SPGRC

SADC Plant Genetic Resources Centre

Twenty Fourth Annual Report
2013/2014

SPGRC
Lusaka, Zambia
2014

SPGRC has acquired and installed a brand new 275 KvA standby electric generator for the genebank with financial support from FAO. It is meant to ensure flawless ambient cold environment for conserved germplasm materials in freezers inside the genebank (*Photo courtesy of B. Kapange*)

ISBN 9982-43-018-1

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Abbreviations

ABCIC	African Biodiversity Conservation and Innovations Centre
AIMS	Agricultural Information Management System, SADC
APPSA	Agricultural Productivity Programme for Southern Africa
AVRDC	World Vegetable Centre
CCARDESA	Centre for Coordination of Agricultural Research & Development in Southern Africa
CTA	Technical Centre for Agricultural and Rural Cooperation
DRC	Democratic Republic of Congo
EMBRAPA	*Empresa Brasileira de Pesquisa Agropecuária* (Brazilian Agricultural Research Corporation)
FANR	Food Agriculture & Natural Resources
FAO	Food and Agriculture Organisation (United Nations)
GB	Governing Body (of the Treaty)
INERA	*Institut National pour l'Etude et la Recherche Agronomiques* (National Institute for Agronomic Study and Research)
ITOCA	Information Training & Outreach Centre for Africa
LCD	Liquid-Crystal Display
Mbps	Megabits Per Second
NPGRC	National Plant Genetic Resources Centre
PGR	Plant Genetic Resource
PGRFA	Plant Genetic Resources for Food and Agriculture
PPRM	Policy, Planning and Resource Mobilisation
SADC	Southern African Development Community
SANBio	Southern African Network for Biosciences
SDIS	SPGRC Documentation and Information System
Sida	Swedish International Development Co-operation Agency
SPGRC	SADC Plant Genetic Resources Centre
SPO	Senior Programme Officer, SADC
TCP	Technical Cooperation Programme

Report Highlights

- 30th SPGRC Ordinary Board Meeting Held in Lusaka, Zambia
- Technical Review and Planning meeting in Lusaka, Zambia
- General Discussions from planning meeting
- FAO-TCP Support for Development of Conservation Strategies

1 MANAGEMENT AND ADMINISTRATION

1.1 The 30th Ordinary Board Meeting Held at Intercontinental Hotel, Lusaka, Zambia

SPGRC Board Members, 2013

In absence of the Board Chair (Dr Julian Jaftha), the Vice Chairperson, Dr Alfred Mtukuso welcomed the Representative of SADC Secretariat from which he said, the Board had benefited a lot from its guidance. He then thanked the Government of Zambia for continuing to host SPGRC and for providing it with all the necessary support to run the institution.

The Vice Chairperson then welcomed the Board Members to the 30th SPGRC Board Meeting and said as a Board, they have a critical role of providing guidance in the daily running of the SPGRC and as such in playing this role; the Board Members were called upon to provide full participation and contribution in the meeting. Lastly, the Vice Chairperson said he looked forward to having a very fruitful and successful Board Meeting as it has been done in the past. He also thanked the SPGRC Management for organising the meeting.

The Host Board Member, Mr Godfrey Mwila welcomed the Board Members to Zambia and Lusaka in particular. He said Zambia was happy to host the meeting once again and that Zambia was happy to host SPGRC. He said the 30th SPGRC Board Meeting meant that SPGRC has been there for some time now. He said Zambia would like to see higher visibility of SPGRC both in the Zambia and in the region. He said it was the role of the Board to try and push the position of SPGRC to a higher level.

When invited, the SADC Secretariat Representative, Dr Keoagile Molapong started by saying that he came to represent the Director of Food Agriculture and Natural Resources (FANR) Directorate of the SADC Secretariat. He said SADC Secretariat recognises SPGRC as an institution that should have a Board. He said it was unfortunate that the SPGRC Board only meets once a year. He further advised SPGRC management to consider putting a day for the Board Members to read the documents before meeting. He said he hoped the Board would look at the sustainability of SPGRC so that it is presented to the Ministers in charge of Food Security meeting that will be held in June 2014. He emphasized on the accountability of the Board that should be reflected and should be formalized.

The official opening remarks by the Principal Agriculture Officer in the Ministry of Agriculture and Livestock were delivered by Mr Godfrey P Mwila who said

At the end of the Board meeting, members visited an organic farming trial farm at Kasisi Farmer' Training Centre, near Lusaka

the Permanent Secretary in his Ministry could not come to grace the occasion because he was attending another important meeting. He then read the speech after which he wished the Board fruitful deliberations.

The Head of SPGRC among other things informed the Board that he attended the GB5 (Governing Body of the Treaty) meeting which was held in Muscat, Oman from 24 to 28 September 2013. He said the meeting was preceded by two (2) days of consultations and that ended with numerous resolutions. He informed the Board that one of the NPGRC members from Mauritius, Mr Yacoob Mungroo will chair the next Governing Body session.

1.2 Workshops and Meetings

1.2.1 Annual Technical Review and Planning Meeting

The regional stakeholders' meeting on information exchange of national strategies on PGRFA was held on 11th – 13th September 2012, at Protea Hotel – Cairo Road in Lusaka, Zambia.

The meeting brought together representatives from all SADC Member States (NPGRCs) with the objective to:

- initiate planning and implementation of the FAO-funded project that would see national strategies for PGRFA developed for selected SADC countries;
- review the implementation of the technical activities for 2012/2013 cropping season;
- evaluate the technical and budgetary plans for the 2013/2014 cropping season; and
- facilitate information sharing on any other technical and networking issues.

In attendance were twenty nine (29) participants from NPGRCs, SPGRC, and the World Vegetable Centre (AVRDC).

In his opening speech, the Head of SPGRC welcomed participants to the meeting, with recognition of the presence of Dr George Okech, Zambia UN Food and Agriculture (FAO) Representative, Dr Chikelu Mba, FAO Senior Officer, Dr Dan Kiambi, Executive Director of African Biodiversity Conservation and Innovations Centre (ABCIC), and Dr Tsvetelina Stoilova, Senior Scientist at AVRDC in Arusha, Tanzania. Despite encountering several challenges, the Head outlined notable

Delegates' group photo: Planning meeting 2013

achievements made during the year that included implementation of the FAO-TCP project.

The Head reported that the June 2013 Ministers responsible for Agriculture and Natural Resources approved the regional PGR policy guidelines developed by SPGRC with Southern African Network for Biosciences (SANBio) financial support. He also reported that SPGRC had finalized a completion report for the 5th Phase of the SPGRC project. The meeting was informed that SPGRC had established close collaboration with Centre for Coordination of Agricultural Research & Development in Southern Africa (CCARDESA), as a result, Mozambique, Zambia and Malawi are participating in the Agricultural Productivity Programme for Southern Africa (APPSA) projects. Besides SPGRC re-establishing contacts with AVRDC – Africa Region, it also collaborated with SADC Secretariat in the development of the web-SDIS.

The Representative of FAO in Zambia, Dr George Okech expressed his pleasure for being invited to attend the meeting. He emphasized on the fact that FAO considers conservation of PGRFA as very important for global and regional food security and was enlightened that SADC values that importance for which it has even developed policy guidelines. He recognized the work that has been done and which is going on in implementing the FAO-TCP project in selected countries. He promised that FAO was looking forward to its renewed commitment to the future of conservation. On resource mobilization, Dr Okech advised SPGRC to aggressively engage potential development partners for possible financial support.

The meeting was also updated on the development of the web-SDIS (SPGRC Information & Documentation System), NPGRCs staff completion of postgraduate qualifications, and about development of a generic regional project proposal. The meeting conducted general discussions on network financial sustainability, sharing responsibilities between SPGRC and NPGRCs, strategies for bridging the gap between Active Collections at NPGRCs and Base Collection at SPGRC, role of SGRC in multilateral systems, and network contribution to regional food security, amongst others.

1.3 Visitors

During the reporting period, SPGRC received many visitors including school pupils, university students, scientists, farmers and prominent individuals. These are listed in the Appendix III.

1.4 Resource Mobilization for SPGRC

During the period under review, SPGRC secured US$499,000.00 under the Technical Cooperation Programme with FAO. The funds were being used in six SADC countries (Botswana, Lesotho, Malawi, Mozambique, Tanzania and Zambia) to develop national strategies for plant genetic resources for food and agriculture (PGRFA), plus procurement of equipment and facilities for SPGRC and NPGRCs.

1.5 SPGRC Financial Sustainability Plan

SPGRC Management updated the 2009 SPGRC Financial Sustainability Plan before submitting it to Ministers Responsible for Agriculture and Food Security. The Ministers recommended that the Plan be improved by SPGRC Management before re-submission.

1.6 SPGRC Project 5th Phase Completion Report

In October 2010 the Board directed the SPGRC Management to prepare a Project Completion Report for the 5th Phase of the SPGRC Project and submit it to Swedish International Development Agency (Sida). However, data inputs into the report were slowly coming in from NPGRCs thus delaying the updating and finalizing process of the report.

During the reporting period, the SPGRC Management finalized the Project Completion Report for the 5th Phase of the SPGRC Project with data inputs from the SADC Member States and has since submitted it to the donors (Sida).

2. PERSONNEL, EQUIPMENT AND SUPPLIES

2.1 SPGRC Personnel

There was no change in the staff compliment at SPGRC as reflected in Appendix II.

2.2 Staffing in NPGRCs

Ms Maleoa Mohloboli who was the Curator for Lesotho Genebank assumed the position of Acting Director for the Department of Agricultural Research from February 2014 following the retirement of Dr Martin M. Ranthamane.

Ms Remmie Moses was appointed the substantive Curator for the Namibian NPGRC in March 2014, replacing Ms Sonja Loots.

The network welcomed back three staffs who finished their MSc studies within and outside the region. Mr Onismus Chipfunde from Zimbabwe sponsored by SPGRC through a SANBio project finished his MSc in Environmental Policy and Planning from the University of Zimbabwe, Ms Busie Nsibande from Swaziland, sponsored by SPGRC through NORDIC/Sida project, finished her MSc in *in-vitro* regeneration of *Hypoxis* species at Swedish Agricultural University. Mr Abilio Afonso from Mozambique sponsored by SPGRC through NORDIC/Sida project, finished his MSc in genetic diversity of local maize germplasm from Mozambique at the Swedish Agricultural University. Ms Remmie Moses from Namibian NPGRC completed Honours Degree in Plant Sciences (University of Pretoria) in June 2013.

2.3 Equipment and Supplies

Frequent power outages from the Zambia Electricity Supply Company (ZESCO) continued causing damage to some equipment in the genebank. SPGRC has a standby electricity generator but which is very old and need replacement. With financial support from FAO, SPGRC is in the process of acquiring a new standby electric generator.

The staff from DRC NPGRC reported of having an office and a faulty desktop computer at National Institute for Agronomic Study and Research (INERA) in Kinshasa. As a result of joining the network late, DRC has not received any kind of equipment support and was therefore asking for SPGRC to enable it start up activities.

In general, countries were concerned with the depreciated genebanking equipment and facilities that need servicing and/or replacement. Member States requested for contacts of suppliers of some of the equipment and facilities so that they can individually contact them for purchase.

Through FAO-TCP funding, SPGRC has also procured a new heavy-duty photocopier to replace the ageing one which has been expensive to maintain.

1.4 SPGRC Buildings (Offices and Staff Houses)

There has been no change in status during the year under review. SPGRC continued to pay heavily for frequent and expensive maintenance of office buildings and staff houses due mainly to initial poor workmanship, for example, poor plumbing materials were used. Major maintenance work on buildings including replacement of substandard materials is required to solve the problem of frequent breakdowns of infrastructure once and for all.

3. MEETINGS, TRAINING AND EDUCATION

3.1 Training and Education for NPGRC Staff

The traditional annual PGR Management Short Course did not take place during the reporting period due to financial constraints.

The Angolan NPGRC conducted a training course in pre-breeding for agronomists and middle-level technicians in May 2013, with participation of two specialists from the Brazilian Agricultural Research Corporation (EMBRAPA), Brazil. It has also continued with preparations for an MSc course in PGR Conservation and Utilization due to begin at Agostinho Neto University in 2014. A number of network scientists and technicians attended a variety of training workshops and meetings that aimed at building capacity in conservation and sustainable utilization of PGRFA.

Meanwhile, there are a number of scientists who are pursuing further studies either abroad or within the region. These include Mr Lawrent Pungulani (Malawi) who is doing PhD in New Zealand, Ms Sonja Loots (Namibia) and Ms T. Motlhaodi (Botswana) doing PhD in Sweden, Mr Kudzai Kusena (Zimbabwe) is doing PhD in Zimbabwe.

While Zimbabwean Mrs R. Musango is doing distance MSc in Biosafety at an Italian University, Ms F Chinosengwa is doing BSc in Agronomy at Midlands State University of Zimbabwe. Mr. S. Mungure is attending MSc. training in Biotechnology and Laboratory Sciences at Sokoine University of Agriculture in Morogoro, Tanzania, and Mozambican Mr Francisco Reis is pursing his BSc. Hons. in Agronomy at the Polytechnic Institute in Maputo.

While South Africa's Mr Percy Moila is pursuing MSc in Sustainable Agriculture at Free State University, Ms Jermina Moeaha is doing MSc. in conservation, and Ms Maluleke a BSc Honours degree.

There is a noted general outcry from all NPGRCs for lack of funding for short courses and long term training for Gene bank staff.

3.2 Training of SPGRC Staff

The Finance and Administration staffs were in January 2014 trained on Sun system and iPOS software packages by specialists from the SADC Secretariat. Simultaneously, the SUN System and iPOS were upgraded with updated system patches.

3.3 Regional PGR Policy Guidelines Development

Coordinated by Documentation & Information Section, the Regional PGRFA policy guidelines that were finalized and approved by the SADC Ministers responsible for Food Agriculture and Natural Resources in their June 2013

meeting, were translated in three SADC official languages, printed and distributed widely to stakeholders in SADC region and beyond. An MSc student who was sponsored by SANBio through SPGRC to study environmental policy and planning successfully graduated in July 2013 and went back to work at the Zimbabwean NPGRC.

1.4 Some Important Meetings Attended by SPGRC Staff

Table 3.1: Meetings attended by SPGRC Staff

Apr 2013	– The Head and SPOs went on working retreat to finalize SADC policy guidelines for PGRFA, Livingstone, Zambia
May 2013	– SPO *In situ* participated in the assessment of the exploitation of Edible Ground Orchids in Serenje, Zambia. –
June 2013	– SPO–*In-situ* attended regional meeting on cassava collection, processing and action plan for South, East and Central Africa. – SPO–*In-Situ* facilitated and attended stakeholders' national workshops on national strategies development on PGRFA, and NPGRC technical backstopping in Botswana, Mozambique, Tanzania and Zambia. – SPO *In situ* in collaboration with the NPGRC participated in germplasm collection expedition in Nyimba District, Zambia. – SPO *Ex-Situ* conducted an advanced evaluation of driers from the "Driers for Africa" in South Africa and found were suitable for drying food and generally not suitable for dry seed for longer term conservation in genebanks. – SPO *Ex-Situ* visited South African Genebank and provided technical and genebank management support for optimization of resources. – SPO *Ex-Situ* provided technical backstopping and carried out an evidence-based evaluation of the Namibian NPGRC
July 2013	– SPO *Ex-Situ* participated in a mid-term review meeting of the RISDP in Johannesburg, South Africa – SPO *In situ* took part in the DRC cassava collection mission in the Katanga District – TO – Documentation & Information provided emergency technical support to resuscitate the malfunctioning SDIS in Windhoek, Namibia. – SPO *Ex-Situ* attended FANR Operations Planning (RAP) meeting in Gaborone, Botswana. – SPO *Ex-situ* attended APPSA meeting held in Malawi for evaluation and selection of projects to get support from CCARDESA.

Aug 2013	– The Head attended the SADC Council of Ministers and the Summit in Lilongwe, Malawi – SPO *In-situ* attended a crop diversity/seed fair in Lusitu, Siavonga District, Zambia – The Head attended the 5th Governing Body of the ITPGRFA in Muscat, Oman. – SPO *Ex-situ* undertook a mission to Western Province of Zambia to gather information for improving the APPSA project proposal for submission to CCARDESA.
Sept 2013	– SPO Ex-situ conducted evidence based genebanking evaluation in Malawi – SPO Documentation & Information tfravelled to Gaborone, Botswana on a mission to develop a Web-SDIS and undertake NPGRC technical backstopping – SPO Documentation & Information attended the BioFISA Phase I programme closure conference in Centurion, South Africa – SPO *In-situ* attended the Ministers of Environment meeting in Maputo, Mozambique
Oct 2013	– The Head attended the Mzimba Open Day on plant genetic resources in Malawi
Nov 2013	– The Head attended the Natural Resources Management Leaders' workshop held in South Africa – SPO *Ex-Situ* travelled to Arusha-Tanzania to carry out genebank evaluation for compliance to international standards – SPO *Ex-Situ* travelled to Pretoria, South Africa to carry out genebank evaluation for compliance to international standards. – SPO *Ex-situ* travelled to Angola to undertake the evidence based evaluation of Angola and promoted SPGRC's networking.
Dec 2013	– The Head travelled to Gaborone (Botswana) for consultations with CARDESSA management and attended the SADC Finance Sub-Committee – SPO Documentation & Information travelled to Gaborone, Botswana to consult and work with SADC-AIMS programmer to develop the web-based SDIS – SPO *Ex-Situ* attended the 2nd SADC Seed Centre 2nd Steering Committee meeting, Harare, Zimbabwe
Jan 2014	
Feb 2014	– The SPO *In situ* attended a training work shop on *in vitro* and cryopreservation of PGR in New Delhi, India. She also attended an *in situ* meeting at FAO – Rome, Italy
Mar 2014	– SPO *In situ* undertook a training mission on germplasm collection in DRC – SPO Documentation & Information undertook a backstopping mission to Malawian NPGRC, Lilongwe. – SPO *Ex-situ* participated at the workshop organised by SADC Seed Centre where protocols for protection of new varieties of plants (Plant Breeders Rights) in Southern Africa were discussed. – SPO *Ex-situ* travelled to Seychelles and provided technical support for Seychlles/COMESA Adaptation Fund Project Baseline Study and provided technical advice

4. TECHNICAL ACTIVITIES

4.1 GERMPLASM COLLECTING AND *IN SITU* CONSERVATION

4.1.1 Germplasm Collection

Germplasm collection missions were conducted in seven countries (compared to nine during the previous year). A total of 857 samples (742 mixed crops, 115 wild spp) were collected for conservation. The numbers of collected samples are reflected in Table 2.

Table 2: Germplasm Collections in the 2012/13 season

Country	Number of Samples	Remarks
Botswana	10	Mixed crops from the agricultural show
DRC	50	Cassava from the Katanga District
Lesotho	44	*Pentanisia prunellois* – medicinal plant
Namibia	66	Wild sp.
Swaziland	13	Crops (8), wild cotton (5)
Tanzania	586	Rice
Zambia	88	Cucurbits
Total	**857**	

The SPO participated in the DRC and Zambia collection missions. Two officers from the Kipopo Research Station in DRC were briefly trained on how to collect cassava and to conserve the live clones in a field genebank. Sampling demonstrations were done during the actual mission. As regards training, two other officers from Seychelles who came for a genebanking familiarization trip at SPGRC were introduced to the SPGRC collection form. They were also advised to take an inventory of what the country is having, where the crops are occurring and the status of occurrence in order to prioritize on which target species to collect. The country is working towards establishing a National PGR Centre.

4.1.2 Conservation of Wild Fruits and Medicinal Plants

The status of field genebanks is reflected bellow:

Country	Status
Angola	Material of various crops and fruit trees are conserved in specialised institutions
DRC	Cassava collections are conserved in Kipopo, M'vuazi and other specialised institutions. There is need to conduct an inventory to take stock of all locations and conserved materials
Lesotho	NPGRC's field genebank holds 64 accessions of medicinal plants

Malawi	The field genebank is holding 110 sweet potatoes, 70 samples of bananas and 98 of sugar cane. On a sad note, 377 accessions of cassava and sweet potato were lost due to diseases and water stress
Seychelles	An *in situ* conservation site has been identified. Activities are to be carried out in collaboration with the Plant Conservation Action Group (NGO). Target crops and other useful plants have already been identified
Zambia	100 accessions of cassava are conserved at the NGPRC field genebank. Specialized institutions have their collections conserved for research purposes

4.1.3 SPGRC Arboretum

SPGRC continued to maintain 25 species of wild fruit trees and medicinal plant at the regional centre. A total of 105 plants, all collected from various parts of Zambia are in the arboretum.

4.1.4 On-Farm Conservation

The on-farm management initiative is trying to strengthen the conservation and continued use of local crop varieties at farmer level by recognized farmers' groups.

Many communities in the SADC region still depend on traditional food species for food and income that fall outside the narrow range of crops and commodities that dominate agricultural and food policies. These traditional food species are often more resilient than their staple crop counterparts as they can be better adapted to grow in marginal areas, and they can be more nutritious. Increasingly, these species are finding themselves once more in the spotlight as options to adapt to climate change, improve nutrition and establish sustainable livelihoods for farm households and rural communities.

On-farm conservation of crop diversity is currently carried out in eight (8) countries (Botswana, Malawi, Namibia, Tanzania, Seychelles, Swaziland, Zambia and Zimbabwe) where the concept is rolled out to new farming communities. In Seychelles, the emphasis is on urban farming where city dwellers are encouraged to grow crops in containers. The concept is known as the "Every Home a Garden". In the other countries, the promotion of crop diversity is strengthened by establishing demonstration plots and information sharing done through field days and seed fairs. In some countries, crop improvement has been done through the use of local varieties obtained from the genebanks, the improved/released varieties are also promoted and included in the demonstration plots to maximize their adoption by farmers (cow pea, sorghum and bambara). Three other countries (Angola, Lesotho and Mauritius) have identified communities with rich diversity of local crops

where farmers are to be mobilized into groups and encouraged to maintain their adaptive crops to mitigate challenges of climate change and improve access to food. Farmer groups are yet to be established.

The SPO *In-situ* attended Diversity Fairs at Lusitu, a site that falls under the drought prone areas of Zambia and farmers are encouraged to grow drought tolerant crops such as sorghum, pearl millet, cow pea, bambara, cassava and sweet potato. Farmers were urged to share seed/planting materials and farming practices so that families have improved access to planting material and enhanced food security. Some white sorghum local varieties were said to be early maturing, used for *nsima* (thick porridge), and some with huge heads and big seeded, said to be late maturing varieties. These are such characteristics that breeders can improve on for crop improvement purposes. One of the sorghum varieties known as Kulongo is famous for its tolerance to drought. Thirteen different sorghum varieties were displayed namely: Katuba, Kuyuma, Kagodola, Kaulongo, Kasalala, Kayamansi, Nsake, Mpwatu, Kayamwali, Jekiseni, Loongo, Nsima and Tyola kabamba.

Farmers were grateful to be given the chance of showing the different crops that they farm because they attach value to them since local crops are their source of income and access to food. Field days and seed fairs were also reported to be held in Malawi, Swaziland, South Africa, Zambia and Zimbabwe.

4.1.5 In Situ Conservation

4.1.5.1 Wild Edible Orchids

Edible ground orchid tubers have been used as a source of food and are traded in the main cities particularly for a unique soft cake known as "African Polony" or Chikanda. The orchids involved are from three genera; *Disa*, *Habenaria* and *Satyrium*. These have become threatened in Malawi and Zambia due to the unsustainable harvesting manner and the encroachment of farming activities to the swampy areas where they occur.

The monitoring of edible orchids in Zambia need to be strengthened because they occur in swampy areas and are threatened by the prolonged dry spells which is affecting their habitat. They are also subjected to uncontrolled harvesting systems exacerbated by their commercialization. Communities around the areas where the orchids occur were visited. Sustainable harvesting methods were discussed with the communities and Extension Workers were requested to monitor the implementation of the sustainable harvesting methods.

The popularization of eating the tubers especially in urban areas has caused a boom in trade and a dramatic pressure to the sustainability of the plants. In Serenje (Zambia), traders pay a deposit in advance before the tubers are even ready for harvest, such that, harvesting is now done early before they reach flowering and maturity.

The *in situ* unit in collaboration with the Zambian NPGRC conducted an assessment of genetic erosion of the Orchids in Serenje, Zambia. The collected data was useful to formulate strategies for mitigation plans that could be implemented to combat the genetic erosion, mainly on sustainable harvesting. In all visited sites, the community members were very much aware that the edible ground orchids were declining and disappearing. When asked why they over harvest the orchids, they said it was because it is a source of food and income.

SADC-AIMS Portal where SDIS will be duly posted

The optimal harvesting period ranges from February to August but in January, at most sites, the plants were already harvested and those that were found had been recently transplanted i.e. plants had no tubers. In the past, it was taking 2 -3 days to fill up a 50 Kg bag and now it takes 3 – 4 weeks due to the scarcity of the orchids. At some sites, the communities were planting cassava and livingstone potato at the edges of the ***dambos***, reducing the habitat, posing a serious threat to the survival of the orchids.

A follow-up trip to revisit the sites and to come up with mitigation plans to promote sustainable harvesting methods was carried out early 2014. Meetings were held with Extension Workers and some of the community members, to discuss sustainable harvesting methods.

Communities were advised to:

- Transplant the vegetative parts of the plants when they are harvesting to enable the plant to regenerate itself for the following season.
- Select fully mature plants at harvesting.
- Plants in flower not to be harvested to allow dispersal of flowers.

- Shoots to be transplanted in ridges and intercropped with cassava and livingstone potato.
- Staggering of harvesting sites to allow plants to multiply.

1.1.5.2 Domestication Trial of Marama bean (*Tylosema esculentum)*

The marimba bean (Tylosema esculentum) occurs in the southern parts of Africa, namely South Africa, Namibia and Botswana. Literature reflects that domestication field experiments are carried out in Perth-Australia, USA, and Kenya. More information is still needed on its ecological requirements, adaptability to cultivation and agronomy.

Marama is prized by people of the Kalahari Desert for the protein and oil content of its large seeds (20-30 g). The seeds are not eaten raw as they are tasteless with an unpleasant slimy texture, but after roasting, they have a delicious nutty flavour, resembling roasted cashew nuts.

At SPGRC, it was planted in January 2011 with seeds sourced from Botswana. The vegetative growth is very vigorous during the summer months; sprouting from a formed underground tuber. It is dormant in winter and the leaves dry off; regenerating again after the first rains around October/November. The plants have long running stems that enable them to creep along the ground. The plants at SPGRC have clocked three years but still no flowering observed. In the wild, they take 3 – 4 years before flowering. In its native area, marama bean flowers from October to March. Observations are ongoing and growth habits documented.

4.2 DOCUMENTATION AND INFORMATION

4.2.1 Hardware and Software

SPGRC routinely updated its software during the reporting period. The Centre procured, configured and installed a mail server which also acts as a domain controller. Meanwhile, a server that was dedicated for the web-SDIS at SPGRC has now been reconfigured to act as a file server to replace the old one.

The SPGRC Local Area Network and associated IT equipment and facilities are smoothly running thus enhancing sharing of information and data resources across local and outside clientele.

During the year, SPGRC updated anti-virus and other application software, procured new LCD projector, replaced Internet communication switches and installed new air conditioner in server room. It has also upgraded its Internet bandwidth to cope up with increasing load.

4.2.2 Database Development

It was last year reported that the programming of web-based SDIS in progress stalled due to unavailability of the central server. When the server was made available by donor (December 2011), it was found not configured. The Board then advised SPGRC Management to reconfigure and develop a new web-SDIS with the available resources. Redesigning and development that commenced in last of quarter of 2012 is being undertaken collaboratively with SADC-AIMS programmer.

The re-designing and programming of the web-based SDIS in collaboration with the SADC-AIMS programmer is on course with some database tables already uploaded on the AIMS portal for testing. A prototype with data was tested in July 2013 and same was demonstrated to users at the time of the SPGRC/NPGRCs annual planning meeting in September 2013.

The intermittent service time of the programmer hampers smooth progress because being a permanent employee with a SADC Disaster Management project, he can only apportion his time for SPGRC database when convenient; and yet, a number of database development processes need one-to-one interaction.

4.2.3 Sharing and Dissemination of Information

5.2.3.1 Network News

The SPGRC Annual report for 2013/14 was printed and distributed widely to stakeholders. The online version of the report is available on the website (www.spgrc.org.zm). There were too few articles to publish the biennial newsletter. Efforts to solicit for articles from the network scientists are underway.

More than 1000 full-text articles have been extracted from The Essential Electronic Agricultural Library (TEEAL) database (stationed at SPGRC) that was acquired in 2012 through support of the Technical Centre for Agricultural and Rural Cooperation

What is TEEAL?
The Essential Electronic Agricultural Library (TEEAL) is a full-text of over 200 international peer-reviewed journals from more than 60 major publishers selected by international scientists for quality and relevance, critical to the research and education being carried out in low-income countries.

No phone or Internet is required. TEEAL's searchable database of full-text articles is on a small hard drive that can be connected to one or many locally networked computers running on Windows 2000 or higher.

(CTA), Information Training & Outreach Centre for Africa (ITOCA) and the Cornell University. It has continued to assist scientists have full-text articles from more than 200 world-renowned journals in agricultural research and production. The TEEAL was in April 2013 updated with the 2011 journals full-text database from Cornell University. The library management software (Surpass) has assisted in effectively managing the SPGRC library and was updated in October 2013 before license expired.

4.2.3.2 Connectivity to the Internet

The Internet access at SPGRC was upgraded from 256 Mbps to 512 Mbps in July 2013. However, this speed is still low given the many operations that need rather higher bandwidth. In anticipation of increased Internet traffic following migration to web-SDIS, the Centre is processing upgrading of Internet to 1,000 Kbps *via* optic fibre.

To date, DRC, Mozambique, Seychelles, Tanzania, and Zimbabwe remain unreliably connected to the Internet and extra support is needed, especially in the anticipation of the operationalization of the web-based SDIS.

Seychelles needs support to build a Local Area Network and annual Internet subscriptions be provided for DRC, Mozambique, Seychelles, and Tanzania.

4.2.3.3 Publicity and Awareness of SPGRC

Due to financial constraint, little was done to publicise SPGRC for enhancing its visibility during the year. The missed publicity occasions include Zambia International Trade Fair, Zambian Agricultural show, and other national and regional shows/ exhibitions, as well as media coverage.

However, SPGRC has ensured that resources are allocated for the same in the next financial year 2014/15.

4.2.4 Library Services

SPGRC continued to purchase new books, journal and serial titles as well as other publications while renewing the existing ones. Five new titles related to biodiversity management were purchased during the year and added to the library collections that serve network scientists to keep themselves abreast with new information, technology and other

developments in PGR conservation, management and sustainable utilization.

The SPGRC network scientists continued using The Essential Electronic Agricultural Library (TEEAL) database (stationed at SPGRC), to query and have access to full-text articles from more than 200 world-renowned journals in agricultural research and production. The TEEAL was in April 2013 updated with the 2011 journals full-text database from Cornell University. The scientists would usually make request for information from SPGRC on an interested topic of their choice and SPGRC would query the TEEAL on their behalf and download appropriate literature in full-text and send it to scientists within two working days. The library management software (*Surpass*) has assisted in effectively managing the SPGRC library and is due for updating in October 2013 before license expiry.

4.2.5 Support to NPGRCs

Due to limited funding, staff from the Section could not travel to support NPGRCs that asked for assistance. However, technical support from SPO Documentation & Information was provided to Tanzania and Botswana as he travelled to these countries on missions supported by other projects. Namibia whose database ceased to run was supported by TO – Documentation. The SPO – Documentation also had opportunity to resuscitate Malawian NPGRC database.

4.3 EX-SITU CONSERVATION

4.3.1 Seed Handling and Storage

While all other things were carried out successfully, the key among challenges the network set to promote this year was the implementation of an obligation the network set itself in 2007, to bridge the gap that had accumulated in previous years between collections held in Member States as 'Active' and at SPGRC as 'Base' collection.

Although the target the network set itself in 2007, to address the gap between the numbers of 'Active collections' and 'Base collections' including safety collection at Svalbard, was still uncleared, during the 2013-2014 period, five member states sent samples to SPGRC and they include: Angola 35, Botswana, 279, Malawi 9, Mauritius 41 and Namibia with 59 accessions as illustrated in Table 4.3 below.

Table 4.3: Accessions received from NPGRCs during 2013 – 2014

Country	Number of Accessions	Date Received
Angola	35	11/09/2013
Botswana	279	25/06/2013
DRC	0	-
Lesotho	0	-
Malawi	9	11/09/2013
Mauritius	41	16/02/2013
Mozambique	0	-
Namibia	59	20/03/2014
Seychelles	0	-
South Africa	0	-
Swaziland	0	-
Tanzania	0	-
Zambia	0	-
Zimbabwe	0	-
	423	-

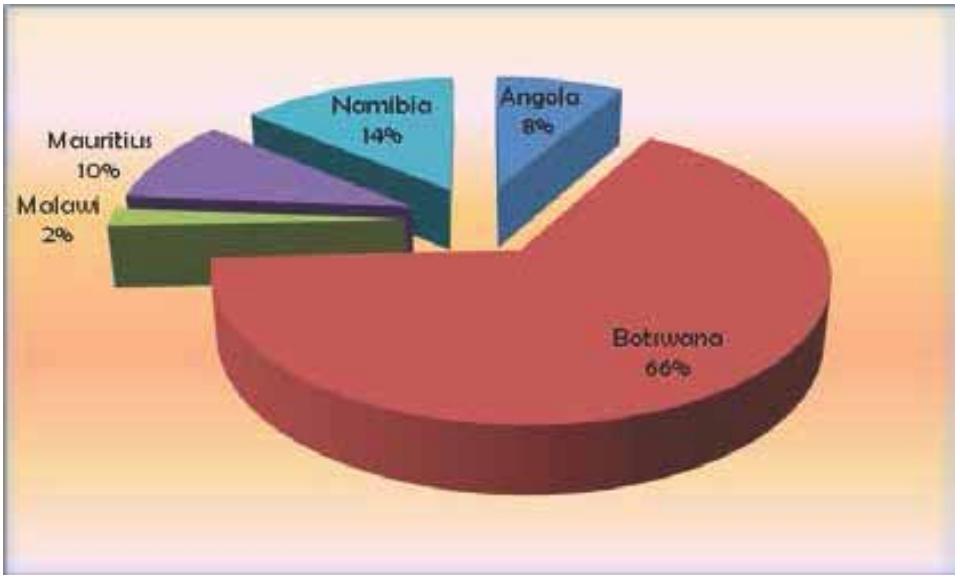

Figure 4.1: Accessions received from NPGRCs in 2012 (by percentage)

4.3.2 Facilities and Equipment

SADC Regulations and Procurement Manual were followed as per availability of funds to replace the equipment. The recent developed freezers' replacement plan was also followed and 10 freezers were replaced. The replacement plan was developed and its success application will depend largely on base fund ($20,000) annually to ensure that all old freezers are in place on time and some laboratory equipment were also replaced.

4.3.3 Regeneration and Multiplication

A total of 300 samples that were received in with quantities inadequate to meet standards for conservation in genebanks and to meet the quantities for base at SPGRC and safety at Svalbard or that lost viability during storage in genebanks were regenerated at SPGRC's experimental farm and included five major crop species including 100 maize samples that were characterised. Malawi, Mozambique, Zambia, Tanzania and Botswana were also engaged in characterisation of collected genebank materials.

4.3.4 Status of Collections in NPGRCs and at SPGRC

During the year, total collections held in NPGRCs remained the same at 44,795 as reported last year; whilst, that of SPGRC rose from 16,590 to 17,329 as reflected in Table 4.4.

Table 4.4: Status of collection: 2012/13

Country	Collections in Country	Collections held at SPGRC
Angola	4,281	1420
Botswana	4480	1331
DRC	0	0
Lesotho	1519	1201
Malawi	3917	1793
Mauritius	4613	1459
Mozambique	491	132
Namibia	2619	649
Seychelles	0	0
South Africa	3091	1108
Swaziland	972	483
Tanzania	6001	2240
Zambia	6500	3380
Zimbabwe	6311	2133
Total	**44,795**	**17,329**

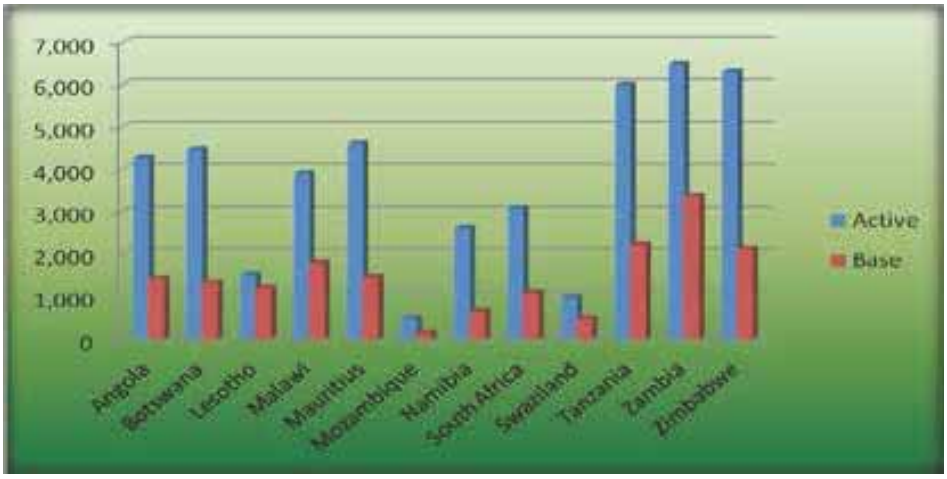

Figure 4.2: Number of accessions by country and duplicates at SPGRC

During the reporting period, the accessions holdings and major species at SPGRC are as shown in table 4.5 below.

Table 4.5: Accessions of Major Species held at SPGRC

Species	Common Name	Number of Accessions
Sorghum bicolor (L.) Moench	Sorghum	5238
Eleusine coracana	Finger Millet	1164
Zea mays L.	Maize	2229
Pennisetum glaucum (L.) R. Br.	Pearl Millet	1641
Vigna unguiculata (L.) Walp.	Cowpea	1535
Arachis hypogaea L.	Groundnut	805
Phaseolus vugaris L.	Beans	1132
Oryza sativa L.	Rice	335
Vigna subterranea (L.) Verdc.	Bambara Nuts	410
Cucurbits (C. Pepo & maxima)	Pumpkin	369
Citrullus lanatus (Thumb.) Matsumura & Nakai	Water Melon	217
Triticum aestivum L.	Wheat	142
Cajanus cajan (L.) Millsp.	Pigeon pea	172
Cicer arientinum L.	Chickpea	145
Pisum sativum L.	Pea	106
Sesamum indicum L.	Sesame	101
L. siceraria	Gourd	1121
Others		467
Total		**17,329**

4.3.3 Coordination and Technical Back-up

During the reporting period, coordination and technical backstopping missions were made to South Africa, Malawi and Mozambique and specific evidence based evaluations were undertaken in Zimbabwe, Angola, Malawi, Namibia and promoted implementation of international standards for conservation and quality management systems. The purpose of evidence based evaluation was to find out main factors that may have influenced disparities between the active at member states and base collections at SPGRC.

The copies of revised FAO PGRFA Genebank Standards (2013) were distributed to all national genebanks as part of their promotion for use to enhance quality work in genebanks.

4.3.4 Herbarium

SPGRC continued to promote use of herbarium specimens to improve conservation of underutilised and less known species that have shown promise for food security. Meetings were held with the various stakeholders including the University of Zambia and Copperbelt University. The programme has been improved to include complete knowledge improvement through formal training.

5. FARM

During the 2012/2013 planting season, soya bean was produced in about 10ha of land resulting into 126 x 50kg bags. During the 2013/2014 season, it was cultivated in 12ha of land. Planting was done between 4th and 17th December, 2013 and weeding was not done because herbicides were used to control weeds. The general crop stand was satisfactory. Harvesting is due in May 2014.

Next season's plan include planting of sun hemp in all fields that were not used for crop production, to improve the soil structure and fertility. At the time of reporting, new electricity poles leading to farm irrigation pump were being erected to replace the burnt down poles.

6. GENERAL ISSUES: DISCUSSIONS AT PLANNING MEETING

6.1 Financial Sustainability

Participants in the planning meeting noted that SPGRC is financially fully dependent on contributions from Member States, amounting to about US$ 1.2 million a year. It lately got some funds from FAO and SANBio to implement project activities.

The meeting strongly felt that establishment of Biotechnology Laboratory at SPGRC would help in income generation; and in addition, facilities allowing, it should consider conducting training courses at the Centre both for the network scientists and outsiders.

SPGRC management was urged to see how it can best make use of the fully-fledged resource mobilization directorate at SADC Secretariat (PPRM - Policy, Planning and Resource Mobilisation) in its endeavor to raise funds for sustaining the network. This could be achieved through writing proposals and marketing its activities and capabilities.

1.2 Sharing Responsibilities between SPGRC and NPGRCs

This is an issue that was discussed at length in 2012. It for example, recommended some NPGRCs with expertise and capability to assist in the multiplication of germplasm materials for others who have less capacity. Although this happened; for example, Malawi multiplied for Namibia, and SPGRC multiplied for Namibia, but the cooperation has been low amongst other Member States.

It was noted that there are concerns by some Member States not agreeing to multiply in other countries due to variability in environment; and also, there was the problem of limited funding to implement this. Still, the meeting agreed that mutual assistance on this task should be encouraged and supported.

1.3 Role of SPGRC in Multilateral System (MLS)

The meeting was informed that the Board was not in favour of SPGRC distributing materials. However, in seeking to increase SPGRC relevance and in line with changing global environment in management of PGRs, the technical meeting was urged to build a convincing strong case for SPGRC to distribute.

1.4 Benefits to the Network from Global Frameworks

After focused discussions, the meeting was of the opinion that SADC Secretariat and the Board should help promote SPGRC works. The network recommended that the network should come up with statements for presentation during international/regional events.

The SPGRC should find ways of engaging with organisations that are helping in achieving Millennium Development Goals with emphasis on food security, which is an area that the network strives to contribute. As a network, it was urged that it should develop proposals aimed at strengthening regional capacity both in technical and policy issues.

1.5 Network Contribution to Regional Food Security

The members felt the network needs to define its own research agenda in a clearer manner. SPGRC network should come up with issues on PGRFA climate change, intensify research on pre-breeding, crop diversification; and realign its priorities to suit ongoing global changes related to PGRFA.

In the same pursuance, the network should identify neglected crops in Africa and see if it can join the cause to conserve and develop them. It also needs to do a situation analysis on traits that might be of interest to breeders and see if these can be commercialized.

The SPGRC was persuaded to come up with a communication strategy that will clearly classify different stakeholders to be reached. All Member States should be encouraged to start promoting pre-breeding in respective countries.

1.6 Replacement Plan for Equipment/Facilities

The SPGRC prepared a 5-year equipment replacement plan which it promised to share with NPGRCs.

The SPGRC is investigating within the region and beyond to identify experienced and reliable suppliers on genebank equipment. This will be shared with Member States.

1.7 Creation of a Breeder Discussion Domain/Forum on SPGRC Website

A lot of information has been generated that breeders wish to share with SPGRC. A platform needs to be created to enhance this information and experience sharing amongst practitioners and users.

7. STATUS OF FAO-TCP PROJECT

The SPGRC started implementing a 1½ years (July 2012 to December 2013) project to support development of national strategies for plant genetic resources for food and agriculture. With funding from FAO-TCP, the project is being implemented in six SADC countries that include Botswana, Lesotho, Malawi, Mozambique, Tanzania and Zambia. Due to logistics, the project was extended at no-cost up to December 2014.

Salient achievements of the project:

Output 1: Development of national strategies for the effective conservation and use of PGRFA	
Draft strategies developed in all six participating countries and national stakeholders' workshops done to finalize the strategies	Promotion of the strategies through regional stakeholders such as the SADC Secretariat, SPGRC Board, Agriculture Ministers being prepared
Baseline studies on the conservation status and the status of *in situ*/on-farm conservation of priority crops done by Zambia and Malawi	Botswana and Lesotho still conducting data collection. Mozambique and Tanzania are yet to start doing the studies
Output 2: Utilization of conserved material in crop improvement as means for addressing climate change threats	
Identification of promising material in genebanks that have traits adapted to extreme climate conditions using FIGS or other GIS approaches has not been done	The capacity for FIGS and GIS is lacking. This will be done by selecting promising material through passport and characterization data
Development of plans for breeding programmes is ongoing in all countries	Some countries like Botswana have identified crops to be used in the breeding programmes
Output 3: Networking and collaborative partnerships for PGRFA conservation use and seed delivery strengthened	
Botswana has developed catalogues for cow pea	The activity is ongoing in other countries
Holding of consultative and joint planning meetings between genebankers and breeders has only been done by Botswana	Other countries planning to implement this activity
Output 4: National and regional capacities for the conservation and sustainable use of PGRFA strengthened	
Training course done on molecular characterization in collaboration with the University of Zambia.	Two participants per country participated

Procurement of conservation infrastructure is ongoing	Those items that could not be sourced in the region are to be procured by the FAO Rome office though the office in Harare. Air conditioners and freezers were delivered at SPGRC. Freezers were also delivered in Tanzania. Malawi received farm inputs
Enhancing capacity for regional PGRFA information exchange	SPGRC Documentation staff to work with SASDC-AIMS programmer in the designing and programming of the web-SDIS. Training, testing and consulting with users in participating countries, and uploading the test database on the SADC portal

Participants of national strategies development workshop in Lesotho, 2013

8. FINANCIAL REPORT 2012/2013

Table 9.1: Income & Expenditure Statement for the Year Ended 31st March 2013

	2012/13, US$	2011/12, US$
Income		
Member States Contributions	1,133,433	1,233,667
ICP Contributions	11,889	186,082
Other Income	62,855	81,848
Total Income	**1,208,177**	**1,501,597**
Expenditure		
Operating Expenses		
Employee Benefits Expense	375,517	373,265
Transport, Subsistence and Conferences	56,201	36,933
Rents	0	0
General Expenses and Supplies	85,768	96,076
Communications	17,504	17,544
Audit and Professional Fees	8,732	4,997
Depreciation	81,425	95,418
Sub-Total	***625,147***	***624,233***
Programme Expenses		
Member States Funded	582,966	858,546
Development Partners	11,889	0
Sub-Total	***594,855***	***858,546***
Total Operating Expenditure	1,220,002	1,482,779
Operating Surplus	**(11,824)**	**18,818**
Finance (Costs)/Income	(4,860)	(5,770)
Operating Surplus	**(16,684)**	**13,048**
Other Comprehensive Income:		
Exchange Rate Gain/(Loss)	(21,937)	(22,018)
Surplus (Deficit) for the Year	**(38,621)**	**(8,970)**

Source: *SADC Financial Statements for the Year Ended 31st March 2013*

Table 9.2: Statement of Financial Position as at 31st March 2013

	2012/13, US$	2011/12, US$
Assets		
Non-Current Assets		
Property, plant and equipment	1,711,478	1,747,738
Current Assets		
Debtors and prepayments	96,681	70,773
Cash and cash equivalents	345,796	373,635
Current Assets	442,477	444,408
Total Assets	**2,153,955**	**2,192,146**
Member States Funds and Liabilities		
Member States Funds		
Reserve Fund	20,140	20,140
Accumulated fund	154,894	168,493
Staff loan fund	52,369	51,732
Member States Funds	227,403	240,365
Non-Current Liabilities		
Deferred capital grant income	1,644,718	1,698,652
Post-employment benefit	238,404	169,948
Non-Current Liabilities	***1,883,122***	***1,868,600***
Current Liabilities		
Payables	43,430	83,181
Current Liabilities	***43,430***	***83,181***
Total Member States Funds and Liabilities	**2,153,955**	**2,192,146**

Source: *SADC Financial Statements for the Year Ended 31st March 2013*

Table 9.3: Cash Flow Statement for the Year Ended 31st March 2013

	2012/13, US$	2011/12, US$
Cash Retained from Operations		
Surplus for the year	(38,621)	(8,971)
Adjustments		
Depreciation	81,425	95,418
Profit on Disposal of Fixed Assets	204	-
Finance Income	4,860	5,770
Exchange Gain/(Loss)	21,937	22,018
Transfer from Capital Grants	(53,934)	(54,035)
Transfer from Accumulated Fund	-	-
	15,871	60,200
Receivables	(25,907)	81,795
Payables	(39,750)	(106,701)
Net Cash from Operations	**(49,786)**	**35,294**
Cash Flows from Investing Activities		
Acquisition of Fixed Assets	(45,166)	(39,757)
Proceeds on Disposal of Fixed Assets	(204)	-
Interest Received	-	-
Interest Paid	(4,860)	(5,770)
Exchange Gain/(Loss)	(21,937)	(22,018)
Net Cash Flows from Investing Operations	**(72,167)**	**(67,545)**
Cash Flows from Financing Activities		
Member States Special Funds	25,022	(75,673)
Grants Received	-	-
Staff Loan Fund	637	26,948
Lease Repayments	-	-
Gratuity Fund	68,456	(50,148)
Development Partners Funds	-	-
Net Cash Flows from Financing Activities	**94,115**	**(98,873)**
Net Increase in Cash and Cash Equivalents	(27,838)	(131,124)
Opening Cash and Bank Equivalents	373,634	504,758
Closing Cash and Bank Equivalents	**345,796**	**373,634**

Source: *SADC Financial Statements for the Year Ended 31st March 2013*

9. APPENDICES

Appendix I: Members of the Board of SPGRC, 2013/2014

Dr Julian Jaftha	– South Africa (Chairperson)
Ms Pedro Mo□ambique	– Angola
Ms Mary K. Molefe	– Botswana
Prof Jean-Albert M. Nkonko	– DRC
Dr Martin M. Ranthamane	– Lesotho
Dr Alfred P. Mtukuso	– Malawi (Vice-Chair)
Ms Carla do Vale	– Mozambique
Mr Nitish Goupal	– Mauritius
Mr Steve Carr	– Namibia
Mr Marc Naiken	– Seychelles
Dr Innocentia S. Kunene	– Swaziland
Dr Hussein Mansoor	– Tanzania
Dr Stephen W. Muliokela	– Zambia
Dr Cames Mguni	– Zimbabwe
Ex-Officio Members	
Mrs Margaret Nyirenda	– SADC Secretariat
Dr Jojo Baidu-Forson	– Bioversity International
	– Donor
Dr Paul M Munyenyembe	– SPGRC (Secretary)

Appendix II: SPGRC Staff Members, 2013/2014

Dr Paul M Munyenyembe	Head, SPGRC (*18 July 2008*)
Ms Thandie J Lupupa	Senior Programme Officer – *In-Situ* Conservation (*16 May 2006*)
Mr Barnabas W Kapange	Senior Programme Officer - Documentation & Information (*09 May 2006*)
Mr Lerotholi L Qhobela	Senior Programme Officer – *Ex-Situ* Conservation (*15 May 2006*)
Mrs Mary B Phiri	Assistant Administrative Officer (*01 March 2000*)
Ms Florence C Chitulangoma	Assistant Finance Officer (*08 March 1993*)
Mrs Peggy S Ng'ono	Technical Officer-Conservation (*01 June 2005*)
Mr Mike Daka	Technical Officer - Documentation & Information (21 May 2012)
Mr Ferdinand Mushinge	Technical Officer – *In situ* (*01 March 2004*)
Mrs Phyllis M Litula	Personal Secretary (*12 November 2001*)
Mr Wilbroad M Chashi	Senior Finance Clerk (*01 July 2002*)
Mr Alexius M Nyambe	Driver (*01 February 1991*)
Mr Kapelwa E Songa	Typist/Receptionist (*01 September 1989*)
Mr Gibson Zulu	General Worker (*01 August 1989*)
Mr John Mfwembe	Worker (*04 September 1989*)
Mr Wale Banda	General Worker (*01 April 1990*)
Mr Olipen Phiri	General Worker (*05 January 2009*)

Appendix III: List of Some Prominent Visitors to SPGRC (2013/2014)

Kabwe Simon	Realtime Zambia, P. O. Box 368836, Lusaka
Melissa Ross	Realtime Zambia, P. O. Box 368836, Lusaka
Emmanuel Malite	KEMT Technical Innovations Ltd., Lusaka
Patrick Mulvany	Rugby, UK. Consultant
Anthony Mulenga Sinza	Cooperative College/Ministry of Agriculture
Nachili Kauli	Embassy of Finland, Lusaka, Zambia
William Benyami	USAID/Southern Africa, Pretoria, South Africa
Mandy Parham	USAID/Southern Africa, Pretoria, South Africa
James Wanyancha	Former SPO-*In-Situ* Officer, SPGRC. (+255-782-603484)
Melissa Brown	World Bank, Washington DC, USA
W. Mwale	ZASTA, Lusaka - Zambia
Sen. Asst. Com Ndandula	Siamawa Protective Unit Commanding Officer, P. O. Box 30837, Lusaka
Clement Kanyama	Director Budget & Finance, SADC Secretariat
Cleophas Samusodza	Finance Officer – Gen. Ledger, SADC Secretariat
George Mahwite	Systems Accountant, SADC Secretariat
Kenneth Sitimela	IT Officer – Networks, SADC Secretariat
Brian Mwanamambo	AgBIT (Agribuiness Incubator), Lusaka
Mukwemba Habeena	AgBIT (Agribuiness Incubator), Lusaka
Fatima Sinon	Seychelles NPGRC
Jeanine Jean	Seychelles NPGRC
Keven Nancy	Seychelles Agric. Agency, Victoria, Mahe, Seychelles
Pertti Anttinen	H.E. Finnish Ambassador, Lusaka, Zambia

10. PUBLICATIONS

The SPGRC Network staffs trained under the SPGRC Project continued to add to regional PGR knowledge through researched theses and peer-reviewed journal articles. Below are three publications on the PGR of the region.

a) **Abilio Afonso (2013).** Study on the genetic diversity of local maize (*Zea mays* L.), germplasm from 8 agro-ecological zones in Mozambique. Swedish University of Agricultural Sciences, Alnarp, 2013.

b) **Busie Nsibande (2013).** *In-vitro* regeneration of four Hypoxis species. Swedish University of Agricultural Sciences, Alnarp, 2013.

c) **Onismus Chipfunde (2013).** Response of sorghum and maize landraces for resistance to *Striga asiatica.* University of Zimbabwe, 2013.