SPGRC

SADC Plant Genetic Resources Centre

Seventeenth Annual Report
2006-2007

SPGRC
Chalimbana
2007

Cover: Besides being more precise, molecular marker characterisation of collections of germplasm saves time, space and money and is increasingly being adopted and used in genebanks as seen in the Angolan NPGRC (*Photo courtesy: Dr Antonio Alcochete - NPGRC, Angola*)

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Contents

List of Abbreviations

AGORA	Access to Global Online Research in Agriculture
AVRDC	Asian Vegetable Research and Development Centre
Bioversity	Bioversity International (formerly International Plant Genetic Resources Institute – IPGRI)
CBN	Crop Biodiversity Network, Zambia
CEPA	Centre for Environmental Policy and Advocacy, Malawi
CTDT	Community Technology Development Trust, Zimbabwe
IARC	International Agricultural Research Centre
ICM	Integrated Committee of Ministers (SADC)
ICT	Information and Communication Technology
MoU	Memorandum of Understanding
NARS	National Agricultural Research System
NGB	Nordic Gene Bank
NGO	Non-Governmental Organisation
NPGRC	National Plant Genetic Resources Centre
NPGRCom	National Plant Genetic Resources Committee
NTSYSpc	Numerical Taxonomical System
PGR	Plant Genetic Resource
RISDP	Regional Indicative Strategic and Development Plan
RCWG	Regional Crop Working Group
SADC	Southern African Development Community
SDIS	SPGRC Documentation and Information System
SEK	Swedish Kronor (currency)
Sida	Swedish International Development Co-operation Agency
SMTA	Standard Material Transfer Agreement
SPGRC	SADC Plant Genetic Resources Centre
SSSN	SADC Seed Security Network
UNZA	University of Zambia

THE YEAR'S HIGHLIGHTS

- Change of Senior Management at SPGRC
- Two Board Meetings (one Ordinary and one Extra-Ordinary) Held in Lusaka and Pretoria
- Technical Review and Planning meeting takes place in Lusaka, Zambia
- Farewell to Outgoing Senior Management Staff

1.0 MANAGEMENT AND ADMINISTRATION

1.1 Board of Directors

1.1.1 23rd SPGRC Board meeting, Lusaka, Zambia

The SPGRC Board comprising of chairpersons of the National Plant Genetic Resources Committee is responsible for governing and guiding SPGRC. It develops and approves general policy aspects of plant genetic resources in the SADC region as well as ensuring that the scientific and technical work of the SPGRC network commands high standards.

The 23rd Ordinary Board Meeting was held at SPGRC, Lusaka, Zambia between 04 and 06 October 2006. Mr Richard M. Chizyuka, the Permanent Secretary *cum* Minister for the Ministry of Agriculture and Cooperatives, officially opened it.

Although earlier scheduled to be held in Gaborone, Botswana, the Board unanimously decided to instead, meet at SPGRC in order to be able to meet and interact with the newly recruited Director and three regional staff who head the three programmes (*in-situ*, *ex-situ* conservation, Documentation and Information) at SPGRC.

Mrs Margaret Nyirenda, Director FANR at the SADC Secretariat visited the genebank

The Board whose composition had not changed much except for Mr Yacoob Mungroo from Mauritius and Ms Zodwa Mamba from Swaziland who joined, dwelt on among other issues, the finalization of Memoranda of Understanding between Bioversity and SPGRC, and of SPGRC establishment, as well as finalisation of the SPGRC Long-Term Sustainability Strategic Plan that will have to be re-submitted to the Integrated Committee of Ministers later in June 2007. It also instructed SPGRC management to visit DR Congo in order to establish modalities and grounds for starting PGR activities in the country.

1.1.2 Extra-Ordinary Board Meeting in Pretoria

The Board met in Pretoria to deliberate on the SPGRC Long-Term Sustainability Strategic Plan, discuss and approve Memoranda of Understanding between SPGRC and Bioversity; and for Establishment of SPGRC. The Board also discussed the SPGRC Network Fifth Phase document.

After discussing the Long-Term Sustainability Strategic Plan document, the

Board instructed SPGRC management to complete it by incorporating comments and recommendations by the end of February 2007 and electronically circulate it for clearance by the Board before it is presented to the Integrated Council of Ministers (ICM) in June 2007. It will then be forwarded to the SADC Council later in the year.

Extra-Ordinary Board meeting in session at Arcadia Hotel, Pretoria

Corrections and recommendations were made to the MoU for Establishing SPGRC and the Board asked SPGRC Management to make final editorial work on the document.

1.2 Workshops and Meetings

1.2.1 Annual Technical Review and Planning Meeting

The 2006 SPGRC/NPGRCs Annual Technical Review and Planning meeting took place at the Hotel Intercontinental in Lusaka, Zambia between 28th August and 1st September 2006. The meeting brought together National Plant Genetic Resources Centre (NPGRC) Curators, technical staff from all the NPGRCs in the SPGRC network, as well as the International Development Partners who have interest in the network.

Group photo of the Planning meeting participants in Lusaka

The main objective of the meeting which presents itself as a platform for network members, was to review technical activities implemented in 2005/06 cropping season, share experiences, present, discuss and evaluate proposed technical plans for 2006/07 cropping season, as well as discussions on other technical and other network issues.

Presentations were made on work done in respective countries of SADC

It was reported that the contracts for the three Senior Programme Officers, Mr Charles Nkhoma, Mr Brian Chirwa and Mr Godfrey Mwila expired on 30th June 2006 and following finalisation of staff recruitments done by SADC Secretariat, the posts were filled by Ms. Thandie J. Lupupa, Mr Barnabas W. Kapange, and Mr Lerotholi L. Qhobela respectively.

It was reported that although no meetings of Regional Crop Working Groups (RCWGs) were held during the reporting period, outputs from previous meetings were used to compile strategies for collection and conservation of plant genetic resources of various species groups.

The meeting was briefed on completion of the external review of SPGRC whose outcomes were to be determined within 2006. Submission and comments made on the SPGRC Long-Term Sustainability Strategic Plan by the ICM requiring revision before re-submission was reported. It was also reported that a conservation strategy for crop diversity collections in the SPGRC network, which was developed with the Global Crop Diversity Trust has yielded support in some conservation areas including provision of driers for NPGRCs; and that a Bioversity staff member visited SPGRC in July 2006 in order to forge ahead with strengthening collaboration in areas of documentation, data analysis, information networking, among others.

The meeting was informed that the 4th Phase was coming to an end and that necessitated drafting a workplan and budget for the next phase.

1.2.2 Regional Crop Working Groups

The Regional Crop Working Groups (RCWGs) assist SPGRC in formulating strategies, priorities for *in-situ* and *ex-situ* conservation and setting up standards for handling plant genetic resources.

No meetings of RCWGs were held during the reporting period. The outputs from previous meetings were used to compile strategies for collection and conservation of plant genetic resources of various species groups.

1.3 Collaboration with NGOs (CTDT, CEPA, CBN)

A meeting between SPGRC staff and leaders of NGOs engaged in PGRs was held at SPGRC on 28th June 2006 to bring together the new SPGRC management and the NGOs. The Zimbabwe-based Community Technology Develop-

ment Trust (CTDT), The Malawian Centre for Environmental Policy & Advocacy (CEPA) and the Zambian Crop Biodiversity Network (CBN) represented NGOs. Both sides promised to work together in PGR activities ranging from training, awareness raising, to technical support.

1.4 Collaboration with University of Zambia

SPGRC has continued with the traditional collaboration with the University of Zambia (UNZA), particularly the Faculty of Agriculture. Three students from UNZA had their practical/industrial attachments conducted at SPGRC in 2006/07. Also, a small portion of land was offered to an UNZA lecturer for conducting her field trials at Chalimbana.

1.5 Visitors

A number of visitors came to SPGRC during the period April 2006 to March 2007. Among the prominent ones were the former NGB Director, the late Dr Bent Skovmand, the Permanent Secretary *cum* Minister of Agriculture and Co-operatives in Zambia, Mr Richard M. Chizyuka. Others were the FANR Director, Mrs Margaret Nyirenda and staff of the Finnish Ministry of Home Affairs, Ms Marjatta Selanniemi. Details of these and some of the other prominent visitors are listed in Appendix III.

1.6 SPGRC Community Work Through Computer Donation

As a gesture to its commitment and implementation of community work, in October 2006, the SADC Plant Genetic Resources Centre (SPGRC) donated four used desktop computers to a nearby school – Silverest Basic School in Chongwe District.

On behalf of the SPGRC Acting Director and Management, accompanied by the Technical Officer (Mr. Kennedy Hamudulu), the Senior Programme Manager – Documentation and Information (Mr. Barnabas Kapange) explained on the need for the school to catch up with ICTs in doing their work. He narrated the power of ICTs in keeping information and records, and in communications. Mr Kapange unveiled the SPGRC technical wing officers' willingness to provide technical and training support to the school anytime need arises.

Mr Kapange, on behalf of SPGRC, presenting the donated equipment to the school

2.0 PERSONNEL, EQUIPMENT AND SUPPLIES

2.1 Personnel

The contracts for three Senior Officers, Mr Charles Nkhoma, Mr Brian Chirwa and Mr Godfrey Mwila expired on 30th June 2006. SADC Secretariat finalised Staff recruitment of the SPGRC early in 2006 and the filled posts were as follows:

Dr Bonga S. Nkosi joined SPGRC in June 2006 to take up the position of the Director. He had previously worked for the University of Swaziland as a Senior Lecturer under the Faculty of Science, Department of Biological Sciences. He had also previously served as the NPGRCom Chairman for Swaziland, thus a Board Member of SPGRC. Dr Nkosi, however, resigned from the position in September on medical grounds.

Mr Barnabas W. Kapange joined SPGRC on 9 May 2006 as a Senior Programme Manager – Documentation & Information after serving in the Tanzania Agricultural Services Support Programme as a Senior Information & Communications Specialist. He has a an experience in rural ICTs and information management with a professional background that includes over 25 years of practical experience in agriculture, rural systems and information management with the Ministry of Agriculture in Tanzania while serving in the Department of Agricultural Research & Development. He holds an MSc in Information Sciences, an MSc in Agriculture, a Diploma in Agricultural Engineering, and a Certificate in Agriculture & Veterinary Sciences.

Ms Thandie J. Lupupa from Swaziland joined SPGRC on 15 May 2006 and filled the post of Senior Programme Manager – *In-situ* Conservation. She was working for the Swazi Government in the Ministry of Agriculture & Cooperatives under the Agricultural Research Division as a Genebank Curator. She initiated the NPGRC and was the only professional for 11 years. Before joining the NPGRC, she started as a frontline Extension worker on general crop production, including livestock production and health; after 9 years out with farmers; she then became Head of Horticulture Section in the Ministry. She holds an MSc in Conservation & Utilization of PGR, BSc Agric. and a Diploma in Animal Production & Health. She is currently serving as the Acting Director after Dr Nkosi's resignation.

Mr Lerotholi L. Qhobela joined SPGRC on 12 May 2006 as Senior Programme Manager – *Ex-situ* Conservation (Curator). He has served in the Government of the Kingdom of Lesotho – Ministry of Agriculture & Cooperatives in the departments of: Crops, Conservation, Forestry, and Agricultural Research for over 18 years. He also served as a Conservation Scientist for a Consortium of International Consulting firms for 4 years after which he engaged in an International NGO as a Programme Manager for 3 years. He pioneered, initiated and established the first medicinal field genebank in Lesotho. Mr Qhobela participated in various plant germplasm-collecting expeditions within and outside Lesotho. He holds MSc degree in Conservation & Utilization of PGR, BSc (Hons.) in Forestry, Diploma in Forestry and a Certificate in General Agriculture.

The new staff recruited for the South African NPGRC: Mr T. Mukoma (as Collection Officer) and Mr. P. Moila (as Senior Genebank Officer also responsible for characterization) are also welcome to the SPGRC family.

While bidding farewell to Mr L. Nsapato, a Malawian NPGRC Curator since its establishment, Dr I. S. K. Syankwilimba (Curator of NPGRC Zambia) and the Botswana NPGRC resignee, Mrs B. Fruede, we welcome Mr. C. Gwafila who was recruited to replace the latter.

2.2 Equipment and Supplies

The fleet of vehicles is reasonably in a fair condition at SPGRC though some of them might require replacement due to old age. Three desktop and one laptop computers were acquired during the reporting period.

3.0 TRAINING AND EDUCATION

3.1 On-the-Job-Training for SPGRC Staff

No one went for training due to budgetary constraints.

3.2 Training and Education for NPGRC Staff

3.2.1 Returnees

The network had the pleasure to welcome back Dr Margaret J. Mollel (Tanzania) and Dr. Antonio de Alcochete (Angola) after successful completion of their PhD programmes.

Twelve (12) SADC nationals attended the annual short course that was held at NGB in Sweden from 19th June to 7th August 2006 (Table 1).

Table 1: Attendee Participants for Short Course on PGR Management-NGB, 2006

No.	Name of Candidate	Country
1.	Mr. Dibazilaua Nginamau	Angola
2.	Mr Mahutsana Keno	Botswana
3.	Mr Theodore Munyuli	DR Congo
4.	Mr Manapo Ramashamole	Lesotho
5.	Mr J M Chikasanda	Malawi
6.	Ms Houshna Banu Naujeer	Mauritius
7.	P Monjane	Mozambique
8.	Silko Bartsch (Rugheimer)	Namibia
9.	Ms K Dearlove	South Africa
10.	Mr B R Magagula	Swaziland
11.	Mrs E Mwenda	Zambia
12.	N Kadzere	Zimbabwe

Five participants from Lesotho, Malawi, Mauritius, Tanzania and Zambia are pursuing their two-year MSc degree course at Uppsala in Sweden for 2005/2007 academic years.

The total number of people trained between 1990 and 2006 is given in Table 2.

Table 2: Personnel trained under the SPGRC Programme in PGR, 1990 - 2006

Country	Certificate	MSc	Total
Angola	13	3	16
Botswana	13	5	18
DRC	1	-	1
Lesotho	13	4	17
Malawi	25	6	31
Mauritius	10	3	13
Mozambique	18	3	21
Namibia	12	3	15
Seychelles	1	1	2
South Africa	11	3	14
Swaziland	20	4	24
Tanzania	24	4	28
Zambia	22	4	26
Zimbabwe	23	5	28
Total	206	48	254

* Short course at NGB or short course at the University of Birmingham in U.K., or short course in Plant Taxonomy in Sweden or SPGRC short course in Zimbabwe, or SPGRC Documentation Workshop in Zambia.

*Certificate in plant genetic resources in Denmark and/or Sweden, or short course in conservation and utilisation of plant genetic resources in U.K., or short course in Plant taxonomy in Sweden or SPGRC short course in Zimbabwe, or SPGRC Documentation Workshop in Zambia.

*One year MSc degree course in conservation and utilisation of plant genetic resources at the University of Birmingham, U.K.

3.2.2 Some Important Meetings Attended by SPGRC Staff

The Acting Director, Senior Programme Managers and the Personal Secretary attended the Extra-Ordinary Board meeting in Lusaka, Zambia from 6 – 7 April, 2006 where the SPGRC Long Term Sustainability Strategic Plan was adopted.

The Senior Programme Manager *Ex-Situ* Mr G. Mwila attended the Contact Group Meeting on Standard Material Transfer Agreement (SMTA) held in Sweden from 22 – 28 April, 2006. This was a preparatory meeting to the First Session

of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). Other participants who formed the African group included representatives from Angola, Namibia, South Africa and Zambia. Amongst the group, there were also lawyers from Angola, Botswana and South Africa.

The Acting Director, Mr Nkhoma and Mr Mwila attended the First Session of the Governing Body of the ITPGRFA from 12-16 June 2006, in Madrid, Spain. Contracting Parties, Contracting States and observer countries and other organizations were also in attendance.

The agenda of the meeting included the need to finalise agreements and adopt the following: Rules of Procedure of the Governing Body; Financial Rules; and Standard Material Transfer Agreement (SMTA). Other items for agreement were Funding Strategy; Operational procedures and Mechanisms on Compliance; and Work programme and Budget for 2006/07. It was at this meeting where Mr Mwila was selected chairperson for the forthcoming session of the Governing Body.

The Director, Dr Nkosi attended the Integrated Committee of Ministers (ICM) meeting which was held in Sandton, South Africa from the 21 to 26 June 2006, where he presented the SPGRC Long Term Sustainability Strategic Plan.

Mr L. Qhobela participated in a workshop in Pretoria on Difficult Seed organised by the Kew Gardens in July 2006.

The Senior Programme Managers attended the SPGRC/NPGRC Annual Technical Review and Planning meeting from 28 August to 1 September 2006.

The Senior Programme Managers were also invited to attend and get acquainted at the 23rd SPGRC Board meeting held in Lusaka, Zambia between 4th and 6th October 2006.

Mr B. Kapange, representing the Acting Director, attended the Steering Committee meeting of the SADC Seed Security Network (SSSN) held in Lusaka, Zambia in December 2006.

Ms T. Lupupa, Acting Director, attended the ITPGRFA Rome Meeting, 13 – 14 February 2007 on Information Systems for the Treaty, she also participated in the FANR Retreat held in Mafikeng 28 Feb – 3 March and in the Council of Ministers meeting held in Lesotho, 17 – 23 March 2007.

All the new Senior Programme Managers were invited to attend an Induction Programme conducted by SADC Secretariat in Gaborone, Botswana in March 2007.

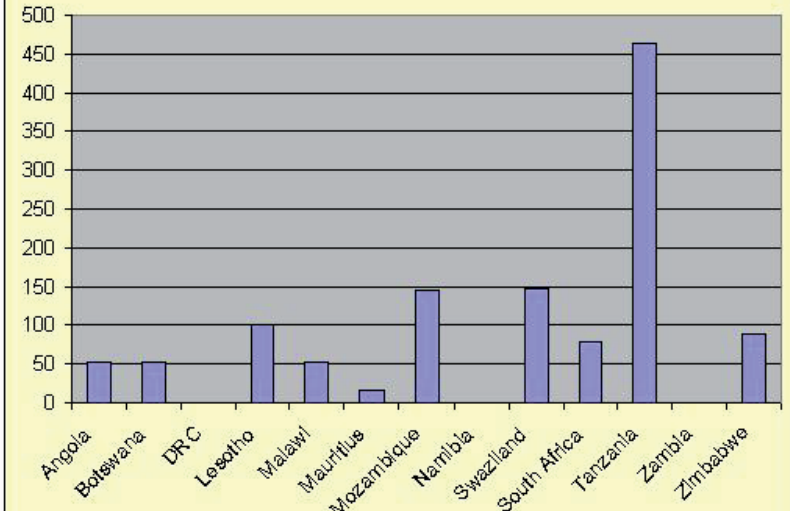
4.0 TECHNICAL ACTIVITIES

4.1 In-Situ Conservation

Senior Programme Manager *In-Situ* provided on request, technical assistance to the Swaziland NPGRC, which is now composed of only one staff member (following the departure of the Curator) to conduct a root and tuber crop collection mission and a mixed crop rescue collection. This was the only collection trip conducted during the period under review.

A total of 1,201 accessions were collected by the NPGRCs in 2006. Figure 1 shows the details.

Figure 1: Accessions Collected by NPGRCs, 2006



4.1.1 On-farm Conservation

Conservation of indigenous crop diversity by farmers in their fields is an area that needs to be encouraged. This method allows for exposure of the crops to the ever-changing climatic conditions, and to the forces of farmers' practices such as selection and general management.

The Senior Programme Manager *In-situ* made a follow-up visit to on-farm conservation sites in Swaziland, at Shewula and Nceka, where the NPGRC integrate with the farmers throughout their seasonal activities.

Some of the crops grown by Shewula farmers include maize, sorghum, cow pea, pearl millet, groundnuts, *Mucuna pruriens* – used for soil improvement in conservation agriculture, bambara nuts, pigeon pea, sunflower and cucurbits.

This project was initiated by the NPGRC in collaboration with an NGO (COSPE).

Nceka farmers are multiplying sesame and cow pea for redistribution among the community. Basic seed was sourced from the NPGRC on request.

Farmers' day at Rufunsa, Zambia: Farmers and guests visited a groundnut farm to see achievements and exchange experience and expertise

In Zambia, staff from the NPGRC, SPGRC and an NGO (Biodiversity Community Network), an NGO, visited two sites (Rufunsa and Lukwipa) where there are ongoing on-farm conservation activities. The main focus is on the validation of farmers' practices and traditional knowledge systems that impact on local crop genetic diversity conservation. Establishment of a community seed bank was discussed with the farmers and they also raised a concern about the shortage of bambara and ground nut seed in the areas. These are challenges for the next season.

4.1.2 *In-Situ* Conservation and Under-utilized Plants

The Senior Programme Manager *In-Situ* is currently in the process of collaborating with the NPGRCs on the activities to be carried out, such as identification and conservation of Red Data listed plants, threatened medicinal plants and under-utilized plants.

4.1.3 Field Genebanks

SPGRC is maintaining a few locally sourced wild fruit trees, medicinal and other useful plants at the field genebank. There were no backstopping activities during the reporting period except for the root crop collection mission done in Swaziland.

4.2 *Ex-Situ* Conservation

4.2.1 Seed Handling and Storage

A total of 475 accessions of different crop/plant species have been received by SPGRC from NPGRCs for base collection storage (Figure 2). These have been processed and stored. Germination and seed moisture analyses were also routinely done as part of the germplasm handling before storage.

There are now 13,738 accessions registered at SPGRC. Table 3 shows the number of accessions of major species held at SPGRC.

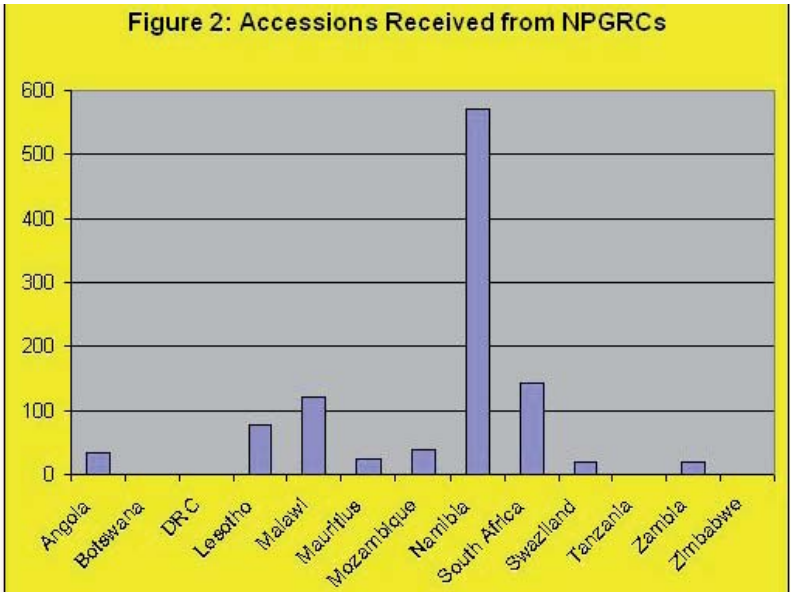
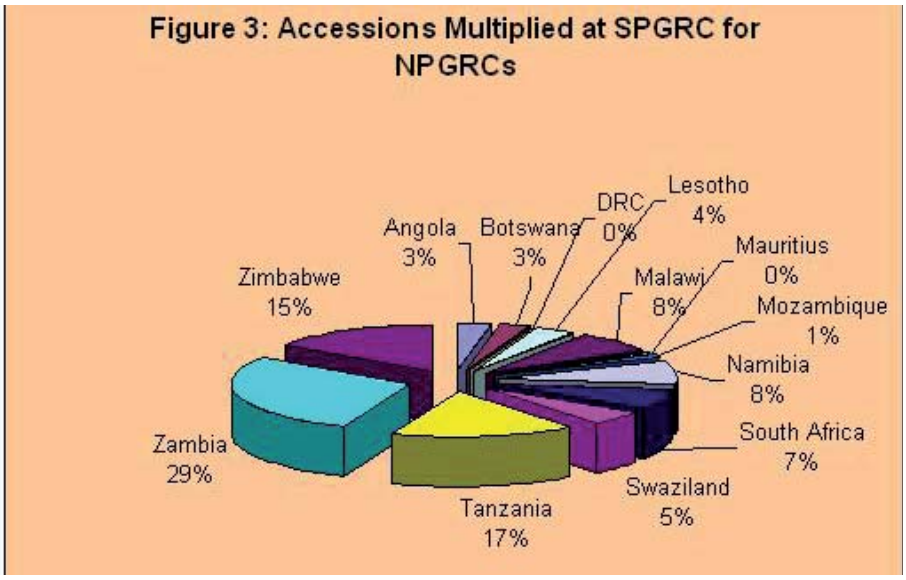


Table 3: Accessions of Major Species Held at SPGRC

No.	Species	Common Name	Accessions
1.	*Sorghum bicolor* (L.) Moench	Sorghum	4,085
2.	*Eleusine coracana*	Finger millet	1,582
3.	*Zea mays* L.	Maize	1,426
4.	*Pennisetum glaucum* (L.) R. Br.	Pearl millet	1,038
5.	*Vigna unguiculata* (L.) Walp.	Cowpea	737
6.	*Arachis hypogaea* L.	Groundnut	749
7.	*Phaseolus vulgaris* L.	Beans	857
8.	*Oryza sativa* L.	Rice	293
9.	*Vigna subterranea* (L.) Verdc.	Bambara nut	384
10.	*Cucurbita spp.*	Pumpkin	325
11.	*Citrullus lanatus* (Thumb.) Matsumura & Nakai	Water melon	148
12.	*Triticum aestivum* L.	Wheat	122
13.	*Cajanus cajan* (L.) Millsp.	Pigeon pea	153
14.	*Cicer arientinum* L.	Chickpea	221
15.	*Pisum sativum* L	Pea	67
16.	*Oryza longistaminata* A. Chev. & Roehr.	Wild rice	55
17.	*Sesamum indicum* L.	Sesame	71
18.	*Lagenaria spp*.	Gourd	75
19.	Others	Others	950
Total			13,738

The number of accessions held at SPGRC from each member country is given in Figure 3.



Zimbabwe has pledged to supply their accessions as soon as seed processing and packaging is completed.

4.2.2 Multiplication, Regeneration and Characterisation

SPGRC embarked on the regional seed multiplication exercise involving 726 accessions (Table 4) composed of 35 groundnuts, 39 beans, 106 sorghum, 46 sesame and 500 pearl millet, for base and safety duplicate storage. No characterisation was undertaken.

Table 4: Accessions Multiplied at SPGRC for NPGRCs

Country	Species	No. of accessions multiplied	Remarks
Namibia	*Pennisetum glaucum*	500	430 registered
Tanzania	*Sorghum bicolor*	68	51 registered
Zambia	*Arachis hypogaea*	35	26 registered
Zambia	*Phaseolus vulgaris*	39	29 registered
Zambia	*Sesame spp.*	46	14 registered
Zambia	*Sorghum bicolor*	38	20 registered
Total		**726**	

Sesame spp. and *Sorghum bicolor* accessions from Zambia were regenerated and 30% and 50% respectively produced seeds.

Over 70% of accessions that were planted for regional multiplicationat Chalimbana research station gave good germination while 19% and 8% of them gave fair and poor germination results respectively. Details are given in table 5 below.

SPGRC has increased its capacity for multiplication/regeneration of accessions to cope with the need for support from NPGRCs

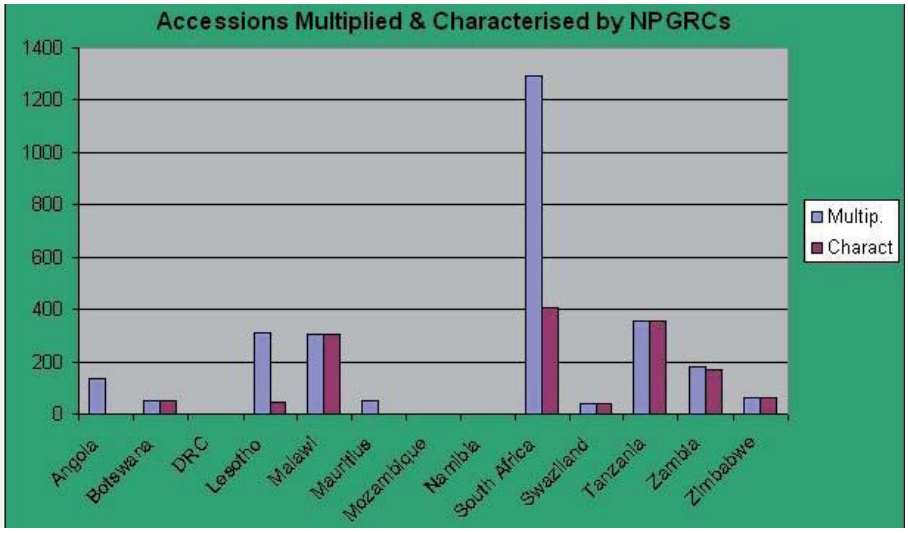
Performance of accessions planted for multiplication at SPGRC was undertaken and reports for performance of accessions were sent to respective NPGRCs: Namibia, Tanzania and Zambia. Duplicate samples were also processed for active collections storage.

Table 5: Performance of accessions planted for multiplication by SPGRC

Performance	Countries			Total	% Total
	Namibia	Tanzania	Zambia		
Good	434	25	72	531	73%
Fair	54	38	44	136	19%
Poor	12	5	42	59	8%
Total	**500**	**68**	**158**	**726**	**100%**

*Good-germination >60%, Poor-germination 0%, Fair–germination between good and poor.

A total of 2,727 and 1,470 accessions were multiplied and characterised respectively by the NPGRCs (Figure 4 below)



4.2.3 Reducing Discrepancy Between SPGRC and NPGRC

Following a consultation meeting held in Pretoria, South Africa on 17th February 2007, discussions, data review and commitment by individual NPGRCs to multiply with the aim of bridging the discrepancy of 9,073 accessions. Reasons that led to anomaly vary between countries.

Discrepancies and germplasm multiplication plans for 2007/08 and 2008/09, and remarks for countries are given below.

Table 16: Multiplication to Reduce Redundancy Between SPGRC and NPGRCs

Country	Target Multiplications		Discrepancy	Remarks
	2007/08	2008/09		
Angola	500	500	2430	Angola has labour problem SPGRC to multiply 1430 accessions.
Botswana	100	200	2511	Figures for confirmation
DRC	-	-	-	
Lesotho	400	400	1558	400 are wild spp, To outsource multiplication of 30 cucurbits and maize accessions to ARC
Malawi	471	500	971	500 vegetative accessions, 700 for Millennium project, 70 Breeders material
Mauritius	100	100	525 (486)	220 IBPGR, already multiplied
Mozambique	400	600	1732	SPGRC to assist with funds
Namibia	120	60	2179	Most are wild spp. but SPGRC to provide help
South Africa	1000	1000	2208	1000 are wild spp 1000 cucurbits, 227 in field gene bank
Swaziland	61	61	122	No problem
Tanzania	400	400	2464	SPGRC to supply 10 freezers
Zambia	500	500	100	No problem
Zimbabwe	300	300	1192	ICRISAT, 600 By SPGRC
Total	**4352**	**4721**		

In conclusion, Angola, Namibia and Zimbabwe asked SPGRC to multiply their material at Chalimbana. Lesotho will outsource multiplication to ARC. Mauritius reported that it already multiplied materials and will send duplicates for base storage. SPGRC will assist Mozambique and Tanzania with funds and 10 deep freezers respectively to carry out the work in their countries. For South Africa and Malawi, non-duplicated accessions were in field genebanks or vegetatively propagated, and reported they had no gaps. Swaziland and Zambia would close gaps without special support. The proposed multiplication plan will be implemented in 2007/08 and 2008/09 seasons.

4.2.4 Support to NPGRCs

The Senior Programme Manager *Ex-situ* visited the Mozambique, Tanzania and Zimbabwe NPGRCs during the period under review.

In view of a common problem associated with the driers in NPGRCs, SPGRC is in discussion with NGB to find out if suppliers of driers should be outsourced to the region to provide a training to NPGRCs staff on maintenance of driers, and a local regional company that would take over with technical support servicers.

In February 2007, Dr M. Fatih visited the Mozambican NPGRC and among other things, resolved the drier problem. A dehumidifier was replaced and other electricity defects corrected in the NPGRC. He also visited Tanzania to assess space/ room for housing the walk-in-drier to be sent to the genebank in due course.

4.3 Documentation and Information

4.3.1 Hardware and Software

During the reporting period, three desktop and one laptop computers were purchased and have been installed to improve information and data management.

The server for the upgraded Local Area Network at SPGRC is already installed with software and the trunking/wiring of phone lines to be integrated into the new LAN for call logging has been completed. Configuration of the new network has been done. The antenna for residential Internet has been replaced to enhance effective signal reach out. The routine maintenance of the local area network and the rest of the computer equipment were done and antivirus upgrades continue to be received from F-Secure.

4.3.2 Training Workshop in Data Analysis

During the Annual Technical Review and Planning Meeting of the SADC Plant Genetic Resources Centre (SPGRC) held in Lusaka, Zambia in August 2006, it was unanimously agreed that there was need for training in statistical/data analysis in PGRs for the network scientists. The SPGRC with support of NGB conducted the training between 12 and 16 February 2007. Two participants were drawn from each of the SADC member states except for DR Congo who though invited, did not attend.

The course aimed at making full use of the generated data and information through better data analysis and its packaging into usable format. While there are several tools that genebank managers can use in order to add value to their data, this course particularly elected the Numerical Taxonomy System (NTSYSpc) and R-Statistics packages for the purpose.

Bearing in mind that use of PGRs in genebanks is hampered by many factors, one of which is the availability of useful information associated with the conserved materials, this course adds value and makes the information held in genebanks more useful in averting food insecurity in the region.

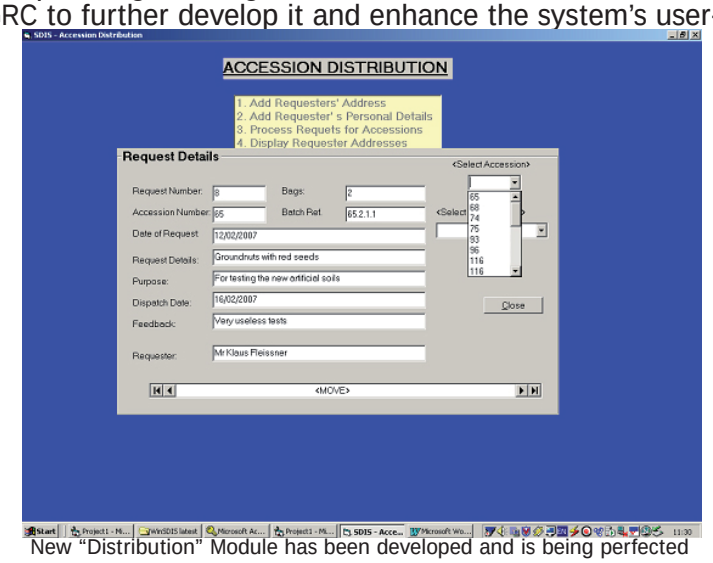
At the end of the course, participants made the following recommendations as follow up strategies: establish a discussion forum where NTSYSpc problems will be shared; Documentation Officer/ NTSYSpc experts should visit NPGRCs as a follow up to the workshop. Participants were also encouraged to include analytical results in their reports during SPGRC /NPGRC Planning meeting.

Training course in data analysis held in Pretoria: Participants doing exercises

4.3.3 Database development

The Windows-based SDIS has continued to undergo morphological and functional improvements to optimise usability by stakeholders. In the last review and planning meeting, a conceptual "Distribution Module" was presented and discussed with the scientists in order to have their first hand input into the system. A number of their interceptions, recommendations and ideas were to be incorporated while developing the module, which will then be distributed to users in anticipation of getting continuing inputs and recommendations.

This newly programmed "Distribution" module was demonstrated at the last review and planning meeting for comments and recommendations which will help SPGRC to further develop it and enhance the system's user-friendliness.



New "Distribution" Module has been developed and is being perfected for future inclusion in SDIS

The Cucurbitacea crops that used to be characterised wholesomely have now been separated into generas of pumpkins, melons, watermelons and cucumbers, each with its own descriptors secured from Bioversity and Namibian NPGRC.

4.3.4 Dissemination of Information

The 2005 SPGRC Annual Report whose completion was slightly delayed due to changeover of staffing was printed and distributed to the network stakeholders. The SPGRC network newsletter for the second half of 2006 is in its final stages of preparations after receipt of the delayed articles submitted from NPGRCs, and will be printed and distributed to the network by second quarter, 2007.

The SPGRC network web portal was hacked in July 2006 and as a security measure, the portal had to be shut down. It was recovered/repaired afterwards and since work to integrate GIS engine had commenced earlier on, this was continued after repairs. The issue for the portal transfer in terms of hosting and maintenance within the region is very important. Preparations were being finalized for it to have a forum window through which the network members can share information.

An Information Officer from Bioversity-SSA, Mr F. Atieno visited SPGRC in July 2006 in order to foster collaboration for the two institutions. His mission focussed on possibilities of capacity building in data/statistical analysis and general information management. It was agreed that the institutions develop a collaborative programme, and consultations are ongoing. He also participated in the Pretoria workshop.

4.3.5 Fernando Marcelino Memorial Library

New books continued to be acquired as well as subscriptions to relevant journals so as to keep the network abreast with new developments in plant genetic resources. New subscriptions to freely available online journals through AGORA (Access to Global Online Research in Agriculture (www.aginternetwork.org) are being pursued by SPGRC. Maintenance of the library material is done through cataloguing. New Windows-based library software will be procured and installed to improve the library use and management.

4.3.6 Support to NPGRCs

A technical backstopping mission by the Documentation & Information Officer was done in Angola in June 2006 in order to provide training to the NPGRC staff on GIS integration and data/statistical analysis with data on the SDIS. The Officer also clarified some of the pertinent issues the NPGRC staff was facing.

In order to address some of the long standing problems related to information and documentation, the Senior Programme Manager – Documentation and Information visited Mozambique in July 2006, where among others, resolved the discrepancies on the SDIS and trouble-shot the crashing computer, whose power supply unit was recommended for replacement. To foster maintenance of updated SDIS, NPGRC was advised to increase pace for data inputting into the system.

The Mauritius and Zimbabwean NPGRCs were also visited. At both sites, NPGRC staffs were trained on SDIS and their systems updated. The SPGRC staff also had an opportunity to help in general maintenance and repairs of equipment as well as updating some software such as anti-virus. In Mauritius, the Officer met with senior government officials to resolve the outstanding provision of

documents so that a stand-by generator could be purchased for NPGRC. In Zimbabwe, a review and data re-entry for multiplied/regenerated accessions was recommended.

5.0 OTHER ISSUES OF INTEREST TO SPGRC

5.1 Long-Term Sustainability Strategic Plan for SPGRC

A workshop to finalise the Sustainability Strategic Plan that was held in Lusaka early in 2006 produced a document that was later adopted by an extra-ordinary meeting of the Board of SPGRC held on on 6th April 2006. The strategy document was submitted to SADC Secretariat on 2nd May 2006, and presented to the Integrated Committee of Ministers (ICM) on 21–23 June, 2006.

The ICM directed SADC Secretariat in collaboration with SPGRC to revise the Strategy and align it with the priorities of the Regional Indicative Strategy and Development Plan (RISDP). The other issue to be addressed is to provide other funding alternatives. In the mean time, it was recommended tto the Council continued maintenance of the Core SPGRC activities and adequate provision of necessary funding.

After its presentation to the Extra-Ordinary Board meeting in February 2007, the Board directed SPGRC Management to make a few remaining changes and electronically circulate it to Board members for approval before it is re-submitted to the Integrated Committee of Ministers later in June 2007.

5.2 Global Crop Development Trust

A Conservation Strategy for Crop Diversity Collections in the SADC region was developed and submitted to the Global Crop Diversity Trust. The Trust aims to ensure safe and sustainable conservation of existing diversity of priority crops in the region. This strategy will contribute to the overall long-term sustainability strategy of SPGRC.

Initial funding from the Trust was used in purchasing seed driers for Angola, and recently, Tanzania. The activity of engaging a technician to repair NPGRC's faulty driers is still pending.

5.3 Memoranda of Understanding

5.3.1 MoU for Establishing SPGRC

Having received inputs from Member States for incorporation, the MoU was discussed at the Extra-Ordinary Board meeting in February 2007. At the meeting, the Board directed SPGRC Management to make final editing of the document particularly correction of terminologies, definitions and titles. Thnere were also corrections/adduitions made to functions and resources owned by SPGRC.

5.3.2 MoU Between SPGRC and Bioversity International

The Memorandum of Understanding between SPGRC and Bioversity International was revised and presented at the Extra-Ordinary Board meeting in February 2007. The Board made a few observations and recommendations

to be incorporated and directed SPGRC to facilitate the signing of the MoU in March/April 2007.

5.3.3 Farewell to Outgoing Staff

Following the ending of contracts of the three Senior Programme Managers at SPGRC, the SPGRC Management and staff, together with representatives of NPGRCs organised a farewell party for the outgoing staff on 1st September 2006 at the Cresta Golfview Hotel in Lusaka, Zambia. This was in cognisance and appreciation of the great contribution they had made to the network.

At the function, the SPGRC Board Member from Zambia who is also the Vice-Chair of the Board, Dr S W Muliokela presented the three each with a copper-coated plaque symbolising their positions and years of service at SPGRC.

The Zambian NPGRCom Chairperson and SPGRC Board Vice-Chair, Dr S. Muliokela giving a present to former Acting Director, Mr Charles Nkhoma at a farewell party

5.3.4 Obituary

It is with deep sorrow, that we have to inform our stakeholders that the former Director of Nordic Genebank, Dr. Bent Skovmand passed away peacefully the night between Monday and Tuesday 5th February 2007 after a short period of illness.

Dr Skovmand who lastly visited SPGRC on 7th April 2006 was a highly respected and liked person internationally with his great engagement in his work within PGRs conservation and utilisation. His expertise will be sorely missed internationally and particularly in the Nordic and Southern African regions.

May God Rest His Soul in Eternal Peace

6.0 FINANCIAL REPORT 2005/2006

Table 11: Statement of Income and Expenditure for the Year Ending 31 March'06

	2005/06 (US$)	2004/05 (US$)
Income		
Contributions from Member States	548,496	442,191
Donations and Grants	324,715	274,814
Interest receivable	319	511
Exchange difference	75,060	123,947
Other income	7,832	15,862
	956,422	**857,325**
Amortisation of Capital Grants	85,279	87,155
	1,041,701	**944,488**
Overhead Expenditure		
Administration and other office expenditure	176,913	121,695
Audit fees	8,000	8,000
Communication expenses	21,849	24,307
Depreciation	85,279	87,155
Exchange losses	-	-
Financial expenses	2,822	4,366
Motor vehicle running expenses	8,496	9,752
Professional, consultancy and legal expenses	1,867	3,560
Rent	-	-
Staff emoluments	386,371	266,156
Transport travel and subsistence	30,493	41,104
	722,090	**566,095**
Operational Expenditure		
Programme and technical services	147,393	142,703
	147,393	**142,703**
Total Expenses	**869,483**	**708,798**
Surplus/Deficit for the period	**172,218**	**233,759**
Reprersented by:		
Unutilised contributions	172,218	233,759
Other income	-	1,923
	172,218	**235,682**

Table 12: Balance Sheet as at 31st March 2006

	2005/06 (US$)	2004/05 (US$)
Assets		
Fixed assets	2,059,156	2,104,593
Current Assets		
Bank balances and cash	416,475	253,732
Accounts receivable	130,874	166,193
Deposits and prepayments	-	1,022
Other receivables	21,351	8,884
	568,700	429,831
Total Assets	**2,627,856**	**2,534,424**
Liabilities and Equity		
Current Liabilities		
Accounts payable	79,536	14,334
Accrued expenses	49,569	15,061
Provisions	8,000	8,000
Provision for leave	24,355	6,676
	161,460	**44,071**
Long-Term Liabilities		
Staf Gratuity	58,630	25,408
Accumulated fund	136,344	90,456
Unutilised contribution	175,036	232,710
Capital grants	2,053,043	2,098,479
Other Institutional Funds		
Reserve Fund	18,719	18,719
Loan Fund	24,624	24,581
Total Liabilities and Equity	**2,627,856**	**2,534,424**

SPGRC is grateful for the generous contribution from the SADC Member States and the Nordic Countries (Finland, Iceland, Norway and Sweden) without which its operational and technical work would not have been possible.

7.0 APPENDICES

Appendix I: Members of the Board of SPGRC

Dr S S Mlambo	- Zimbabwe (Chairman)
Dr L Matos	- Angola
*Dr S Chite	- Botswana
Mr T Munyuli	- DR Congo
Dr M M Ranthamane	- Lesotho
Dr A P Mtukuso	- Malawi
Mr P Munise	- Mozambique
Mr Y Mungroo	- Mauritius
Dr G L Maggs-Kolling	- Namibia
Dr J Jaftha	- South Africa
**Dr B Nkosi	- Swaziland
Dr M M Msabaha	- Tanzania
Dr S W Muliokela	- Zambia (Vice-Chairman)
Ex-Officio Members:	
Mrs M Nyirenda	- SADC Secretariat
Dr Jojo Baidu-Forson	- Bioversity
Dr M B Fatih	- NGB
Mr Peter Herthelius	- Sida
Ms Thandie J Lupupa	- SPGRC (Secretary)

* Replaced by Dr P O P Mosupi
** Replaced by Ms Zodwa Mamba (Alternate Board Member)

Appendix II: SPGRC Staff Members

*Dr Bonga S Nkosi	Director (1 June 2006)
Ms Thandie J Lupupa	Senior Programme Manager - *In-situ* Conservation (15 May 2006). Acting Director (1 September 2006)
Mr Barnabas W Kapange	Senior Programme Manager - Documentation & Information (9 May 2006)
Mr Lerotholi L Qhobela	Senior Programme Manager - *Ex-situ* Conservation (12 May 2006)
**Mr Charles N Nkhoma	Senior Programme Manager - *Ex-situ* Conservation (12 Dec 1994). Acting Director (1 November 2002)
**Mr Brian Chirwa	Senior Programme Manager - Doc. & Information (1 June 1998)
**Mr Godfrey P Mwila	Senior Programme Manager - *Ex-situ* Conservation (On secondment from 4 May 2003)
Mrs Mary B Phiri	Assistant Administrative Officer (1 March 2000)
Ms Florence Chitulangoma	Assistant Finance Officer (8 March 1993)
Mrs Peggy Ng'ono	Technical Officer-Conservation (1 June 2005)
Mr Kennedy K Hamudulu	Technical Officer-Doc. & Information (1 March 1994)
Mr Ferdinand Mushinge	Technical Officer - *In-situ* (1 March 2004)
Ms Phyllis M Kamitondo	Personal Secretary (12 November 2001)
Mr Wilbroad M Chashi	Senior Finance Clerk (1 July 2002)
Mr Alexius M Nyambe	Driver (1 February 1991)
Mr Kapelwa E Songa	Typist/Receptionist (1 September 1989)
Mr Gibson Zulu	General Worker (1 August 1989)
Mr John Mfwembe	General Worker (4 September 1989)
Mr Wale Banda	General Worker (1 April 1990)
Mr Blackwell Ngoma	General Worker (1 July 1990)

* Resigned on 31st August 2006
** Contracts ended on 30th June 2006

Appendix III: List of Some Prominent Visitors to SPGRC

Dr Bent Skovmand	NGB, Alnarp, Sweden
Dr Edias Mwenje	NUST, P O Box AC 939, Ascot, Bulawayo, Zimbabwe
Ronganai Mlambo	SABI Consulting, Box BW 883, Harare, Zimbabwe
Mr Joseph N Mushonga	CTDT, ARCU 286 Northway Road, Harare, Zimbabwe
Felix Njovu	Copperbelt University, P O Box 21692, Kitwe, Zambia
Boby Samuel	Copperbelt University, P O Box 21692, Kitwe, Zambia
Rhodes Park School (176 pupils-4 classes)	P O Box 32755, Lusaka, Zambia
Mr Andrew Mushita	Community Technology Development Trust (CTDT), P O Box 7232, Harare, Zimbabwe
Ms Angelina Munzara	CTDT, P O BOx 7232, Harare, Zimbabwe
Mr Gracian Banda	Centre for Environmental Policy & Consultancy (CEPA), Malawi
Mr Fred Atieno	Bioversity-SSA, c/o ICRAF, P O Box 30677 Nairobi, Kenya
Ms M Tembo	Commanding Officer (PU-HQ), P O Box 50396 Lusaka
Dr Exildah Kasumu	Copperbelt University, P O Box 21692, Kitwe, Zambia
Mrs Margaret Nyirenda	Director-FANR, SADC Secretariat, Gaborone, Botswana
Susannah Prins	Edinburgh University, Minto Hse., Chamers St., Edinburgh, UK
Martin Lorenz	P O Box 50079 Lusaka, Zambia
Tamala T Kambikambi	University of Zambia (UNZA), P O Box 32379, Lusaka
Faustina M Chipalo	Controller of Programmes, In-Service Training Trust (ISTT), P O Box 310201, Lusaka, Zambia
Monde Lusilo	Training Officer, In-Service Training Trust (ISTT), P O Box 310201, Lusaka, Zambia
Marjatta Selanniemi	Ministry of Foreign Affairs, Helsinki, Finland
Wilma Viljanma	Embassy of Finland, Lusaka, Zambia
Tyan Tunney	Kapwelyomba Farms, P/Bag CH49, Lusaka, Zambia
Dr Simon Mwale	SPM-FANR, SADC Secretariat, Gaborone, Botswana

SPGRC is thankful for all those who visited the Centre for their appreciation of what is being done and for their moral and material support to the work of the network.

Through this publication and by any other communication means, we would like to invite visitors, and constructive comments and recommendations for the improvement of the work of SPGRC network.

Appendix IV: Full List of Species with Number of Accessions at SPGRC

Species	Accessions
Abelmoschus esculentus (L.) Moench	56
Abrus precatorius L.	1
Abutilon pycnodon Hochr.	1
Acacia karroo Hayne	1
Acacia nilotica (L.)Willd. exDel. ssp. kraussiana (Benth.) Brenan	2
Acanthosicyos naudinianus (Sond.) C. Jeffrey	2
Acroceras macrum Stapf	1
Adenolobus garipensis (E. Mey.) Torre & Hillc.	1
Adenolobus penchuelii (Kuntze) Torre & Hillc.	1
Aeschynomene absyssinica Vatke	4
Aeschynomene bracteosa Welw. ex Baker	1
Aeschynomene fluitans Peter	1
Aeschynomene indica L.	2
Aeschynomene schimperi	2
Aeschynomene sp.	1
Aeschynomene trigonocarpa Taub. ex E. G. Baker	1
Allium cepa L. var cepa	3
Amaranthus sp.	67
Amaranthus thunbergii Moq.	2
Anaranjada sataria	1
Anthephora elongata De Wild.	1
Anthephora pubescens Nees	4
Anthephora schinzii Hack.	1
Apium graveolens L.	1
Arachis hypogaea L.	614
Arctosis leiocarpa	1
Atriplex vestita (Thunb.) Aell.	1
Bauhinia petersiana Bolle	1
Brachiaria bovonei (Chiov.) Robyns	1
Brachiaria brizantha (A. Rich.) Stapf	1
Brachiaria dura Stapf	1
Brachiaria glomerata (Hack.) A. Camus	2
Brachiaria jubata (Fig. & De Not.) Stapf	1
Brassica juncea (L.) Czerniak.	4
Brassica oleracea L. var acephala (DC) Alef.	1
Brassica rapa L.	7
Cajanus cajan (L.) Millsp.	140
Capsicum annuum L.	9
Capsicum sp.	12
Cassia sp.	1
Cenchrus ciliaris L.	2

Appendix IV cont'd ...

Chenopodium album L.	3
Chloris gayana Kunth	2
Chloris virgata Swartz	4
Cicer arietinum L.	89
Citrullus ecirrhosus Cogn.	1
Citrullus lanatus (Thunb.) Matsumura & Nakai	146
Citrullus rehmii De Winter	2
Cleome angustifolia Forssk.	1
Cleome gynandra L.	20
Copaifera baumiana Harms	3
Corchorus olitorius L.	15
Corchorus sp.	5
Crotalaria cephalotes Herb. Madr. ex Wall.	1
Crotalaria juncea L.	4
Crotalaria podocarpa DC.	1
Crotalaria sp.	16
Cucumella aspera (Cogn.) C. Jeffrey	1
Cucumis africanus L.	1
Cucumis anguria L.	2
Cucumis meeusei C. Jeffrey	1
Cucumis melo L.	9
Cucumis sagittatus Peyr.	1
Cucumis sativus L.	3
Cucumis sp.	6
Cucurbita maxima Duchesne.	25
Cucurbita pepo L.	21
Cucurbita sp.	165
Cyamopsis tetragonoloba (L.) Taub.	1
Dactyloctenium aegyptium (L.) Beauv.	1
Danthoniopsis dinteri (Pilg.) C. E. Hubb.	1
Desmodium gangeticum (L.) DC.	1
Desmodium salicifolium (Poir.) DC.	2
Diandrochloa namaquensis (Nees) De Winter	1
Digitalis lanata Ehrh.	1
Digitaria ciliaris (Retz.) Koeler	1
Digitaria diagonalis (Nees) Stapf	1
Digitaria nuda Schumach.	1
Digitaria scalarum (Schweinf.) Chiov.	2
Digitaria sp.	1
Dolichos biflorus L.	1
Echinochloa colona (L.) Link	1
Echinochloa sp.	1

Appendix IV cont'd ...

Eleusine coracana (L.)Gaertn. ssp.africana(K.-OByrne) Hilu&DeWet	1095
Eleusine indica (L.) Gaertner (Use 108)	3
Elymus junceus Fisch.	1
Enneapogon cenchroides (Roem. & Schult.) C. E. Hubb.	1
Eragrostis echinochloidea Stapf	1
Eragrostis nindensis Fical. & Hiern	1
Eragrostis rotifer Rendle	2
Fagopyrum esculentum Moench	8
Fagopyrum sagittatum Gilib.	1
Fagopyrum tataricum Gaertn.	1
Fingerhuthia africana Lehm.	3
Flaveria bidentis (L.) Kuntze	1
Glycine max (L.) Merrill	17
Gossypium hirsutum L.	1
Gossypium sp.	1
Grewia flavescens Juss.	2
Guibourtia coleosperma (Benth.) J. Leonard	2
Helianthus annuus L.	20
Hermbstaedtia odorata (Burch.) T. Cooke	1
Hibiscus cannabinus L.	4
Hibiscus meeusei Exell	4
Hibiscus sabdariffa L.	1
Hibiscus sp.	18
Hirpicium gazanioides (Harv.) Rössl.	1
Hordeum vulgare L.	52
Lablab purpureus (L.) Sweet	11
Lactuca sativa L.	2
Lagenaria siceraria (Molina) Standl.	25
Lagenaria sp.	7
Lagenaria sphaerica (Sond.) Naud.	40
Leersia hexandra Swartz	13
Lens esculentus	14
Lolium multiflorum Lam.	1
Lotononis sp.	4
Lotus sp.	2
Luffa acutangula (L.) Roxb.	1
Luffa aegyptiaca Miller	2
Lupinus sp.	2
Lycopersicon esculentum Mill.	4
Melinis repens subsp. repens	1
Melochia corchorifolia L.	1
Mimosa pigra L.	1

Appendix IV cont'd ...

Monelytrum leuderitzianum Hack.	1
Mucuna deeringiana Merrill	1
Mucuna pruriens DC.	13
Mucuna sp.	27
Nicotiana tabacum L.	14
Oplismenus hirtellus (L.) Beauv.	1
Oryza barthii A. Chev.	2
Oryza brachyantha Chev. & Roehr.	2
Oryza longistaminata A. Chev. & Roehr.	55
Oryza sativa L.	289
Panicum dregeanum Nees	1
Panicum grandiflorum Trin. ex Nees	3
Panicum kalaharense Mez	1
Panicum nervatum (Franch.) Stapf	1
Panicum repens L.	4
Panicum sp.	3
Paspalum scrobiculatum L.	3
Paspalum sp.	1
Pennisetum glaucocladum Stapf & C. E. Hubb. (Use 81)	1
Pennisetum glaucum (L.) R. Br.	1219
Pennisetum macrourum Trin.	1
Pennisetum polystachion (L.) Schult.	2
Pennisetum polystachion (L.) Schult. ssp. polystachion	1
Pennisetum polystachion (L.)Schult.ssp.atrichum (Stapf&Hubb) Brunken	1
Pennisetum purpureum Schumach.	1
Pennisetum setaceum (Forssk.) Chiov.	1
Pennisetum sp.	7
Pennisetum thunbergii Kunth	2
Phaseolus acutifolius A. Gray.	2
Phaseolus lunatus L.	25
Phaseolus sp.	7
Phaseolus vulgaris L.	672
Phragmites australis (Cav.) Steud.	1
Pisum sativum L.	75
Prosopis tamarugo F. Phil.	1
Pseudobrachiaria deflexa (Schumach.) Launert	2
Raphanus sativus L.	1
Ricinodendron rautanenii Schinz.	1
Ricinus communis L.	6
Sacciolepis africana C.E. Hubb. & Snowden	2
Sacciolepis indica (L.) Chase	1
Schmidtia kalihariensis Stent	1

Appendix IV cont'd ...

Sesamum capense Burm. f.	5
Sesamum indicum L.	70
Sesamum sp.	17
Sesamum triphyllum Welw. ex Aschers	5
Sesbania cinerascens Welw. ex Bak.	15
Sesbania macowaniana Schinz	2
Sesbania macrantha Phill. & Hutch.	8
Sesbania microphylla Phill. & Hutch.	9
Sesbania pachycarpa DC.	2
Sesbania rostrata Brem. & Oberm.	1
Sesbania sesban (L.) Merr.	16
Sesbania sphaerosperma Welw.	3
Sesbania tetraptera Hochst. ex Bak.	4
Sesuvium sesuvioides (Fenzl) Verdc.	1
Setaria finita Launert	2
Setaria megaphylla (Steud.) Dur. & Schinz	1
Setaria sphacelata (Schumach.) Moss	2
Solanum kwebense N. E. Br.	1
Solanum melongena L. var esculatum	11
Solanum namaquense Damm.	1
Solanum rigescentoides Hutch.	1
Solanum sp.	9
Sorghum bicolor (L.) Moench	3941
Sorghum bicolor (L.) Moench subsp. drummondii (Steud.) De Wet	8
Sorghum halepense (L.) Pers.	2
Sorghum sp.	28
Sporobolus spicatus (Vahl) Kunth	1
Stipagrostis ciliata (Desf.) De Winter	1
Stipagrostis hirtigluma (Trin. & Rupr.) De Winter	1
Stipagrostis hochstetteriana (Beck ex Hack.) De Winter	1
Stipagrostis obtusa (Del.) Nees	1
Stipagrostis uniplumis (Licht.) De Winter	2
Stizolobium deeringianum Bort	1
Tephrosia vogelli Hook. F.	1
Tricholaena monachne (Trin.) Stapf & C. E. Hubb.	3
Trichosanthes cucumerina Buch.-Ham. ex Wall.	1
Trigonella foenumgraecum L.	1
Triticum aestivum L.	125
Unknown species	4
Urochloa brachyura (Hack.) Stapf	2
Urochloa oligotricha (Fig. & De Not.) Henr.	1
Vernonia fastigiata Oliv. & Hiern	1

Appendix IV cont'd ...

Vernonia melleri D. Oliver & Hiern.	1
Vernonia poskeana Vatke & Hildebr. ssp. botswanica Pope	1
Vicia faba L.	1
Vigna angularis (Willd.) Ohwi & Ohashi	2
Vigna lobatifolia Bak.	1
Vigna multinervis Hutch & Dalziel	1
Vigna oblongifolia A. Rich.	2
Vigna oblongifolia A. Rich. var. parviflora (Bak.) Verdc.	1
Vigna radiata (L.) Wilczek	44
Vigna reticulata Hook	1
Vigna sp.	12
Vigna subterranea (L.) Verdc.	264
Vigna unguiculata (L.) Walp.	558
Withania somnifera Dun.	1
Zanthoxylum chalybeum	1
Zea mays L.	1268
Zornia glochidiata DC.	2
Total	**11,823**

Appendix V: SPGRC Publications in 2006/2007

Abstracts

Mapping of Quantitative trait loci (QTL) for Thermosensitive Genic Male Sterility in indica Rice
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The objective of this work was to select and use microsatellite markers, to map genomic regions associated with the genetic control of thermosensitive genic male sterility (TGMS) in rice. An F2 population, derived from the cross between fertile and TGMS indica lines, was used to construct a microsatellite-based genetic map of rice. The TGMS phenotype showed a continuous variation in the segregant population. A low level of segregation distortion was detected in the F2 (14.65%), whose cause was found to be zygotic selection. There was no evidence suggesting a cause-effect relationship between zygotic selection and the control of TGMS in this cross. A linkage map comprising 1,213.3 cM was constructed based on the segregation data of the F2 population. Ninety-five out of 116 microsatellite polymorphic markers were assembled into 11 linkage groups, with an average of 12.77 cM between two adjacent marker loci. The phenotypic and genotypic data allowed for the identification of three new quantitative trait loci (QTL) for thermosensitive genic male sterility in indica rice. Two of the QTL were mapped on chromosomes that, so far, have not been associated with the genetic control of the TGMS trait (chromosomes 1 and 12). The third QTL was mapped on chromosome 7, where a TGMS locus (tms2) has recently been mapped. Allelic tests will have to be developed, in order to clarify if the two regions are the same or not.

Index terms: *Oryza sativa*, microsatellite, hybrid rice, genetic map.