also requested Rs. 3.7 Million in next year's budget for the Soil/NPGRC. Minister responsible on the matter fully supports the initiative.

(v) National Plant Genetic Resources Committee (NPGRCom)

The committee is yet to be finalized but in principle, it has been agreed that committee will comprise of 7 members. The composition will be as follows:

- Chairperson (SPGRC Board member)
- Vise Chairperson (Curator)
- Secretary (SAA)
- ITPGRFA National Focal Point
- SFS (Sustainability for Seychelles)
- Mr. Jose Lausteau Lalanne

The committee will be presented to the Seychelles Agricultural Agency (SAA) Board for approval before the end of the year. The Committee is mandated to formulate and take decision on the daily operation of the NPGRC once established.

(vi) Training Workshops, Meetings

- Attended the PGR policy review in Pretoria from the 25th – 29th April 2011
- Attended the NEPAD/SANBio training Workshop on technology transfer from 21st – 22nd July 2011, Livingstone, Zambia.

(vii) Meetings, Official Visits

- Meetings with Vice President/Minister For finance and with Minister for Natural Resource.
- Meetings with Vice Minister for Agriculture of the Peoples Republic of China and with the Ambassador of China to the Seychelles

Technical Activities

Ongoing Projects

IOC "Agroecology" Project

- The Agroecology project is being funded by IFAD and IOC. It is a regional project with focus on knowledge sharing in the field of conservation Agriculture.

ADB SDL / NPGRC

- This project was originally designed for the Setting up of the Soil Diagnostic Laboratory but since the SDL will share the same location with the NPGRC this will also cater for the establishment of the NPGRC.

SLM Project (UNDP/GEF)

- Every home a garden demonstration plot with potential funding through UNDP/GEF Grant

(viii) Achievements from 2010/2011 Programme

- Acquisition of land for NPGRC.
- Budget to support the initiative along side the SDL
- Training on SDIS
- NPGRCom – Discussion and formulation

- Meeting with high official of the government to discuss explain the significance of the project with regard to national and regional food security
- Inclusion of PGR activities in IOC Agroecology Project.
- Distribution and Sale PGR (fruit trees and root crops)
- Operation of the tropical fruit nursery and the root crop unit through government budget to supply local demand.
- The SAA continue in its effort to promote the "Every home a garden campaign" in which members of the public are encouraged to conserve traditional food crop in their home gardens.

(ix) Challenges

- Infrastructural setup: hope to resolve the problem by next year.
- Staffing: Miss Oreddy will assist with Documentation but we still do not have a trained personal in PGR management. The NPGRC is still an office being maintained by the Acting Curator.
- Training: Long and short term training in PGR management
- Funding: But we are now having the support of the government and we hope that things will improve from next year.
- National Priorities: SAA has been preoccupied with problem such as high influx in importation.
- Presidential Election and Indian Ocean games.

South Africa

General

There have been serious challenges the NPGRC experienced for the year under review in keeping with its objectives of conservation and utilisation of plant genetic resources for food and agriculture. These include movement of personnel, facilities not operating at the optimum, documenting of germplasm data among others.

(i) Staffing

There were no changes to the staff complement at NPGRC. All officials are based at the NPGRC located at Roodeplaat, except the Director – Genetic Resources and Deputy Director - PGR who are operating from the Departmental Head Office in Pretoria. Ms B I Choane was transferred to the Sub-Directorate: Variety Control

(ii) **National Plant Genetic Resources Committee (NPGRCom)**

Nothing to report

(iii) Training, Workshops and Meetings

- Various officials attended the Basics of database management, GIS and data analysis courses organised by the SPGRC in Pretoria, November of 2010.
- Due to unforeseen circumstances and clashes with Public Holidays the SPGRC organised workshops held in Pretoria in April 2011 could not be attended.
- Ms Jermina Moeaha attended tissue culture course in China.
- Mr Percy Moila still pursuing Masters in Sustainable Agriculture with University of the Free State
- Mrs N. L. Maluleke pursuing Honours Degree in Plant Ecology with University of Pretoria

(iv) Equipment, Supplies and Facilities

There general functioning of dry room, glass house and gene bank storage facility has deteriorated due to lack of servicing. Senior management of the NPGRC has been made aware and discussions with other Directorates of DAFF are continuing to facilitate the procurement procedures. The NPGRC has run-out of proper aluminium foil packets for seed storage.

In terms of equipment, the NPGRC is in possession of 12 chest and 5 upright freezers, 12 low temperature incubator labcons and a drying oven. It also has an infrared moisture balance, precision weighing balance, stereo and light microscopes, waterbath, and lamina flow cabinet

Additionally, the genebank has the following at its disposal: autoclave machine, peristaltic pump dispenser, orbital shaker, cryo 100 unit, Liquid Nitrogen supply tank, Bicycles, Electronic/temperature RH meter, pH meter, compass and aluminum bag sealer.

It also has a GPS, 4X4 D-Cab bakkie, 3 notebook computers, 7 desktop computers, camera, camping equipment, 5 printers and seed cleaning machine.

(v) Constraints

The major challenges experienced for the period under review were:

- Documentation of germplasm data
- Acquisition of aluminium foil bags
- Services of machinery and equipment

(vi) Requirements

There is a shortage of aluminium foil bags, needed urgently.

Technical Report

(i) *Ex-situ* Conservation

Conservation

The total number of accessions conserved by the NPGRC is in dispute. This is due to interruptions with continuous documentation of accessions. All accessions with adequate seed amounts would be duplicated at the SPGRC.

Regeneration and Multiplication

The NPGRC has contracts with the Agricultural Research Council for multiplication of maize, beans and groundnuts. 85 maize, 94 beans and 84 groundnuts accessions were multiplied. All received sample are being processed by the NPGRC.

Characterisation

85 accessions were sent to ARC-Potchefstroom for executing characterization activity.

Only 85 accessions germinated and were characterized. 10 plants per accession were scored for vegetative, ear data and kernel data.

Field Genebanks

The NPGRC still maintains collections of sweet potato; cassava; sugar cane taro growing in glass and shade houses. The prickly pear orchard is not doing well as results of feeding by wild animals.

(i) Utilisation of PGR

76 sorghum bicolour accessions were provided to a plant breeding research student at the University of Kwazulu/Natal. One of the stated objectives of the research study is to characterize sorghum collected in provinces of South Africa morphologically and also using molecular markers

(ii) *In-situ* Conservation

No activity undertaken or planned with regard to wild relatives.

On-Farm

25 bambara groundnuts and 65 cowpea were accessions were multiplied by engaging 7 individual farmers and 4 farmer groups. 100 seed were given for each bambara groundnuts accession and 50 for each cowpea accession. Four and two rows were planted for each bambara groundnuts and cowpea accession respectively. An incentive of R1000 per row planted and R500 was paid for bambara groundnuts and cowpea respectively.

The plans to establish community seed banks are hampered by procurement systems and priorities of the DAFF.

(iii) Germplasm Collection

Four collections were envisaged for 2011/2012. So far one collection mission has been accomplished. 3 collection missions still to be conducted. A recollection of sweet potato mission was carried out from the 15th to 19th August 2011 in KwaZulu Natal province. The recollection mission target was 43 samples and a total of 38 samples were collected from 11 farmers in 10 villages. Recollection was done since some sweet potatoes germplasm accessions were lost at the NPGRC.

Three unidentified species (calabash, beans & zulu-nuts) were brought to the NPGRC. The samples would be planted during the planting season for further identification.

(iv) Documentation and Information

SPGRC would provide the NPGRC with the SDIS software which would be handed over to the IT section of DAFF. IT technician would install SDIS on a stand alone desktop for the sole use of germplasm data capturing and querying.

The DAFF has an IT section that is responsible for all internet related activities. Access to the internet as a policy of DAFF is determined by need. All NPGRC personnel have access to the Internet.

Swaziland

General

(i) Staffing

Whilst efforts to create at-least three NPGRC posts were almost close to being successful, the financial challenges that engulfed the country during mid 2010/2011 financial year resulted in the suspension of the establishment and/or filling of any vacant government post. As such, the NPGRC remain manned by a lone professional and a Research Recorder who are assisted by a team of 6 semi skilled labourers.

(ii) National Plant Genetic Resources Committee (NPGRCom)

Following the departure of Mr. Gideon M. Dlamini, former Herbarium Curator, from the public service in 2010, Mr. Zechariah Dlamini who took over all curatorial activities, automatically became an NPGRCom in his place. Mr. Nelson Mavuso who also left the Seed Quality Control Services for a senior post in the Ministry of Agriculture was also replaced by Mr. Christopher Mthethwa. On the other hand Mr. Victor B. Simelane, who is now with the University of Swaziland retained his membership in the committee.

The NPGRCom did not convene any meeting held during the2010/11 season. Instead, when it transpired that there would be no funds approved for national activities, the available funds were then utilized in the multiplication of some unduplicated jugobean and groundnuts, beans and cowpea accessions.

(iii) Training, Workshops and Meetings

The NPGRC curator and technician attended the Database management training workshop in Pretoria, South Africa in October 2010. The Curator also attended a one week Server Management training workshop in November 2010 in the same venue. In April 2011 and July 2011, the Curator attended the SANBio/ SPGRC policy guidelines workshop in Pretoria, South Africa as well as SANBio Technology Transfer workshop in Livingstone, Zambia respectively.

(iv) Equipment, Supplies and Facilities

The NPGRC possess a running but ageing vehicle, which has been fault and not running for over 12 months now. It has 11 upright, 2 chest freezers, freeze drier, moisture analyzer, and grinder. The genebank has two desktop computers one of whose display screen has been condemned, a sealer and digital camera that are in good condition. It also has a label printer, printer/fax/scanner and is connected to Internet.

The Centre is needful of a GPS, non-destructive moisture meter, a colour chart, seed blower and counter, refractometer, and 1,000 cartons. It is requesting for at least 6 upright freezers, a drying shed and a cold room.

(v) Requirements

The NPGRC is in requirement of a sealer, label stickers, seed counter, non-destructive moisture meter, seed blower, a colour chart and refractometer.

(vi) Rehabilitation of NPGRC Building and Installation of Standby Generator

Work on the rehabilitation of the NPGRC is still ongoing. Worth-noting is that the work has taken more time than expected mainly because the work commenced recently in April 2011 due to changes in rainfall patterns which continued until May 2011. Secondly, the masonry who was to be contracted eventually could not be engaged after it was discovered that the available funds were insufficient.

The NPGRC building has eventually been beam-filled and reroofed. Work on wall cracks and plastering is ongoing. Re-wiring has partially been completed whilst re-ceiling, re-flooring and repainting is yet to be undertaken.

A complete structure to house the generator instead of just the concrete slab for safety reasons was built on recommendations by the Building department of the Ministry of Works. Part of the subdivided structure will now be used for drying and processing of accessions thus solving the problem of such processing space while a smaller portion will house the generator set.

(vii) Public Awareness on PGR

Two presentation workshops to raise awareness on the ITPGRFA were held for policy makers in the House of Senate as well as various groups of the Royal Advisory Council.

During the later workshop, the Advisory Council blamed the loss of PGRFA on land tenure system. Specifically, Prince Pinda, lamented the fact that Swaziland's arable fertile land which could increase crop production and enhance food security has now been converted into townships. Unfortunately Swaziland currently does not have appropriate policies and legal measures to ensure and enforce appropriate use of prime agricultural land.

NPGRC also participated in the 2011 annual Swaziland International Trade Fair further enhanced public society's knowledge about the existence of the Seed Genebank (NPGRC) and its work. This helped emphasize the importance of indigenous crop genetic resources and their role in contributing to food security, climate change poverty alleviation and economic recovery.

The NPGRC again participated in a Farmers' Day organized by the Tikhuba and Lukhetseni communities with the assistance of COSPE, an Italian non-governmental organization on the 17th August 2011, an event that was held at Tikhuba Rural Development Area in the Lubombo plateau. On this Day, the importance of using indigenous crops to enhance crop productivity through diversification and commercialization for economic recovery was stressed by policy makers.

(viii) Constraints

The NPGRC is faced with staff shortage, lack of funds for efficient conduct of activities, lack of transport (motor vehicle) and is in urgent need of a sealer.

Technical Activities

(i) *Ex-Situ* Conservation

Conservation

No collection expedition was undertaken during the season mainly due to shortage of

resources especially transport and finance. Thus there was no significant increase in the NPGRC active collection except the 6 samples that were each obtained from individuals around Malkerns Research Station.

Multiplication

During the 2010/2011 season, a total of 102 crop accessions were proposed for multiplication. Following the failure of groundnuts crop accessions to produce quality seed due to low soil pH or acidity in the previous season. Dolomitic lime was applied with basal fertilizer during the 2011/2012 season. Funds allocated for the strengthening of NPGRCom budget were reallocated towards germplasm multiplication so as to reduce the backlog of accessions not unduplicated at SPGRC. As government did not have money, the NPGRC decided to clear those goods (a sealer and foil bags) in order to avoid forfeiting them.

(ii) Field Genebank Maintenance at Malkerns

There have been no significant changes in the number of germplasm samples (accessions) conserved in the NPGRC during the year under review except for the acquisition of *Colocosia* spp. Sample from a farmer. However Sweet potato accessions conserved at the Malkerns Research Station field genebank suffered serious damaged from cold during the winter season at the Lowveld Experiment Station (LES).

Even though the lack of transport during the 2010/2011 season hindered NPGRC activities, wild germplasm previously collected at the Lower Usuthu Smallholder Irrigation Project (LUSIP) and temporarily conserved at Malkerns field genebank was eventually transplanted at the LES field genebank. This field genebank on the other hand has not been tempered with thus far except that market women indiscriminately harvest edible *Aleo* spp.

(iii) Maintenance of Germplasm at Field Genebank

The NPGRC will try everymen possible to continue maintaining the local germplasm of sweet potato, cassava, and Taro by applying general crop husbandry practises and thereby ensure their survival and continued proliferation even though the qovernment's fiscal position is very bad. This will include irrigating Sweet potato so that it recovers from livestock damage.

(iv) Utilisation of Plant Genetic Resources

During the year under review, a total of 21 maize accessions were distributed. One accession was requested by one Mr. Mabandla Dlamini who is a farmer and former Prime Minister of the Kindgom of Swaziland. Twenty accessions were requested by a Fourth Year University of Swaziland student to undertake his research thesis.

(v) *In-situ*/On-Farm

Shewula Community Seed Fair

During the 2010/2011 season the NPGRC had proposed to re-host a seed diversity fair for the Shewula farmers who had been instrumental in promoting on-farm conservation and use of crop diversity. The seed fair was aimed at recognizing the farmers for the contribution they made and continue to make not only at Swewula but even to other communities promoting on-farm conservation and use of crop diversity on farm. Consequently, the Seed fair was held at the Shewula Community Camp on the 4th

August 2011. In attendance were the Principal Secretary of the Ministry of Agriculture (MOA) in Swaziland Dr. Robert Thwala, SPGRC Senior Programmes Officer – *In-situ*/On-farm Conservation Ms Thandie Lupupa, COSPE (Italian NGO) Food Security Coordinator, MOA staff from the Department of Research as well as the Department of Extension and Farmers.

A majority of farmers had little crop diversity ranging from 2 to 4 crops whilst only 2 farmers had diversity above 6 crops but again less than 10 crops or crop. Nonetheless, the Principal Secretary learnt a lot through the seed fair about the work of the NPGRC and DARSS even though he has never visited the station since coming into office.

(vi) Documentation and Information

There were no updates undertaken on the SDIS and the NPGRC is trailing behind in updating the active register. Unfortunately, hope for establishment of posts and/or even the recruitment of new officers have been shattered at least for now. Thus the problem will continue.

Fortunately, the NPGRC Internet is still accessible even during this difficult period of economic instability. This perhaps is because the NPGRC Internet service provider is also the same company that provide telecommunication service, and thus the bill is concealed within the telephone bills.

Tanzania

General

(i) Staffing

During the report period, there has been a great change in the staff status at the NPGRC following a sudden death of Dr. Wazael Ntundu which happened early September 2010. Further more, the former acting curator of the NPGRC (Mr. Herman Akonaay) retired from civil service on December 2010, followed by the resignation of Mrs Anna Makundi who went for another job on early January 2011.

(ii) Meetings, Seminars, Workshops

- Mr. L. N. D. Mapunda attended the SPGRC/NPGRC's annual review and planning meeting held in Lusaka, Zambia in September 2010.
- Dr. M. Mollel attended the SANBio meeting in Pretoria, South Africa
- Dr. M. Mollel attended FAO meeting on in Rome, Italy.
- The NPGRC organized stakeholders' workshop "enhancing the potential of cowpea (*Vigna unguiculata*) through insect pest resistant lines in East Africa".
- Mr. E. Mausa and Mr S. Mungure are pursuing MSc. training in Biotechnology and Laboratory Sciences at Sokoine University of Agriculture in Morogoro.
- Mr. S. Kabululu attended a shot course on plant breeding from July to September 2011 in China.

(iii) NPGRCom Meetings

No meetings were held during the period under review.

Technical Activities

(i) Germplasm Collection

A total of 5 tree seed collection missions were carried out during the report period through funding from MSB Project. A total of 118 seed samples were collected and brought for conservation at the NPGRC and duplicate sample dispatched to RBGK.

While a total of 37 accessions of *Eleucine coracana* were collected and conserved at the NPGRC through the HOPE project; 32 accessions of *E. coracana, E. intermedia, sp. Africana, E. indica and E. multiflora* were collected and conserved using the Bioenovate Project.

Germplasm exploration and collection of wild crop relatives was carried out and a total of 90 accessions were collected through the financial support from the Global Crop Diversity Trust.

(ii) Regeneration and Characterization

299 accessions of maize (72), common beans (104), finger millet (57), *Amaranthus* spp. (35), sorghum (31) were sown for regeneration at Miwaleni and Madiira farms using NPGRC funds.

A total of 17 accessions of sun hemp (*Crotaralia* spp.) were multiplied.

(iii) Genetic Enhancement

A collaborative trial on the potential of bambara groundnuts genetic resources between Tanzania and Burkina Faso was established at Hombolo in Dodoma. A total of 32 accessions were planted. The crops were harvested and data analysis is going on.

Studies on the potential of indigenous African genetic resources of water melon were continued at Miwaleni farm. Data analysis and report writing is in progress.

Studies on the "enhancing cow pea (*Vigna unguiculata*) production through insect pests resistant lines in East Africa" came to its end, data analysis was carried out and report writing is in progress.

Several crop accessions were distributed to different institutions (researchers, farmers and the SPGRC).

(iv) Other Externally-Funded Projects

- Studies on impact of Bt cotton on wild biodiversity in East African region were in progress at Thika in Kenya and at Miwaleni and Magugu in Tanzania.
- A collaborative trial on the potential of bambara nuts genetic resources between Tanzania and Burkina Faso was established and harvested successfully at Hombolo, Dodoma.
- The studies on gene flow from cultivated rice to its AA genome wild relatives were continued at Dakawa and Ruvu farms

- Studies on the potential of indigenous African genetic resources of water melon were continued at Miwaleni Farm.

- Germplasm exploration and collection of wild crop relatives was initiated in the Northern and Lake Zones under the Trust funding.

(v) On-Farm Conservation Project

Field trials for the on farm conservation on sorghum, finger millets and lablab beans were established in Same, Kilimanjaro, Ngerengere, Morogoro, and in Msanga and Membe in Dodoma region. A total of 75 sorghum accessions, 98 finger millet accession and 11 lablab beans accessions were planted. However, due to excessive drought, the finger millet trial in Mamba, sorghum and lablab trials in Same, Kilimanjaro were destroyed.

6 Extension Officers and 80 Farmers attended practical and theoretical training on the on-farm seed production, and conservation.

PGR and the related policy review were carried out and report writing is in progress.

Studies on the impact of Bt cotton on wild biodiversity in East Africa were in progress at KARI – Thika in Kenya. The field trial has been closed and data processing for gene flow analysis in progressing.

The studies of gene flow from cultivated rice to its AA genome wild relatives came to an end, data analysis and report writing is in progress.

(vi) Documentation and Information

The main activities under Documentation and Information include updating of database, registration and data entry in the computer. To date, a total of 5274 accessions have been registered.

(vii) Constraints and material Requirements

The centre is facing a problem of storage facilities (freezers) to cope with increasing number of seeds, as a result a number of samples are yet to be conserved. Lack of enough space that can accommodate additional freezers and office for staffs is calling for an additional building to solve the problem.

Currently the centre has a very small generator which can not run the available equipment. Due to frequent power cut and power rationing, it is important that a stand by generator is purchased.

The vehicles which the centre has are too old, hence the need for a new motor vehicle is recommended.

The screen and green houses have passed their life time, hence a need for renovation.

(viii) Major Achievements

The centre managed to collect and conserve 118 tree seed samples at the NPGRC and

the RBGK, 119 accessions of different crops at NPGRC.

The centre has carried out regeneration and characterization of 299 seed accessions from 5 crop species.

Through the cow pea project, accessions which are resistant to insect pests have been identifies for incorporation in a breeding programme.

Zambia

General

(i) Staffing

During the period under review the programme experience some staff position changes. One professional officer left by the name of Mr Phiri Andrew and one professional officer was recruited by the name of Ms. Lupapula Mariam. The programme also recruited a Principal Technical Research Assistant. At present there are three (3) professional officers and two (2) Technical Research Assistants.

(ii) National Plant Genetic Resources Committee (NPGRCom)

The NPGRCom forms the backbone of the national plant genetic resources programme in the provision of policy guidance. During the period under review the committee held a meeting in October 2010.

The Committee recommended that Ministry of Agriculture & Cooperatives (MACO) and, specifically ZARI, should develop the ITPGRFA-compliant legislation and, where necessary, review existing legislation for possible amendments; In the process, coordination with the existing ongoing initiatives e.g. for the National Biodiversity Bill should be achieved. It also recommended particular attention should be paid to differentiating the implementing authorities for PGRFA and the other PGR for other uses.

(iii) Training, Workshops

The NPGRC staff participated in various training courses, meetings provided mainly outside the country. These training courses that NPGRC staff attended have relevance to PGR programme. The meetings/workshops include: Governing body of the ITPGRFA, 13th Regular Session on CGRFA, PGR Policy review, Documentation and information, Diva GIS, SADC variety release management system and NTSYpc.

(iv) Equipment and Facilities

The NPGRC has one running vehicle which is old and have now high maintenance costs. The two other vehicles are non-runner. One such vehicle is Toyota Hilux which was acquired in 1992 has some engine problems. The other vehicle, procured in 1999, a Nissan QD32, requires engine overhaul, major repairs on the body and cylinder head replacement.

Since procurement and installation, the seed dryer has not presented any serious setback. However, at present the dryer is not drying and we believe that it needs servicing. SPGRC

should make available reference manuals as guidelines for servicing this equipment.

In 2007 and through the SPGRC Project, the NPGRC acquired a 30KvA Genset. The Genset is functioning well.

The genebank has a stock of 27 deep freezers. Of these, 25 freezers are in their working condition and two (2) upright freezers available are still non-functional. The non-functional freezers require replacement of the compressors and other parts. SPGRC promised to supply us with 2 freezers to date this has not materialised.

The NPGRC has currently no moisture meter. The only moisture meter we had is fault and was taken to Sweden for repairs but after consultations it was discovered that repairing was almost equivalent to buying a new one.

The NPGRC has four (4) functional desktop computers, a laptop computer and three printers (a HP LaserJet 4200 PS, a HP LaserJet P1005 and Sharp model AL-1556, AL-1566). The sharp printer has its drum cartridge finished and this is not found locally.

Technical Activities

(i) Conservation and Distribution

The active collection at the NPGRC has been reorganised but not realigned to match the record on the SDIS. This has not been done due lack of capacity by NPGRC staff to do so. The number of accessions being held in the gene bank is 6,500. The NPGRC is also maintaining 114 accessions of sweet potato and 154 accessions of cassava as living collections in the field gene bank.

The value of the gene bank lies in the facilitation of access to the conserved plant genetic resources for food and agriculture. During the 2010/2011, a total of 80 germplasm accessions of beans, maize, cattle melon, cowpea and sorghum were distributed to University of Zambia, University of Kwazulu natal, Makerere University, various farmers and Seed Certification and Control Institute (SCCI). The germplasm was mainly for research purposes and multiplication by local farmers.

(ii) Germplasm Regeneration Project under Global Crop Diversity Trust

This protocol is a regional tripartite project involving the GCDT, SPGRC and four NPGRCs in SADC sub-region.

So far 90 accessions of maize were sent to CIMMYT, Mexico. There are some germplasm waiting for duplication to CGIAR centres. The breakdown of such materials awaiting shipment is as follows: Maize 80, Beans73, Cowpea 96 and Sorghum 402. Passport data has been sent to CGIAR centres for cross checking. The delay in this activity has come about due to staff position changes that occurred at the NPGRC. The officer who was responsible for the regeneration project left the NPGRC without handing over the files. This is being resolved because the officer assured us that he will avail some time to do.

(iii) Regeneration, Multiplication and characterisation of genetic resources

During the 2010/2011 season, the NPGRC undertook multiplication and characterization of germplasm accessions of four crop species held in the gene bank. A total of one hundred and forty two (142) accessions of four crop species were

regenerated, multiplied and characterised. The breakdown is as follows: cucurbits (62), groundnuts (19), cowpea (47) and Bambara nuts (14).

(iv) Regeneration and Safety Duplication of Regionally-Prioritized Crop Collections in Zambia

Funded by the Trust through coordination of SPGRC, the NPGRC undertook the regeneration of threatened prioritized crop collections in the genebank. A total of 834 accessions of beans, cowpeas, maize, and sorghum were planted the project. Currently, the NPGRC is preparing the passport data, characterization data and materials in readiness for duplication to SPGRC, Svalbard Seed Vault and other international genebanks. Characterization data will be made available both in electronic and hard formats.

(v) Establishment and Maintenance of Cassava and Sweet Potato Field Genebank

The objective of the proposed project was to conserve local germplasm of cassava and sweet potato crops that are available in Zambia while making them available to enhance increased use for both present and future crop improvement work. This will also ensure maintenance of existing field collections for root and tuber collections.

Activities implemented during the reporting period include planting newly collected cassava and sweet potato germplasm, field maintenance, replanting of existing clones and, irrigation of the field. The field genebank is currently holding 153 cassava and 113 sweet potato germplasm accessions.

(vi) Promotion of On-farm Conservation and Maintenance of Local Crop Diversity

The on-farm conservation is a complementary strategy to ex-situ conservation and aims at conserving crop genetic diversity with farmer participation. On-farm conservation activities are ongoing and have been implemented in selected communities and farmer groups in Chongwe, Mumbwa and Mazabuka.

During the 2010/2011 season, there were fairly less activities in this programme due to funding problems. No seed diversity fairs and field days were held in all the participating areas. However, farmers planted local maize, cowpea, groundnuts, sorghum and beans. The fairly good except for cowpea in some areas which did not set seeds instead it grew vegetative probably due to day length sensitivity of cowpea.

(vii) *In-situ*/On-farm conservation

Support of the on-farm activities is largely from SPGRC and the Zambian Government and implementation is usually through collaboration with SPGRC, Department of Agriculture and Community Technology Development Trust (CTDT) Zambia.

The overall objective of the proposed project was to contribute to the improved food security and livelihoods of people through the diversified and sustainable crop production among small scale farmers in Zambia.

Farmers' recruitment and crop selection went hand-in-hand with holding seed diversity fairs, field days and farmers' training. The programme has over the years expanded and

currently has 413 small-scale farmers multiplying local crop varieties in various parts of the country.

The crop varieties multiplied include maize, bambara nuts, groundnuts, sorghum, cowpeas and beans. While no field days were held this year due to delayed funding, 3 seed diversity fairs were held

In conclusion, the NPGRC intends to continue with the programme and expand to new areas in other agro-ecological zones like region III in Northern and Luapula Provinces and in the Southern Province.

(viii) Documentation and Data Analysis

The SDIS is working well except that the active gene bank has been reorganised and is only waiting to be reconciled with SDIS; whereas, 7200 accessions have been registered.

It has been noted that on the characterisation module, there are only 8 crops listed namely: beans, cucurbits, finger millet, groundnuts, maize, pearl millet, sorghum and *Vigna* spp. Also, some traits on these crops are not included especially on vegetative characters for data entry. In some cases there are only 2 traits while the IPGRI descriptor has more than those presented.

The outstanding activities include characterisation data entry and updating SDIS to match with active collection, this is currently being done with the help of SPGRC.

(ix) Utilization of PGR

The genebank is currently holding a total of about 6,500 germplasm accessions of different crop species. The NPGRC is also maintaining clonal collections of cassava and sweet potato as living collections at Mt Makulu Research Station.

The value of the genebank lies in the facilitation of access to the conserved PGRFA. During the 2009/10, a total of 60 germplasm accessions were distributed. Specifically, 34 accessions were distributed to the University of Zambia for research and development purposes. Twenty six (26) accessions of rice were provided to the rice improvement programme within ZARI for evaluation for adaptation to upland conditions.

Constraints

Staff turnover

Despite having benefited from the training programme provided through the SPGRC project, availability of qualified staff at NPGRC has not been consistent due to effects of high staff turnover caused by both deaths and resignations. There is a shortage of staff at technical research assistance level.

Inadequate support from Government

Since its establishment, the NPGRC has received a bulk of support in terms of equipment and funding for implementation of genebank activities through the SPGRC project. Government funding has largely been limited to payment of staff salaries, electricity and water. Government funding for operations have usually been inadequate and irregular.

Inaccessibility to modern biotechnology facilities
Lack of access to modern biotechnology is hampering efficient management of the germplasm collections, molecular characterisation, and maintenance of vegetatively propagated crop/plant species through in-vitro technique.

Lack of appropriate policy/legal framework
There have been major changes in the policy environment surrounding conservation of plant genetic resources at global level. Germplasm collections in the genebanks have become components of a far larger entity under the multilateral system. A major paradigm shift at the political level has meant a change in the concept of plant genetic resources from the 'heritage of mankind' to the concept of 'national sovereignty' and common concern implying that individual national should regulate and facilitate access to these resources within their jurisdiction.

Inadequate support to research and development (R&D)
Generally, vibrant research and development is a necessity for the advancement of any country. Technology advancement takes time and necessitates investment in human development and appropriate research environment.

Lack of facilities for effective conservation of vegetatively propagated materials
The genebank has made an attempt to collect and conserve the vegetatively propagated crops such as cassava, sweet potato and Livingtone potato through living collections in the field genebanks. There are a number of factors threatening these collections in the field such as droughts, pests and diseases. An alternative complementary method employing in vitro techniques is required for maintenance of these accessions in a sterile and pathogen-free environment.

Inadequacy of the facilities to support PGR conservation activities
The PGR programme is faced with limitations arising from lack of appropriate facilities needed for the PGR conservation activities. The programme does not have reliable transport as the only vehicle constantly breaks down, has limited space for conserving materials, and experience frequent freezer breakdowns.

Zimbabwe

General

(i) Staffing

There have not been any huge changes in the staff situation over the period under review. Ms Rudo Musango is back from her study where she was pursuing her BSc in Horticulture.

(ii) National Plant Genetic Resources Committee (NPGRCom)

The NPGRC committee met twice for the period under review (November 2010). The main agenda for the two meeting was to review progress on the NPGRC activities and also the developments on the ITPGRFA implementation.

(iii) Training, Workshops, Meetings and Visitors

- Mr K. Kusena and Mr E. Maramwidze attended an Information Technology Course on SDIS and GIS in Pretoria South Africa in November 2010.
- Ms B. Chapuredima attended an Information Technology Course on Data Server Management in Pretoria South Africa.
- Mrs F. Chinosengwa attended a short course on Plant Genetic Resources and seeds: policies, conservation and use in India in November 2010.
- Mrs F. Chinosengwa attended a training course on Biotechnology in China in July 2011
- Mr O. Chipfunde attended a training worshop on the Development and Implentation of Plant Genetic Resources Policy in Pretoria South Africa in April 2011.

Workshops

- Mr K. Kusena Attended the Fourth Governing Body Session of the International Treaty on Plant Genetic Resources For Food and Agriculture in Bali Indonesia in March 2011
- Mr K. Kusena attended the National Biodiversity Forum at Bronte Hotel in Harare in July 2011.
- Mr O. Chipfunde attended the SANBio Technology Transfer Workshop in Livingstone, Zambia in July 2011.

(iv) Equipment, Supplies and Facilities

The genebank has 27 freezers that are all full. It also has a faulty drier whose temperature does not stabilize and often drops below 5^0C. The moisture analyser that was reported faulty last year has now been repaired and is functioning well. There is one dehumidifier, a fax-scanner-printer-photocopier machine and 4 printers.

The Centre has one broken grinder, 4 heat sealing machines, 2 of which are faulty. It also has 2 laptops and 3 desktops. The Centre vehicle's engine is faulty and since been condemned.

Requirements

The Institute is in need of a utility/collection vehicle, grinder, germination incubators, a seed Counter and at least 2 desktop computers and a laptop, and biotechnology facilities.

Technical Activities

(i) *Ex-situ* Conservation

Under the laboratory-based seed cleaning, a total of 653 accessions were cleaned; whereas, 669 accessions were dried, packed and stored.

The exercise to resort and repack samples in freezers was completed in all freezers during the review period. 192 accessions were tested for their viability and a total of 87 accessions were moisture censored.

The NPGRC entered 6311 accessions into active collection and also entered 4517 accessions into germplasm collection register.

(ii) Germplasm Collection

There were no collections done during the period under review. In the coming season, GRBI is planning to carry out a mixed crop rescue collection mission along the great dyke. Plant genetic resources found in this environment are usually endemic and these pose unique characters like high tolerance to higher concentration of metal ions. The typical great dyke environment is slowly disappearing due to mushrooming of mines and illegal miners.

(iii) Characterization

The genebank carried characterization of 28 finger millet accessions in collaboration with an Undergraduate Student from the Crop Science Department at the University of Zimbabwe.

(iv) Field Genebank Maintenance

There were no field genebank maintenance activities since there was no budget allocated to the exercise. However some field gene bank work is proposed for 2011/2012 season.

(v) *In-situ*/On farm Conservation

There were no *in-situ* conservation activities done

(vi) Documentation and Information SADC Documentation Information System

Zimbabwe is already working towards electronic documentation. Over 90% of the germplasm passport data has already been currently documented on Microsoft Excel.

The NPGRC has access to a VHS internet connection which is working very well. Thanks to SPGRC and the Nordic donors for connecting Zimbabwe.

Table 1: NPGRCs Funding Request for Board's Approval (US$)

No.	Country	Multiplication	Collection	*In-situ*/On-Farm	Miscellaneous	Total
1	Angola					
2	Botswana	2,627				2,627
3	DR Congo	5,000			20,500	25,500
4	Lesotho		2,886			2,886
5	Madagascar					
6	Malawi	9,000	10,200	14,500	30,000	63,700
7	Mauritius					
8	Mozambique		11,692			11,692
9	Namibia	2,150		944		3,094
10	Seychelles					
11	South Africa					
12	Swaziland	5,792		5,600		11,392
13	Tanzania	4,748	13,600			18,348
14	Zambia	12,500		12,300		24,800
15	Zimbabwe	11,000		4,550	5,500	21,050
Total		**52,817**	**38,378**	**37,894**	**56,000**	**185,089**

Table 2: Multiplication and Characterisation

Country	Previous Budget	Balance Requested to be Utilized Next Season	Proposed Budget
Angola	4,280		
Botswana	2,627		2,627
DR Congo			5,000
Lesotho	12,646	1,953	
Malawi	6,500	*11,000	9,000
Namibia		462	2,150
Swaziland	3,600		5,792
Tanzania	9,437		4,748
Zambia	12,500		12,500
Zimbabwe	11,000		11,000
Shipment of seed samples from Malawi	2,000		
Total	**64,590**	**13,415**	**52,817**

*Malawi NPGRC to multiply cucurbits and bambara on behalf of the region (Botswana, Lesotho, Namibia, Zambia)

Table 2: Germplasm Collection

Country	Previous Budget	Request to Utilize Balance next season	Request for Funding from SPGRC
Lesotho		11,856	2,886
Malawi	10,200	154	10,200
Mozambique	10,500		11,692

Seychelles	3,900		
Tanzania	13,600		13,600
Zambia	19,526		
Zimbabwe	3,000		
Total	**60,726**	**12,010**	**38,378**

Table 3: *In-Situ*/On-farm Conservation

Country	Previous Budget	Request to Utilize Balance next season	Proposed Budget
Botswana	5,550	10,990	
Lesotho	7,500		
Malawi	28,500	450	14,500
Namibia		2,305	944
Seychelles	3,400		
Swaziland		6,000	5,600
Tanzania		284	
Zambia	14,100		12,300
Zimbabwe	6,800		4,550
Total	**65,850**	**20,029**	**37,894**

Table 4: Miscellaneous

Country	Previous Budget	Request for Funding from SPGRC	Remarks
DRC	25,000	20,500	Conduct inventory, training, germination tests, shipment of samples to SPGRC
Lesotho	8,000		
Malawi	19,500	30,000	Shipment of seeds to SPGRC, awareness raising, training
Seychelles	26,042		
Swaziland			
Tanzania	6,527		
Zambia	3,500		
Zimbabwe	1,000	5,500	Farmers' rights legislation
Total	**74,069**	**56,000**	

Table 5: Summary

Activity	Amount Approved for 2010/2011	Amount Requested for 2011/2012
Multiplication and Characterisation	64,476	52,817
Germplasm Collection	60,726	38,378
In Situ/On-farm Conservation	65,850	37,894
Miscellaneous	74,069	56,000
Grand Total	**265,121**	**185,089**

7. NPGRC PLANNED ACTIVITIES FOR THE YEAR 2011/2012

Angola

(i) Multiplication and characterisation of some accessions in the genebank

NPGRC proposes to multiply in 2011-2012 thirty (30) accessions of cowpea and (50) accessions of common beans. The Centre also proposes to characterize thirty five (35) accessions of maize, thirty (30) accessions of cowpea and fifty (50) accessions of common bean. These will be done at the experimental field of the Angolan NPGRC at a cost of **US$ 4,280**.

Botswana

(i) Multiplication and regeneration of various crops

The NPGRC is proposing to multiply 25 accessions that will be planted at Sebele Research Station. All crop management practices will be done during the growth period. Data for characterization will be collected throughout the growth period of the plants following the appropriate (IPGRI) descriptors and data analysis for the trial will be subjected to cluster analysis using the NTSYSpc.

Eventually, the data will be entered in the characterisation file in SDIS and also availed in hard copy in the form of a catalogue.

The project is estimated to cost approximately **US$ 2,627**.

(ii) Germplasm Collection

A multi-crop gap-filling germplasm collection in Kgalagadi, Gantsi, Ngamiland, Central, Kgatleng and Chobe District is being proposed with the aim of collect germplasm of local crops and fodder, j*atropha* species from areas that was not covered by previous collection missions as well as documenting local indigenous knowledge pertaining the management and use.

The exercise will assist in conserving the existing genetic diversity of the crop species occurring in the target areas. Most areas of Kgalagadi, Gantsi and Ngamiland were not adequately covered in previous collection missions due poor accessibility but are now relatively accessible and should therefore be targeted for collection.

Democratic Republic of Congo

Updating the status of the gene bank accessions in the four main research centers of the Democratic Republic of Congo

The project aims at conducting an inventory of the species accessions and to reorganize their database of accessions, maintain the data base of these accessions for future breeding programmes and being shared in the region.

It is anticipated that this project will unveil actual number of accessions per species in each research center, enable efforts to rejuvenate and maintain accessions and enable training of technicians in both data entry and management of the databases.

The activity will cost approximately US$ 20,500. An additional US$ 5,000 is also being asked for purchasing 5 laptops to accomplish this task, thus making the total budget to be **US$ 25,500**.

Lesotho

(i) Collection of legumes (cow peas, beans, lentils) in Phamong, Mohale's Hoek District

The main objective of the project is to collect germplasm of land races of various crop varieties, collect local indigenous knowledge pertaining to the varieties collected, and to conserve the material collected at the NPGRC and send duplicates to SPGRC for base storage.

The **project attracts a budget** of US$ 2,886.

(ii) Collection of wild plant species in Polihali Dam construction area in Mokhotlong District

The Lesotho NPGRC is planning to conduct another collecting mission covering the Polihali dam construct area before the construction can start as a way rescuing the valuable genetic resource from being inundated. The land use patterns in this area mainly comprise of grazing/grasslands and cropping lands which are characterized of subsistence farming. The grasslands are communal while the arable land is privately owned (traditionally allocate by the chiefs but now changing to be allocated by the local government.

The overall objective of the collection mission was to collect and conserve germplasm and herbarium specimens of wild plant species, which occur at Polihali reservoir area in Mokhotlong district.

The **total budget** is estimated at US$ 9450.

(iii) Multiplication and Characterizzation – Machache Research Station

Machache Research Station which represents the foothills of Lesotho is where the multiplication and characterization will be done.

Main objective is to acquire sufficient seed for active and base collections. At the end of it, characterization data for the 99 accessions of sorghum landraces will be made available to users. The exercise will lead to provision of sufficient seed for active and base collections.

A budget of US$ 3,200 is being proposed

(iv) Seed germination tests of accessions in active genebank

Justified by the fact that frequent power cuts may have affected the lifespan of material and therefore, the NPGRC wishes to conduct germination tests will determine the level

of impact. If the germination % is below 85% then there will be need to regenerate the accessions.

This exercise requests a total of **US$ 600**.

(v) Documentation and Information

The NPGRC will continue with data entry in different SDIS modules and plans to produce a seed catalogue.

The genebank will strive to improve the quality of data in SDIS database through filling up empty fields in the database and ensuring data consistency in species and location names.

Malawi

(i) Seed multiplication, rejuvenation and characterization of various crops

Seed multiplication and rejuvenation will be carried out on different crops in order to meet seed quantity requirements for storage and distribution, as well as having seeds with recommended viability (not less than 85%). Therefore samples from various crops will be planted to meet the above named criteria.

Samples will be planted at three different sites; Chitedze, Chitala and Makoka Research Stations. Recommended agronomic practices will be followed.

The expected out put is acquisition of viable seed and sufficient seed quantities for storage and distribution to users. During regeneration activities, germplasm characterization is also conducted and this enables generation of useful information on the seed samples which eventually encourages utilization of such materials.

Total cost US$ 9,000.

(ii) On-farm conservation of crop landraces

Main objective is to scale out the on-farm conservation concept to more areas where crop landraces are under threat although they play an important role in sustaining food and nutrition security as well as improving livelihood standards of rural communities.

The project aims at supporting on-farm conservation clubs through demonstrations, field days, diversity seed fairs and community seed banking, and also, at training extension frontline personnel, lead farmers and local leaders in principles and practices of on-farm conservation.

Expected outputs include Knowledge and skills on on-farm conservation imparted to a larger number of stakeholders, more crop landraces conserved at farmer level, and more crop germplasm to be available to researchers and farming community. Rural livelihoods will be improved through utilization of crop land races.

Total budget: US$ 8,000.

(iii) Seed processing, packaging and storage

Before seed can be stored at -18°c; it requires processing which includes threshing, cleaning, adequate drying and packaging in special containers. Documentation of information on all samples in the gene bank is important for ease of utilization of the stored germplasm.

The harvested seed samples undergo several processes before storage to ensure high seed viability. Duplicate seed samples of the NPGRC are sent to SPGRC in Lusaka, Zambia, for safety and long term storage

Budget: US$ 5,000

(iv) Public awareness on conservation and utilization of PGRFA

Recognizing farmers as the main custodians and users of Malawi's Plant genetic resources, it is deemed important that they should be made aware of the efforts and roles being taken by other stakeholders, like the National Plant Genetic Resources Centre, in promoting conservation and sustainable utilization of these resources. For farmers and the general public to appreciate the need for conserving and sustainably utilizing plant genetic resources, there has to be deliberate and concerted efforts to create awareness.

It is against this background that public awareness activities are organized to increase knowledge on conservation and utilization of Plant genetic resources for food and Agriculture

The project aims at creating awareness and interest in the general public on the need for and benefit of conserving plant genetic resources, while informing the general public on the germplasm currently kept *ex-situ* at the NPGRC and how it can be accessed and utilized. It will also encourage farmers, extension staff and the general public to bring special value genotypes to the NPGRC for long term conservation.

It will be conducted through:

Mounting demonstrations in Regional Training Centers

- Request from both farmers and extension officers to have demonstrations mounted in strategic places like RTCs to showcase and bring awareness to the farming communities on the crop landraces being conserved *ex-situ*.
- Farmers lose some of their important crop varieties, especially landraces due to a number of factors beyond their control such as drought, flooding, famine and, sometimes, simply trying out new varieties. When crop landraces were being collected from farmers, it was on the understanding that the material would be safely kept at the genebank for future use, through either crop improvement programmes or directly re-introducing them back into the communities.
- Most of the well adapted crop landraces collected in the 1990s are no longer available in the communities where they were sourced and it would be in good faith to bring them back to the communities through demonstrations.
- This activity would allow farmers to retrieve the crop landraces which they no longer keep, but would appreciate to have it back.

Budget: US$ 9,500

(v) Conducting and participating in Field Days, Diversity Seed Fairs and Agricultural Shows

Field days, diversity seed fairs and agricultural shows are important and effective fora as they bring together various stakeholders, including farmers who play an important role in the field of plant genetic resource conservation and sustainable utilization. These fora, apart from being platforms for information exchange, promote exchange of germplasm amongst the farming community.

At least holding and/or participating in one in each of the 8 ADDs would be a good starting point for raising awareness on importance and benefits of conserving and sustainably utilizing plant genetic resources for food and agriculture.

Budget: US$ 6,500

(vi) Training of Agricultural Frontline Staff

One way of timely and effectively scaling out the activities on plant genetic resources conservation is to train agricultural extension frontline staff in principles and practice of managing, conserving and sustainably utilizing these resources.

Once trained, the extension personnel would incorporate the conservation programmes into their work schedules and be able to quickly and effectively reach out to the masses.
This core of extension officers would further act as trainers for other officers in their respective work places.

One training would be conducted in each of the 3 regions (North, Centre and South) covering approximately eighty extension workers. Other resource persons would be deployed to cover topics like nutritional and medicinal values, ecosystem management and climate change mitigation that would be gained from efficient management of plant genetic resources.
Farmers' rights and equitable benefit sharing would also be tackled during the trainings.

Expected outputs include: eextension workers being conversant in management of plant genetic resources, trained extension officers are able to effectively train farmers and other stake holders in conservation and utilization of plant genetic resources, and plant genetic resources will be properly managed and conserved for use by present and future generations.

Budget: US$ 9,000

(vii) Collection of neglected and underutilized indigenous vegetables in Malawi

The importance of indigenous vegetables for consumption appears to have declined over the years. For poor households, the value of IV consumption is approximately 11% of value of all food consumption, compared to 2% for the wealthiest households. Indigenous vegetables contribute significantly to consumption of micronutrients, particularly for the poor households where approximately half of vitamin A and one third of iron requirements are consumed through vegetables.HIV/AIDS requires nutrition therapy.

Most of the local farmers affected by HIV/AIDS cannot afford expensive sources of

nutrients; as such indigenous vegetables serve as cheap sources of important nutrients.

The indigenous vegetables are very important to the resource poor communities, thus, preserving biodiversity and indigenous knowledge on production and consumption while improving varieties and cultivation practices of indigenous vegetables in Malawi will contribute to the well being of thousand poor famers.

This project aims at conducting countrywide collection of neglected and underutilized indigenous vegetables based on priorities of the region. This collection is based on the analysis of germplasm information that has indicated a gap exists in terms of indigenous vegetables

The objective of the project is to safeguard genetic diversity of indigenous vegetables in Malawi.

Budget: US$ 10,200.

Mauritius

No proposals received from Mauritius

Mozambique

(i) **Gap filling multi-crop germplasm collection mission in Niassa and Cabo Delgado provinces**

The proposal is justified by the fact that the **e**xploratory expeditions will be conducted in regions particularly targeting on districts which have not been covered in the previous expeditions.

The main objectives of this mission will be to collect as much possible the existent germplasm occurring in Niassa and Cabo Delgado provinces for conservation and future use.

The collection mission will be undertaken during the harvesting period (May-July 2012). Geographical and local farmer knowledge data will be also recorded.

Representative seed samples collected in these 2 provinces will be multiplied and stored at the NPGRC and the duplicate seed samples will be sent to SPGRC.

The total amount of money requested for these 2 collection missions will be **US$ 11, 986.80**.

Namibia

(i) Regeneration and Multiplications

The objective of this trial was to multiply 5 accessions of *C. lanatus* during the main season 2011, to obtain sufficient seed for storage in base and active collections and for utilisation. The second objective was to do preliminary characterisation of accessions to make them more valuable for germplasm users.

The seed characterisation and processing of the five accessions planted during 2011 main season was just extracted. With the changing weather in Namibia, the *C. lanatus* germplasm suffered from both too much rain and frost and so did not yield enough seeds for both the NPGRC and SPGRC.

The NPGRC is planning to multiply and characterise 5 accessions of *Citrullus lanatus*, in the main season of 2011/2012. The recommendation is to replant the same accessions again next season. The trial should be planted early enough to avoid going into the frost season. Fencing before planting will be the very first thing to be done.

Budget (request from SPGRC): US$ 1,024.

(ii) *In-situ* Activities

Ms. Loots is on Study leave to fulfil the requirements of her PhD study programme. The research that she is undertaking forms part of the in situ conservation of the genus *Lithops* in Namibia and she hopes to revise the conservation status of the Namibian species at the completion of the research.

The research will be on critical evaluation of the conservation status of *Lithops* N.E.Br. (Aizoaceae) in Namibia.

(iii) On-farm Activities

Revisiting the identified farmers from Omusati Region

With the existence of new varieties and climate change, some farmers have lost their local varieties. During seed collection in Omusati region, some farmers have identified crop species they no longer have. The activities under on-farm conservation for the coming season will focus on identifying what crop species the farmers wanted and take such species if in the Genebank to them for multiplication.

Main objective of the project is to identify most wanted crop species and provide to the farmers for multiplication.

The activities for the coming year 2011/2012 will focus largely on providing seeds to the farmers for multiplication and collecting from them again.

The farmers identified will be from Omusati region, as this will be a follow up visit. The NPGRC staff members will liaise with extension officers in the regions for better collaboration.

It is expected that a group of farmers will be identified to implement on-farm project activities in future, together with the National Plant Genetic Resources Centre.

The information and experience gained during this project will be used to improve and expand on-farm conservation work to other regions of Namibia.

Budget request from SPGRC: US$ 944.

(iv) Documentation and Information

The following activities are planned for Documentation and Information:

- Enter characterisation data for 60 accessions that were multiplied in the main season of 2010 onto the SDIS characterisation module
- Analyse characterisation data of 120 accessions characterised in off season of 2008 and main season 2009, interpret results and publish
- Register new accessions on SDIS Accession Registration module as they come in
- Update SDIS Base/Active Collection module
- Update SDIS Germplasm collection Information System from accession number 3380 to date
- In collaboration with SPGRC, attempt to sort out problem with collection data that are not saved after entering
- Continue to update the NPGRC web page.

Seychelles

Seychelles NPGRC is proposing the following activities for next financial year:

- Creation of a unit responsible for PGR under National Agricultural Crop Conservation Unit
- Make further request for long and short-term training in PGR
- Setup of the Genebank with potential support of SPGRC
- Setup of demonstration for Every Home a Garden
- Documentation of information gathered on PGR in Seychelles by far from previous inventory;
- Attend all SPGRC meetings and workshops as requested

South Africa

(i) Multiplication

The NPGRC is proposing to do multiply different accessions of maize (200), beans (100), groundnuts (100), bambara, melon (4), mungbean (1), sorghum (9), pearl millet (5) and *Lagenaria* spp. (2).

(ii) On-Farm/In-situ Conservation

For 2011/2012 the number of cowpea and bambara accessions to be multiplied through the on farm conservation systems would be determined to close the gap of duplicates at SPGRC.

An on farm conservation project is proposed in the province of Kwazulu/Natal. The purpose of the project is to promote on-farm conservation projects with provincial and local authorities as a sustainable strategy for ensuring long-term conservation of landraces, making seed and/or propagating material available for local farmers.

The targeted crops are cereals (maize, millets & sorghum), legumes (cowpea & bambara groundnuts), cucurbits (pumpkins, melons & calabash), because they represent a sizable amount of agro-biodiversity currently in use.

The concept of the project has been introduced to officials in the Province. The remaining phase is to identify project beneficiaries, verify targeted crops, monitor the project and pay incentives per crop to the beneficiary.

(iii) Documentation & Information

The NPGRC's objectives for documentation services are:

- Update all accessions from MSB collections on SDIS and delisted varieties Access database
- Verify the SDIS information with accessions maintained
- Implement the DAFF's GIMS

Swaziland

(i) Multiplication

The Swaziland NPGRC propose to multiply a total of 74 crop accessions during the 2011/12 cropping season in an effort to eliminate the backlog of accessions requiring duplication at SPGRC. However, for such work to commence and even succeed, a working budget of US$ 1,842 as government is currently faced with a financial crisis which has resulted in budget cuts and grounding of vehicles due to unavailability of fuel. The NPGRC also urgently needs sealer as well as a weighing balance to facilitate processing of accessions.

The following crop accessions will be multiplied: maize (14), cucurbits (38), pigeonpea (1), pearl millet(5), okra (1) beans (5), and cowpea (10).

Budget: US$ 5,792.

(ii) Strengthening Collaboration on Promoting Conservation and Use of Crop Diversity On-farm Tikhuba, Shewula and KaLanga Communities

The NPGRC is proposing to continue strengthening the promotion of in-situ/on-farm crop diversity conservation and use through collaborating with some NGOs whose activities are aimed at improving the livelihood of rural people through agriculture. The NPGRC plan to provide COSPE and other NGOs with diverse crops for multiplication by the farmers whom they work with until enough seed is produced for all the farmers I those communities.

Budget: US$ 5,600.

Tanzania

(i) Regeneration, multiplication, characterization, germination test of selected crop accessions

The project main objective is to obtain sufficient quantities of seed for storage in the base collections, and to characterize accessions of different crops, so as to determine genetic diversity existing among them for germplasm users, to check viability of the stored materials at the genebank and to promote its utilization by distributing it to various stakeholders for research purposes which leads to food and agriculture improvement.

Selected accessions will be sown in the two fields (Miwaleni and Madiira) during the 2011/2012 season. The number of the accessions NPGRC intends to multiply will depend on the availability of funds. However, budget has been made for 300 accessions.

Budget: US$ 4,748.

Zambia

(i) Regeneration, multiplication, characterization

The Zambian NPGRC is proposing to multiply and characterize amaranths (60), cucurbits (40), *Brassica* spp. (55), and *Solanum* spp. (60). It also proposes to continue with the regeneration of cowpea (4), beans (50) and bambara (30) and groundnuts (4).

All of the 375 accessions of various crop accessions will either be multiplied and characterized or regenerated at Mt Makulu Research Station at an estimated cost of **US$ 12,500**.

(ii) On-farm conservation and management of local crop diversity

The overall objective is to contribute to the improved food security and livelihoods of people through the diversified and sustainable crop production among small scale farmers in Zambia.

The programme is currently running 5 sites in Rufunsa, Situmbeko, Mamvule, Simutwe and Nadezwe. During the year under review we had 280 small-scale farmers multiplying local crop varieties in 5 sites.

The recommendation now is to continue with the programme, concentrating on awareness campaigns during agricultural shows and trade fairs, increase on the number of crops and conduct farmer training on crop production in the current sites.

Budget: US$ 12,300.

Zimbabwe

(i) Conservation of common root and tuber crops in Zimbabwe

The project aims at conserving, mapping the diversity and enhancing the utilization of common indigenous roots and tubers in Zimbabwe.

The project plans to carryout an eco-geography survey to map the diversity of taro, sweet potato and tsenza germplasm in Zimbabwe. It will also establish 3 field gene banks of taro, sweet potato and tsenza in different locations at the Genetic Resources and Biotechnology Institute, Horticultural Research Centre, and at one community to be identified after eco-geographic study.

Characterization of the germplasm in the field genebanks and germplasm utilization will be enhanced through seed fairs, product development, post-harvest technology transfer and market linkages.

Budget: US$ 6,800.

(ii) Domestication of the International Treaty on Plant Genetic Resources for Food and Agriculture, National Plant Genetic Resources Committee Meetings (On-going project)

The main objectives are to spearhead and facilitate ddomestication of the ITPGRFA as well as the NPGRCom meetings.

Budget: US$ 5,500.

(iii) Novel methods for increasing use of genebank collections: a pilot for climate change adaptation response

The NPGRC is planning to improve the utilization of *ex-situ* collections, through focused introduction or re-introduction of PGR to target communities and further encourage further development of PGR by farmers through participatory methods for climate change adaptation. Eventually, the project will contribute to an increase food and seed security in semi arid areas of Zimbabwe.

Budget: US$ 4,550.

7. Other Presentations

7.1 Presentation on the 4th Governing body of ITPGRFA and 13th Regular Session of the Commission

It was a general feeling that most member state present (Curator) did not know much about the Treaty still and thus the need for capacity building on both, the Treaty and the Commission.

The FAO representative also pointed out that there is a pre-session that organizes for African representatives before attending the meeting this way they can be better prepared to make contribution during the actual session.

The challenge being faced by member state when it comes to those meeting is that in most cases it is the wrong person that gets to attend and the whole purpose of the meeting is not met.

7.2 SANBio-Funded PGR Policy Project

The draft regional PGR policy guidelines document was presented to the meeting by

assigned consultants.

Participants broke into working groups that discussed and made recommendations in order to improve on the guidelines. Groups presented their recommendations to the rest of the participants.

All the recommendations will be incorporated into the document which will later on be shared with NPGRCs before it is presented to the SPGRC Board for adoption.

7.3 FAO work in the SADC Region

The UN Food and Agriculture Organization (FAO) that partly sponsored the meeting was represented by its staff from the Sub-Regional office for Southern Africa (Dr Joyce Mulila-Mitti) and from the FAO Head Offices, Rome (Dr Chikelu Mba). The two made presentations on day that was fully dedicated to discussions on FAO. The facilitator for the day from the African Biodiversity Conservation and Innovations Centre (ABCIC), Dr Dan Kiambi, also made a presentation that focused on the African Union-African Seed and Biotechnology Programme (AU-ASBP) mandate for plant genetic resources.

In her presentation, Dr Mulila-Mitti briefed the meeting on the FAO seed activities in Southern African Region. She started by elaborating on FAO's contribution in strengthening seed systems in developing countries that cover seed policy, strategy and programmes formulation or review, seed related information and knowledge management, variety development, seed production, agriculture extension, seed marketing, seed security and other value chain issues, plus capacity building.

She gave several examples of FAO support in the SADC region which include initiation of the harmonization of seed rules and regulation, HaSSP –pilot project in Malawi, Swaziland, Zambia and Zimbabwe for implementation of SADC harmonised seed regulatory system, facilitating establishment of SADC Seed Security Network, supporting the Cassava Central, Eastern and Southern Africa (CACESA) Strategic Framework. She also enumerated FAO's country-level support of a number of SADC Member States. She lastly, highlighted opportunities for linkages and collaboration and plans for future support of SPGRC.

On his presentation, Dr Kiambi informed the meeting about the ABCIC and its vision and mission, its mandate and programmes, and briefed on the AU-ASBP mandate that ABCIC is implementing.

Dr Mba gave an elaborate presentation on managing PGRFA as a continuum: strategy for enhanced crop productivity. The inspiring presentation covered the food insecurity context, unleashing potentials of plants, optimal harnessing of PGRFA, multi-stakeholder partnership, and mainstreaming of strategic interventions. It was recommended that such presentation be made to the SADC Ministers responsible for Food, Agriculture and Natural Resources when they next meet. FAO representatives promised their readiness provided a request was made well in advance.

8. Summary of Technical Presentations

8.1 Documentation and Information

On achievements, the SPO – Documentation & Information informed the meeting that

SPGRC successfully held the Information Technology and Database Server Management course in November/December 2010. He also informed the meeting that the SDIS has been updated with added list of more than 3,000 crop wild relative species and 15 crop descriptors for characterization. The website has constantly been updated and now has window for Media – photo gallery, podcasts (video, audio).

The SPO also informed that SPGRC on behalf of the network members has applied for subscription to The Essential Electronic Agricultural Library (TEEAL) of the US Cornell University, which is digital collection of research journals for agriculture and related sciences as PDF articles and which does not require use of Internet to access. Should the application through *The Technical Centre for Agricultural and Rural Co-operation ACP-EU* succeed, SPGRC will inform NPGRCs who in turn, could utilize the facility through SPGRC.

The SPO also informed the meeting of the library services automation after acquiring a desktop computer and library management software. He also reported that the annual report in translated versions (into Portuguese and French) have been printed and are being distributed, the newsletter is under preparation. He also reported that soon most documents will be online in order to cut down costs on printing and distributing.

It was reported that the request made by SADC/SPGRC way back in July 2010 to release the original SPGRC portal domain (www.spgrc.org) so that the temporal one (www.spgrc.org.zm) is changed has not materialized as the donor has not released the name. For now, SPGRC will continue using the later domain name.

On the same communication to the donor, SADC/SPGRC also asked the donor to transfer the central synchronization server for the SDIS and this has not happened despite reminders. At one point, early in the year, the Project Technical Advisor informed SPGRC about the obsolesce of the server, and later on, at the planning meeting he mentioned about lack of funds to ship the server to the region. SPGRC will look into other alternatives of securing a server for the web-based SDIS.

The SPO acknowledged reports of in-operational SDIS machines due to virus infection in some countries, difficulty in acquiring toner cartridges for Sharp Printers (3-in-1) in the region. Other difficulties faced by NPGRCs with regard to management of information include power outages for which the SPO advised installation of UPSs to protect machines from surges.

Following germplasm materials re-arrangement in Tanzania and South Africa genebanks in which SPGRC Documentation staff participated to initiate and implement, the data is being awaited at SPGRC so that it can be incorporated in databases of the respective countries.

Once again, the SPO persuaded the NPGRCs to continue entering data into the current versions available at NPGRCs because it is the same data that will go along with the migration to web-based SDIS.

8.2 *In-situ*/on-farm Conservation

Collected materials from the 6 countries that conducted collection missions targeting mixed crops and wild species yielded 598 crop and 238 wild species. From the presentations, 7 countries were planning to conduct collections in the next season.

On-farm conservation activities were carried out in 9 countries where farmers were and are being encouraged to maintain traditional crop diversity, share plant materials and indigenous knowledge related to farming practices and use of the crop diversity.

An on-farm project proposal was presented in the form of a log frame. This will be circulated to countries for comments. A working Team consisting of 5 members (Mr Kudzai Kusena – Zimbabwe, Mr Thabo Tjikana – South Africa, Mr William Hamisy – Tanzania, Mr Kingsley Kapila – Malawi, and Mr Graybill Munkombwe – Zambia) was formulated in order to work with the SPO – *In-situ* Conservation in further development of the proposal that is to be sold out to donors for funding.

Three countries (Angola, Dr Congo, Malawi) reported on the status of conserved materials.

There was a concern by Tanzanian NPGRC that under in-situ conservation, there is a fast rate of spread of invasive species. They reported the case of Ngorongoro Crater of the invasive species and how it is affecting the pastures and sought for guidance from the floor on how they can contribute to avert invasion.

8.3 *Ex-situ* Conservation

The SPO – Ex-situ Conservation reported that there is a serious gap at SPGRC for the base collection from NPGRCs. He mentioned that only four countries have sent materials to SPGRC for base collection. The countries are Mozambique, Swaziland, Zambia and Zimbabwe. From the regeneration project are now a total of 2152 accessions.

He therefore urged NPGRCs to do pre-breeding and evaluation activities effectively as it is the NPGRCs' mandate to develop information that is usable to users of the plant genetic resources.

There was concern that the information we generate is not only for breeders and other researchers, but it is also for the genebank to make use of it. It was added that the NPGRCs have grown to a point where they want to reach the end users by producing relevant information. The SPGRC *ex-situ* officer commented that he had a talk with the Tanzanian delegate on the use of biotechnology in NPGRC activities and this will be taken up further.

9. General Discussions

9.1 Gap between Active and Base collections

It was noticed that this issue was brought up three year ago. The meeting asked for an update of the gap to have a clear picture of the real situation.

The SPGRC *ex-situ* officer in response mentioned that there are no figures at the moment. However, the SPGRC's Head indicated that if there are collections made by the NPGRCs, it is definitely that there are more seed samples at the NPGRCs than they are at the SPGRC for base collection.

Some NPGRCs claimed that they do not have funds to transport seed for base collection. The Head made clear that there are no more funds at SPGRC to support the NPGRCs. After along debate it was agreed that the NPGRCs should be critical and try

our best to make sure that the seeds are sent to SPGRC at all means for base collection.

The SPGRC Head admitted that it was the mandate of SPGRC to transport seeds from NPGRCs to SPGRC for base collection but as it is for now there are no funds at SPGRC for the centre's activities. He suggested that The NPGRCs to look for other source of funds by writing project proposal in searching of donors.

It was reported that some genebanks could not send seeds for base collection because they could not multiply too get enough for both active and base collection and not the issue of transportation costs. Some suggested that seeds can be sent to SPGRC for base collection just after the collection and others added that NPGRCs should not wait until the accessions are in 1000s.

9.2 Outstanding issue of equipment for DRC and Seychelles

DRC was advised to write proposals to different donors for source of funds. DR Congo admitted to have tried this option but they need the money at the moment.

The meeting advised that the issues be discussed between SPGRC and the two countries on the way forward.

9.2 Approved equipment which was not delivered to NPGRCs

It was reported by the Technical Advisor that the donor communicated in March 2011 through email to him that they will not provide any money to the network. Mozambique asked for more clarification if possible to get any documentation concerning this.

The Technical Advisor proposed of making an appeal to the donor for the release of promised funds.

Other delegates proposed that we should give vote of thanks to the donors for their support over the twenty years period. The Technical Advisor agreed to convey our gratitude and also the board of directors will be asked to write expressing our thanks.

9.4 Namibian data on on-farm practices survey

Upon request from Namibia, SPGRC will create a database to capture the survey data. It will be a standard database that can further be developed to capture all regional indigenous knowledge data.

9.5 Invasive species in Ngorongoro Crater in Tanzania

Tanzania asked what role of the NPGRCs can play on pastures growing wild as they seem to disappear due to the invasive species. It was said that here is an *in- situ* Crop working group which is taking care of it.

Another case of an invasive species was reported in Kenya and that it is very toxic to animals causing deformities. Seychelles also reported a similar case to Kenya and reported that the government had taken some steps to control.

Participants supported Tanzania's concern and reported that in Malawi the pasture has become limited and animals are now forced to graze in the crop fields. It was suggested

that SPGRC revisit the list of species under their mandate.

9.6 Database servers

SPGRC reported that the new version of SDIS would depend on the availability of the central synchronizing server and network availability in the respective countries. In a number of countries the local servers have been delivered but are not yet installed. The SPGRC is working to get resources to make it operational as it has taken too long.

There was a long debate on why the central server has not been transferred to the region from Sweden up to this moment. The Technical Advisor said the project ended in December 2010 and since then the donor refused to give money for transporting the server and supporting any pending activities. He informed the meeting that the server (hard ware) is at the moment obsolete. The SPGRC promised to use part of his project money to transport the server to Gaborone if donor lacked funds for that.

Member states were advised to connect the servers locally and make sure they have good UPSs for protection.

Asked whether SPGRC was capable of installing and maintaining servers, the SPO – Documentation informed the meeting that since the server installations started, SPGRC (Documentation staff) has never been involved in any way and that it was not in possession in any passwords for the servers, and therefore, disabled to help with the installations and maintenance. It was suggested that the password for the countries server to be given to both the Curators or IT people and to SPGRC.

After along and confusing discussion, it was agreed that SPGRC and the Technical Advisor would meet and discuss the way forward to make sure the server is installed and become functional this including a possibility of buying a new hardware since the old one is claimed to be obsolete.

9.7 Capacity in maintenance of equipment/facilities

The SPGRC admitted that there are no experts at the centre and a suggestion given that in future, equipments should be bought from within the region rather than buying them from abroad. This will facilitate the accessibility of technicians and spare parts in case of a need for repair.

The issue of aluminium foil packets and pollination bags was a concern to most of the countries. SPGRC responded that it is in the process of investigating the reliable suppliers for the aluminium bags in the region and this will be communicated to the Member States.

Pollination bag supplier has been identified in Zimbabwe and South Africa and that the contacts will be sent to Member States.

SPGRC advised the Member States to be innovative on how to find other means of storing seeds pending the availability of the aluminium foil packets. It was suggested that bottles and tins can be used to store seeds in absence of the aluminium foil packets. For the case of dehumidifier for the driers, a company has been identified in South Africa who can supply.

Namibia reported to be using non-functioning old driers with the help of silica gel to dry the seeds and this is working quiet well. It was also reported that in some countries in Africa they sun dry their seeds and use silica gel.

9.8 Utilization of the conserved materials

SPGRC suggested that it is our responsibility to make sure our conserved materials are being used by breeders and other stakeholders. NPGRCs should also make initiatives to promote the utilization of the conserved material.

Seychelles reported to have multiplied, propagated and donated sweet potatoes and other root and tuber crops to farmers. Tanzania reported to have donated a number of accessions including sorghum, and maize crops to researchers and advice Member States not just to donate, but to make follow-ups for feedback from the users on whatever development they do to the donated materials. Zimbabwe reported on-farm project as a way of promoting PGR utilization.

9.9 NPGRCom meetings

It was observed that many NPGRComs do not meeting as planned due to fund problem. Countries gave experience on how the NPGRCom members are selected in respective countries. SPGRC encouraged the NPGRCs to hold these meeting where possible.

9.10 International Treaty capacity building

Members supported the idea that there is a need for capacity building in this area and people were urged to visit the website for information in the whole issue of the Treaty.

It was also observed that the representation of the NPGRCs members to the International Treaty meetings is very poor.

SPGRC declared that it cannot direct the Member States on the selection of its members on participating in the International Treaty meetings; rather it will communicate the matter to the board meeting, also advising on the positioning of National Focal Point.

9.11 Project completion report

Questionnaires were sent to countries that could gather information for preparing the completion report of 5th phase of SPGRC project. Only 3 countries responded. SPGRC's director requested the NPGRCs to respond to the questioners sent for filling in.

9.12 SPGRC proposal for Benefit Sharing Fund of ITPGRFA

SPGRC reported to have sent proposals but have not been funded. However, the Treaty promised to sell the proposal to other potential funding agencies for consideration.

Some members were concerned on whether the proposal was sent to member states for their inputs before it was submitted. SPGRC responded that it was indeed sent to Member States through Curators. Participants asked SPGRC to update a list and address of the NPGRC's staff for proper communication.

9.13 Swaziland Curator's issues

The Swaziland Curator was given floor to air his views with regard to how meetings are conducted, particularly on the agenda, following ending of the project.

The Head of SPGRC mentioned that most of the concerns by the Curator had been discussed over and again in the past meetings and that probably it is only because Swaziland was not in attendance in the last year's planning meeting thus missed some of the discussed issues that are actually clearing his concerns.

Appendix 1: Programme

Sunday, 4th September 2011: Arrival of Participants	
General Rapporteurs: K. Kusena & G. Munkombwe	
Monday, 5th September 2011	
Session 1:	**Opening Ceremony** **Chair: L. Qhobela**
	Rapporteur: K. Kapila
09:00 – 10:00	Welcome address – Head of SPGRC
	FAO, Trust, Bioversity, SANBio
	Programme and logistics announcements – L. Qhobela
	Issues arising from the last (2010) meeting – L. Qhobela
10:00 – 10:30	**TEA BREAK**
Session 2:	**General Progress Reports** **Chair: L. Mapunda**
	Rapporteurs: T. Tjikana and O. Chipfunde
10:30 – 13:00	Country presentations
13:00 – 14:00	**LUNCH BREAK**
Session 3:	***In-Situ*/On-Farm Conservation, Germplasm Collection – Progress & Proposals** **Chair: C. Do Vale**
	Rapporteurs: S. Matsikoane and S. Kahimbi
14:00 – 15:30	Country presentations
15:30 – 16:00	**TEA BREAK**
16:00 – 16:30	Country Presentations
16:30 – 17:00	Country Presentations
Tuesday, 6th September 2011	
Session 4:	***Ex-situ* Conservation – Progress & Proposals** **Chair: L. Mapunda**
	Rapporteurs: C. Gwafila and J. Moeaha
09:00 – 10:30	Country Presentations
10:30 – 11:00	**TEA BREAK**
11:00 – 13:00	Country Presentations
13:00 – 14:00	**LUNCH BREAK**
Session 5:	**Documentation & Information – Progress & Proposals** **Chair: R. Moses**
	Rapporteurs: E. Pedro and B. Nourice
14:00 – 15:30	Country Presentations
15:30 – 16:00	**TEA BREAK**
16:00 – 17:30	Country Presentations
16:30 – 16:45	Updates: 4th Governing Body of ITPGRFA – K. Kusena
16:45 – 17:00	Updates: 13th Regular Session of the Commission – M. Mollel

Wednesday, 7th September 2011	
Session 6:	**General Issues , Summary of Presentations** **Chair: P. Munyenyembe**
	Rapporteurs: S. Naha and M. Mollel
09:00 – 10:30	General Issues
10:30 – 11:00	**TEA BREAK**
11:30 – 12:30	Summary of Presentations - *Ex-Situ*: L L Qhobela - *In-Situ* / On-farm: T J Lupupa - Documentation & Information: B W Kapange
12:30 – 13:00	SANBio Consultants' Presentation – Draft PGR Policy Document
13:00 – 14:00	**LUNCH BREAK**
14:00 – 17:00	Visit to SPGRC
	Reception
Thursday, 8th September 2011	
Session 7:	**SANBio PGR Policy Project – Facilitators**
09:00 – 10:30	Presentation on Background, Milestones of Project
10:30 – 11:00	**TEA BREAK**
11:00 – 13:00	Presentation of Draft PGR Policy Guidelines
13:00 – 14:00	**LUNCH BREAK**
14:00 – 15:30	Group Work
15:30 – 16:00	**TEA BREAK**
16:00 – 17:00	Group Presentations, Way forward
Friday, 9th September 2011	
Session 8:	**Food and Agriculture Organization (FAO)**
09:00 – 09:30	FAO seed activities in Southern African region – Dr. Joyce Mulila-Mitti
09:30 – 10:15	The African Seeds and Biotechnology Program and ABCIC PGR responsibilities in Africa – Dr. Dan Kiambi
10:15 – 10:30	Discussions
10:30 – 11:00	**TEA BREAK**
11:00 – 12:00	Managing PGRFA as a continuum: strategy for enhanced crop productivity – Dr. Chikelu Mba
12:00 – 13:00	Group Discussions
13:00 – 14:00	**LUNCH BREAK**
14:00 – 14:30	Group Discussions (continued)
14:30 – 15:00	Plenary reporting session and discussions
15:00 – 15:15	**TEA BREAK**
15:15 – 16:00	Way Forward, conclusions and closing
Saturday, 10th September: Departure of Participants	

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