SPGRC

SADC Plant Genetic Resources Centre

Thirty-Second Annual Report 2022/2023

SPGRC
Lusaka, Zambia
2023

(Photo : Courtesy of Mike Daka - SPGRC)

ISBN 9982-43-027-0

SADC Plant Genetic Resources Centre (SPGRC)
Farm # 6300, off Great East Road
Private Bag CH6
LUSAKA
Zambia
Tel: +260 211 399 200-1
Fax: +260-211-233746
Email: spgrc@sadc.int

URL: https://www.spgrc.org.zm

CONTENTS

Abbreviations

AAO	Assistant Administrative Officer
AFO	Assistant Finance Officer
CGIAR	Consultative Group on International Agricultural Research
CWR	Crop Wild Relative
DAR	Department of Agricultural Research
DRC	Democratic Republic of Congo
FANR	Food, Agriculture and Natural Resources (Directorate at SADC Secretariat)
FAO	Food and Agriculture Organization (United Nations)
FOFIFA	National Centre for Applied Research & Rural Dev., Madagascar
ICT	Information & Communication Technology
IITA	International Institute of Tropical Agriculture
ITPGRFA	International Treaty for Plant Genetic Resources for Food and Agriculture
Kbps	Kilo-bit per second
Mbps	Megabit per second
NPGRC	National Plant Genetic Resources Centre
NGO	Non-Governmental Organization
NPGRCom	National Plant Genetic Resources Committee
PGR	Plant Genetic Resource
PGRFA	Plant Genetic Resources for Food and Agriculture
SADC	Southern African Development Community
SDIS	SPGRC Documentation and Information System
SPGRC	SADC Plant Genetic Resources Centre
SPO	Senior Programme Officer, SADC
TCP	Technical Cooperation Programme
TEEAL	The Essential Electronic Agricultural Library
TO	Technical Officer, SPGRC

SPGRC Profile

Vision, Mission and Objectives	
Vision:	*To be lead institution that ensures regional Plant genetic resources for food and agriculture are safeguarded and efficiently used to enhance the resilience of farming and food systems for improved food, and nutrition security and livelihoods in the SADC region*
Mission:	*Mobilise, conserve and make available plant genetic resources using state-of-the-art technologies and standards, contributing to sustainable development, environment and food security for the wellbeing of the people of SADC*
Objectives:	- To build the human resources capacity within the SADC region to better conserve and use PGRFA - To consolidate and strengthen the regional and national ex situ collections of PGRFA (at SPGRC and NPGRCs) in the SADC region - To promote in situ conservation and use of PGRFA including CWR in SADC Member States - To promote on farm conservation and use of PGRFA in the SADC region - To promote the sustainable utilization of PGRFA in SADC Member States - To mobilize adequate financial resources for the conservation and sustainable utilization of PGRFA in SADC Member States - To increase awareness *of the importance of PGRFA among its major stakeholders including policy makers, farmers, landowners and the SADC citizenry for enhanced community PGRFA conservation and use*

Background

The Centre was established in 1989 as a 20-year project, initially funded by Nordic donors and, later supplemented with SADC member country contributions on an increasing scale - until the end of the project in 2011 when Member States started to fully fund the SADC Plant Genetic Resources Centre (SPGRC).

Located about 25 km off Great East Road in Lusaka on an 86 ha piece of land, generously provided by the Government of the Republic Zambia on a 99-year lease, the Centre has been entrusted and mandated with the conservation and evaluation for sustainable utilization of regional plant genetic resources for the present and future generations thus contributing to food and nutrition security and improved livelihoods; and coordination of all activities through a network of National Plant Genetic Resources Centres (NPGRCs).

Achievements and Challenges

Though challenged by lack of adequate funding, low germplasm collection and utilization and domestication of the ITPGRFA, and the outstanding construction of the biotechnology facility at SPGRC, the Centre has trained staff up to PhD level, helped with the collection of over 62,000 germplasm samples across the SADC region, implemented several projects in developing policies, strategies, and provided equipment to NPGRCs, among other achievements.

1. ADMINISTRATION

1.1 Virtual SPGRC/NPGRCs Annual Technical Review and Planning Meeting

The Virtual SPGRC/NPGRCs Annual Technical Review and planning meeting was held on Wednesday, the 12th of October 2022 via Zoom from 08:00 am – 18:00 Harare-Pretoria time with the following main objectives:

(i) Deliberate on national and regional annual PGRFA progress reports;

(ii) Review the PGRFA national and regional annual work plans and budgets for the 2021-2022 period.

(iii) Plan the activities to be carried out during the 2022-23 cropping season.

The 2022 SPGRC/NPGRCs annual technical review and planning meeting was held virtually with representation from all NPGRCs and officers from SPGRC officers except for Botswana, Tanzania, DRC, Seychelles and Madagascar NPGRCs. The meeting was officially opened by the Head of SPGRC. In his welcoming remarks, the Head updated the Member States on some of the key decisions from the Joint meeting of Ministers responsible for Agriculture, Food Security, Fisheries and Aquaculture.

1.2 Visit by the SADC Executive Secretary to SPGRC

During the financial year, the Executive Secretary of SADC, HE Mr Elias Magosi visited the SADC Plant Genetic Resources Centre (SPGRC) at the invitation of the Head of SPGRC through Director FANR. He was accompanied by the Director of Food, Agriculture and Natural Resources (FANR), Director PPRM and the Head of Public Relations Unit. The Executive Secretary took the opportunity to tour the Centre and interact with staff (Figures 1 and 2).

Figure 1: SADC Executive Secretary interacting with SPGRC members of staff

The Executive Secretary also had the opportunity to exchanged views with SPGRC staff. He appreciated the role played by Centre in facilitating conservation and use of plant genetic resources in the region to improve agricultural production and maintenance of species diversity for present and future generations. In his closing remarks, the Executive Secretary urged the SPGRC to shift its focus from mere conservation to greater utilization of the conserved material and be more impactful in communities as a contribution to food security in the region. He further urged SPGRC management to fast track the process establishing a biotechnology laboratory and start using modern technologies to conserve vegetatively propagated materials.

Figure 2: SADC Executive Secretary addressing SPGRC members of staff

1.3 Visit to SPGRC by the Human Resources Directorate

Since its formation in 1989, the SPGRC operated as a project run jointly by the SADC and the Nordic donors under an agreed framework that saw the donor funding gradually going doing as the SADC Member States funding of the project going up until 2011 when SADC took-over the SPGRC fully. It was at its meeting in Ezulwini, Eswatini in March 2017 that the Council of Ministers of SADC took a decision to have the SPGRC integrated into the SADC Secretariat structure under the Food Agriculture and Natural Resources (FANR) directorate. This was a major shift in the management of the Centre that needed key directorate under the SADC Secretariat to familiarise themselves with the Centre to enable them to better support its integration. The Head of SPGRC in consultation with the Director of FANR invited the Deputy Executive Secretaries, HRA directorate, Project Planning and Resource Mobilization directorate, Internal Audit and Risk Management Directorate and Finance directorates to visit the SPGRC. The request was approved in 2019 but was scuttled by the emergence of the Covid 19 that prevented travelling. However, this trip was resuscitated in 2022 after the Covid 19 situation became permissible. The HRA Directorate staff took the opportunity of the visit to appreciate the function and interact with staff.

1.4 Status of the Nutritional Content Analysis Project

Nutritional content analysis plays a critical role in reducing food insecurity thereby improving health and immunity in our communities. Local or indigenous foods need to be tested in food testing laboratories for their nutritional analysis by standardized nutritional analysis methods to enrich the regional food list.

SPGRC, with support from the German Agency for International Cooperation (GIZ), facilitated for all Member States to use the services of the Zambia Bureau of Standards (ZABS) for the nutritional content analysis of seed accessions in their genebanks. Funds were paid to ZABS and Member States were urged to liaise with SPGRC to ensure that their accessions are analyzed.

The SPGRC, through this project, has managed to analyze 395 accessions for nutritional Analysis for Zinc, Iron, vitamin A and Vitamin C. The results clearly show that some of the traditional vegetables tested have superior nutritional content that can easily meet the daily human requirements of 11-12mg/Kg for Zinc; 8-18mg/kg for Iron; 0.70-0.90mg/kg for Vitamin A; and 75-90mg/kg for Vitamin C (Charts 1,2 and 3). Utilization of these accessions must therefore be promoted.

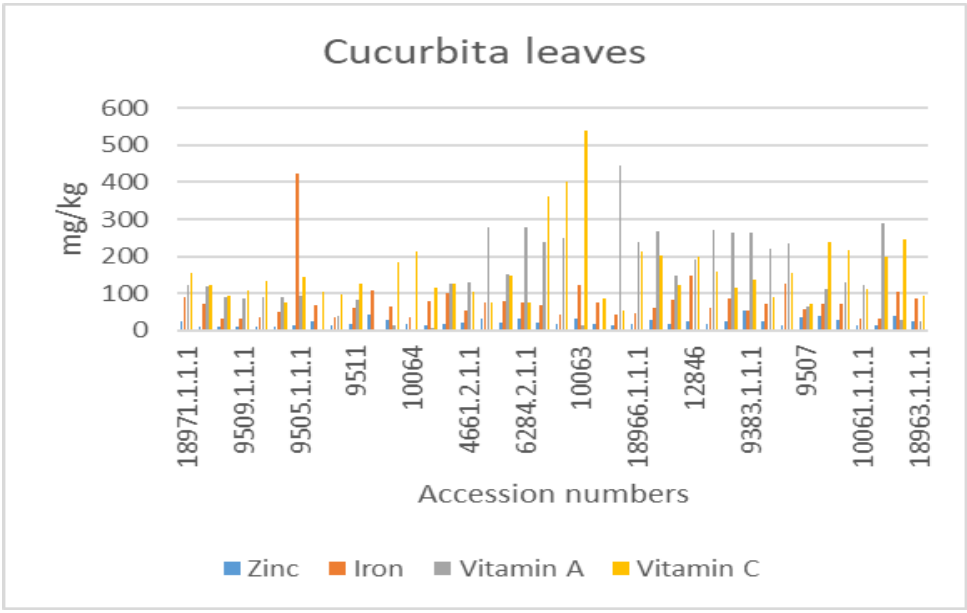

Chart 1: Nutritional Content Analysis for *Cucurbita* sp (leaves) for selected accessions

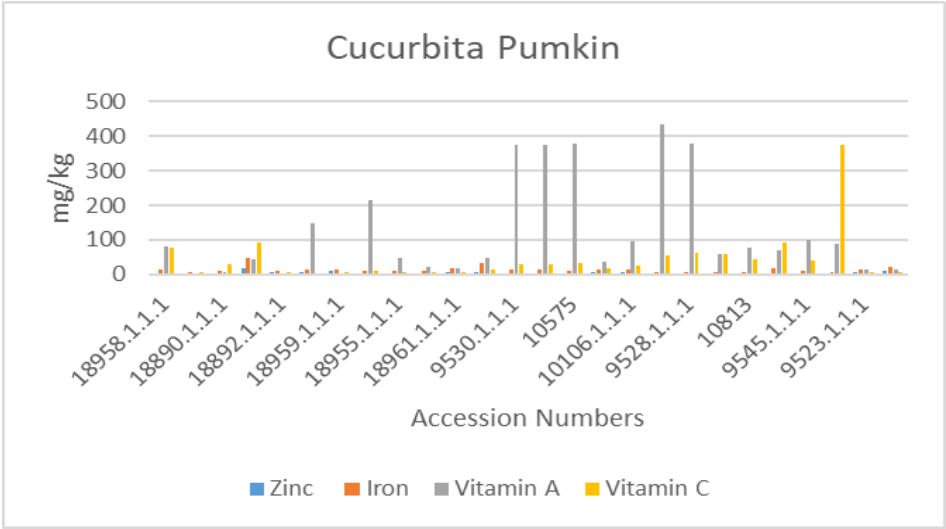

Chart 2: Nutritional Content Analysis for *Cucurbita* sp (pumpkin) for selected accessions

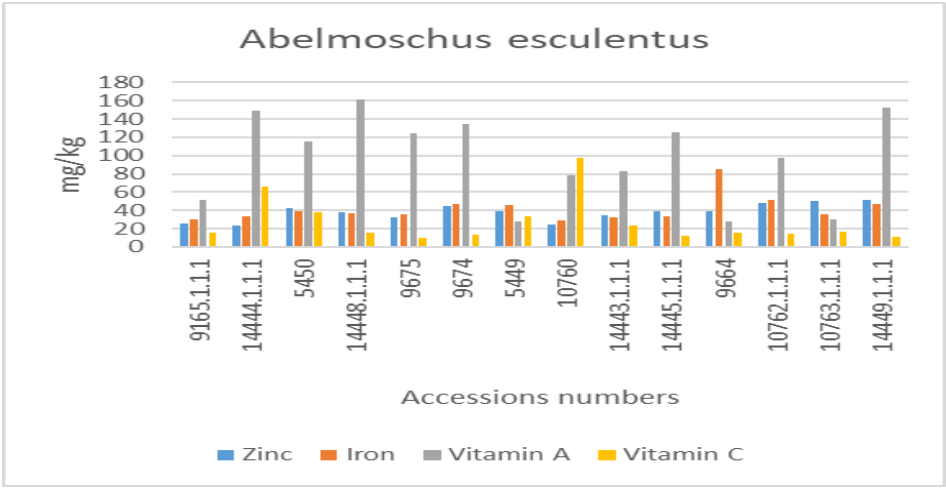

Chart 3: Nutritional Content Analysis for *Abelmoschus esculentus* for selected accessions

Table 1 and 2 below show the average Cucurbita and Abelmoschus esculentus quantities of Zinc, Iron, Vitamin A and C compared to the daily nutrient requirements.

Table 1: Nutritional Analysis for *Cucurbita* sp compared to daily human requirement.

Content†	Zinc (mg/kg)	Iron (mg/kg)	Vitamin A (mg/kg)	Vitamin C (mg/kg)
Nutrient Daily Requirement	11-Dec	8 – 18	0.70 – 0.90	75 – 90
Average	4.4	12.5	140.3	37.5
Maximum	18.3	48.1	478.8	373.7
Minimum	1.78	5.6	2.6	3.7

Table 2: Nutritional Analysis for *Abelmoschus esculentus* compared to daily human requirement

Content	Zinc (mg/kg)	Iron (mg/kg)	Vitamin A (mg/kg)	Vitamin C (mg/kg)
Nutrient Daily requirement	11-12	8 – 18	0.70 – 0.9	75 – 90
Average	39.2	91.6	124.2	32.4
Maximum	68.6	231.1	264	98
Minimum	18.8	29.3	28	9.4

1.5 Decisions on PGR conservation made by the Joint Ministers of Agriculture and Food Security, Fisheries and Aquaculture

The Joint Ministers of Agriculture and Food Security, Fisheries and Aquaculture meeting was held in Lilongwe the Republic of Malawi from 11-13 May 2022. During the meeting, the following decisions guiding the operations of the SPGRC were taken by the Ministers:

1.5.1 Decision 19: SPGRC Standard Operation Procedures (SOP)

Ministers approved:

(i) SADC Genebank Standards Operation Procedures (SADC/FANR/1/2022/14); and

(ii) Guidelines for Establishment of Community Genebanks (SADC/FANR/1/2022/15).

1.5.2 Decision 20: Update on the recruitment of Senior Programme Officer – Documentation and Information SPGRC

Ministers urged Member States to encourage qualified individuals in their countries to apply for the position of Senior Programme Officer – Documentation and Information at SPGRC.

1.5.3 Decision 21: Update on the implementation of the recommendations of the Global Crop Diversity Trust on the operations of the SADC Plant Genetic Resources Centre

Ministers urged Member States to allocate financial resources annually towards germplasm regeneration in their respective NPGRCs to ensure that all outstanding germplasm is multiplied and duplicated at the regional genebank at SPGRC and the Svalbard Global Seed Vault.

1.5.4 Decision 22: Guidance on handling of Germplasm by the SPGRC

Ministers approved the recommendations on the technical operations and handling of germplasm at SPGRC and directed;

(iii) Secretariat to carry out standard genebanking operations of viability testing, regeneration, and multiplication of germplasm under its custody in the regional genebank without necessarily consulting Member States to ensure that all germplasm in the regional genebank is viable at all times though constant update of Member States on material handled at the regional genebank is needed;

(iv) Secretariat not to distribute material it is holding in the regional genebank but rather channel the request to the respective Member States whose material is being requested whenever germplasm requests are made through the Secretariat;

(v) Member States to be directly responsible for assigning Digital Object Identifiers (DOI) to germplasm at all times and not for DOI assignment on germplasm to be done at regional level at SPGRC. SPGRC should only play the coordinating role to ensure development of an interface for DOI assignment at NPGRC level. In an event the NPGRCs face challenges they could prepare their data in an excel sheet and send to SPGRC or the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) technical team to assist them;

(vi) Secretariat to urgently organise a meeting platform to enlighten Member States on Digital Object Identifiers for them to fully understand the subject and enable them to make Informed decisions;

(vii) Secretariat to discuss with Svalbard Global Seed Vault such that going forward Svalbard Global Seed Vault also includes NPGRC numbers for materials sent to it and on the data shared on Genesys for easy referencing at national level; and

(viii) Secretariat to take steps towards patenting the SPGRC Documentation and Information System (SDIS) to preserve and protect its copyright.

1.5.5 Decision 23: Update on the implementation of the recommendations of the Global Crop Diversity Trust on the operations of the SADC Plant Genetic Resources Centre

Ministers approved the Regional Strategy on Plant Genetic Resources Conservation and Utilization 2020-2030 **(SADC/FANR/1/2022/18)**.

1.5.6 Decision 24: Sustainable Utilization of conserved Plant Genetic Resources

Ministers: **urged member states through their NGRCs to**:

(i) characterize their conserved genetic resources nutritionally, morphologically and molecularly; and

(ii) to promote the utilization and commercialization of their plant genetic resources for the benefit of communities.

1.7 Visitors

During the reporting period, SPGRC received visitors including school pupils, university students, scientists, farmers and prominent individuals. See list in Appendix III.

2. PERSONNEL, EQUIPMENT AND SUPPLIES

1.1 SPGRC Personnel

The SPGRC still has 17 council approved positions. Of the seventeen posts, four are regional and 13 are local positions.

The position of Senior Programme Officer – Documentation and Information, which was vacant, was successfully filled. The new officer, Mr Kasonde Mubanga from the Republic of Zambia reported for duty on 3 April 2023. The position of Senior Programme Officer – *Ex-Situ Conservation* has, however, become vacant again and processes to have it filled are ongoing.

1.2 Infrastructure maintenance and Asset Replacement at SPGRC

During the reporting financial year, SPGRC undertook renovated four (4) staff houses in the staff housing complex located at the Centre. The upgrade of the houses involved floor tiling to bring the houses at par with modern floor finish (figure 3). House No. 2 had one side of the walls waterproofed to prevent moisture from seeping through the walls during the rainy season which was causing severe moulding. There were other small value assets procured such as a lawn mower, 14 laptops for staff, minor repairs to houses and office buildings which included modernization of the main entrance to the car port area (figure 4) and reinforcing security to car port area by adding razor wire and electric fence was done. The multiplication field security fence was also redone to enhance germplasm security in the field (Figure 5).

Figure 3: Newly Tiled Staff Houses at SPGRC

Figure 4: New Entrance to Carport at SPGRC


Figure 5: Part of the recently installed Fence at Multiplication Fields at SPGRC

3. MEETINGS

SPGRC members of staff attended several important meetings on behalf of the SPGRC as detailed in Table 3.

Table 3: Meetings attended by SPGRC Staff

Date	Meeting Attended
Apr-21	Steering group meeting of the African seed and biotech platform
June, 2022	Head, travelled to Lobatse, Botswana for the SADC Secretariat Management Retreat
July, 2022	Head attendee the African Protected Area Conference
July, 2022	SPO – In Situ, attended the Soybean Innovation Lab (Sil) Meeting – Lusaka, Zambia
Aug, 2022	Head, SPO – In situ and TO – Documentation and Information attended the meeting on Harmonisation of National Strategies on PGR for Food and Agriculture in Malawi, Mozambique and Zimbabwe in Maputo, Mozambique
Aug, 2022	Workshop on Harmonization of National Strategies on Plant Genetic Resources for Food and Agriculture in Malawi, Mozambique and Zimbabwe, Maputo - Mozambique
Aug/Sept, 2022	SPO – In Situ attended the FAO - AU Preparatory Meeting for Africa for the 9th Session of the International Treaty on Genetic Resources for Food and Agriculture in Addis Ababa – Ethiopia
Sept, 2022	Head and TO – Documentation and Information attended the 9th Session of the Governing Body of the International Treaty of Plant Genetic Resources for Food and Agriculture (ITPGRFA) in New Delhi, India
Oct/Nov, 2022	SADC Supervisory and Managerial Training in Gaborone – Botswana
Nov, 2022	CTDO Capacity Building Working on Community Seedbank
Dec, 2022	Meeting with stakeholders from Plant Quarantine and Phytosanitary Services from Zambia over the movement of Vegetatively Propagated Crops Guidelines
Feb, 2022	Capacity Building in Conservation, Utilization and Documentation of Plant Genetic Resources (PGR) – Harare, Zimbabwe
Feb, 2023	SPO – In-Situ attended a function in celebration marking 2023 as the International Year of Millets in Harare, Zimbabwe
Mar, 2023	Head attended the African Seed and Biotechnology Partnership (ASBP) in Dakar Senegal
Mar, 2023	SPO – In Situ and TO – Doc and Info attended the Regional Plant Genetic Resources Conservation Monitoring and Evaluation workshop in Johannesburg, South Africa
Mar, 2023	SPO – In situ attended the SPGRC and Zambia Plant Quarantine and Phytosanitary Services Meeting in Lusaka, Zambia

4. TECHNICAL ACTIVITIES

4.1 Ex-Situ Conservation

4.1.1 Multiplication and Regeneration of Germplasm

The SPGRC multiplied/regenerated 878 Member States accessions out of target of 1056 in 2022/23. Table 4 shows the number of accessions planted for multiplication/ regeneration per species during the past two seasons. Success rate increased from 65% in 2021/22 to 83% in 2022/23

Table 4: Number of accessions planted for multiplication/regenerated in 2021/22 and 2022/23

No.	Species name	2021/2022		2022/2023	
		Targeted	Actual	Targeted	Actual
1	*Eleusine coracana*	89	60	150	90
2	*Lagenaria spp.*	114	59	-	-
3	*Pennisetum glaucum*	58	58	150	150
4	*Sorghum bicolor*	-	-	162	154
5	*Phaseolus vulgaris*	214	102	108	68
6	Vigna unguiculata	139	89	270	218
7	*Vigna subterranea*	111	97	-	-
8	*Zea mays*	35	26	216	198
	Total	**760**	**491**	**1056**	**878**
	% Success	**65%**		**100%**	**83%**

The success rate of 100% was not achieved due to crop failure in the field (especially observed in Maize, beans and cowpeas), seed set failure (observed in cowpeas) and Bird damage (observed in Pennisetum and Eleusine accessions).

Seed Multiplication carried out at SPGRC during the 2022/23 rain season according to the Member States are shown in the table 5 below.

Table 5: Accessions Multiplied and Regenerated at SPGRC per Member State

Species	Source Member State	Accessions Planted	Accessions Harvested
Sorghum bicolor	Angola	4	4
	Botswana	8	8
	Mozambique	8	4
	Malawi	7	7
	Namibia	9	9
	Eswatini	12	12
	Tanzania	34	32
	South Africa	18	18
	Zambia	32	32
	Zimbabwe	30	28
	Total	**162**	**154**

Zea mays	Angola	30	26
	Botswana	3	3
	Lesotho	40	35
	Mozambique	2	2
	Malawi	23	23
	Eswatini	27	26
	Tanzania	14	14
	South Africa	14	12
	Zambia	59	55
	Zimbabwe	4	2
	Total	**216**	**198**
Phaseolus vulgaris	Angola	25	18
	Botswana	1	-
	Eswatini	5	3
	Lesotho	15	8
	Mozambique	1	-
	Malawi	21	11
	Tanzania	15	9
	South Africa	15	11
	Zambia	9	8
	Zimbabwe	1	-
	Total	**108**	**68**
Vigna unguiculata	Angola	37	17
	Botswana	50	49
	Eswatini	14	14
	Lesotho	2	2
	Malawi	15	13
	Mozambique	12	11
	Namibia	11	9
	South Africa	26	25
	Tanzania	31	20
	Zambia	67	54
	Zimbabwe	4	4
	Total	**270**	**218**
Pennisetum glaucum	Angola	6	6
	Botswana	2	1
	Eswatini	1	1
	Malawi	3	3
	Mozambique	1	1
	Namibia	115	101
	South Africa	2	2
	Tanzania	1	1
	Zambia	19	16
	Total	**150**	**132**
Eleusine coracana	Botswana	1	1
	Burundi	1	1
	Malawi	24	15
	Tanzania	28	17
	Zambia	50	26
	Zimbabwe	46	30
	Total	**150**	**90**
Grand Total		**1056**	**878**

4.1.2 Characterization of germplasm at SPGRC and in Member States

A total of 484 accessions were characterized by the SPGRC during the 2022/2023 cropping season. This is comprised of: - 132 *Pennisetum glaucum*, 154 *Sorghum bicolor* and 198 *Zea mays* accessions as shown in Table 6.

The characteristics that were observed in the field and the lab during characterization are as follows:
Maize: Plant height, ear height, days to tasseling, days to silking, days to ear leaf senescence, stem colour , ear damage, kernel row arrangement, number of rows, kernel type, kernel colour , 1000 kernel weight (g)

Sorghum: Plant height, stalk juiciness, juice flavour , number of days to 50% flowering, inflorescence compactness and shape, glume colour, grain covering, shattering, grain colour, 100 seed weight (g)
Pearl millet: Plant height, lodging susceptibility at dough stage, green fodder yield potential, days of flowering, spike shape, spike length, spike thickness, spikelet shattering at maturity, spike density at maturity, seed colour, seed covering 1000 seed weight (g)

Table 6: The number of characterized accessions at SPGRC for each Member State

Member State	*Pennisetum glaucum*	*Sorghum bicolour*	*Zea mays*	Total
Angola	6	4	26	36
Botswana	1	8	3	12
Eswatini	1	12	26	39
Lesotho	-	-	35	35
Malawi	3	7	23	33
Mozambique	1	6	2	9
Namibia	101	9	-	110
South Africa	2	17	12	31
Tanzania	1	29	14	44
Zambia	16	33	55	104
Zimbabwe	-	29	2	31
Grand Total	**132**	**154**	**198**	**484**

4.1.3 Germplasm Viability testing

As part of its routine genebank management programme to ensure that Member States accessions are viable, SPGRC tested for viability the accessions shown in Table 7. Accessions that failed the viability test will be regenerated in coming seasons to maintain their viability.

Table 7: Germplasm viability test at SPGRC

Species	Total Number of accessions tested
Arachis hypogaea L.	14
Capsicum spp.	1
Cucumis sp.	2
Cucurbita maxima Duchesne.	8
Cucurbita spp.	1
Eleusine coracana (L.) Gaertn.	2
Eleusine coracana (L.)Gaertn. sp.africana (K.-OByrne) Hilu&DeWet	7
Oryza sativa L.	4
Pennisetum glaucum	21
Phaseolus vulgaris	1
Sorghum bicolor (L.) Moench	48
Sorghum sp.	3
Vigna subterranea (L.) Verdc.	2
Vigna unguiculata	22
Zea mays L.	18
TOTAL	**154**

4.2 Germplasm Collection and In-Situ Conservation

The Key Result Area for the SADC Plant Genetic Resources Centre (SPGRC) is the conservation and utilization of plant genetic resources to improve agricultural production and maintenance of species diversity for the benefit present and future generations.

The In-situ conservation programme contributes to achieving the SPGRC mandate by providing technical guidance and coordination of germplasm collection missions, on-farm conservation, community seed banks, maintenance of root and tuber crops in field genebank and *in vitro*, *in situ* conservation of Crop Wild Relatives and the general management of the SPGRC Farm.

4.2.1 On Farm Conservation and Community Seedbanks

On-Farm Conservation strengthens the conservation and continued use of local crop varieties at farmer level. Many communities in the SADC region still depend on traditional food species for food nutrition and income. These traditional food species are often resilient to biotic and abiotic stresses, thus, they adapt well to marginal areas including climate change, nutritious and establish sustainable livelihoods for farm household and rural communities.

Establishment of Community Seed Banks was facilitated in Chimukoko, Zimbabwe (Mudzi Districts) as shown in table 8. Insights were gathered from farmers during workshops on key activities that would guide and standardize operations of farmer managed Community Seed Banks. Topics raised included germplasm collection, seed drying, packaging for conservation in the seed bank, thus, small quantities and individual seasonal bulk storage, seed registration, labelling of storage containers, viability testing, crop restoration, seed sharing for crop diversification, sustainability of seed banks through committees and formal group associations.

Farmers were encouraged to manage traditional crops on-farm to supplement ex-situ conservation in seed genebanks and for food and nutrition security. Crop diversity of adaptive crops help in coping with the challenges of climate change, improve livelihoods and to build resilience.

SPGRC is maintaining a field genebank with 260 accessions of sweet Potatoes and 40 Cassava accessions safe duplicated by the Zambia National Plant genetic resources (NPGRC). The status of field genebanks in the SADC region is in table 9.

Table 8: Community Seed Banks

Member States	Name of the Community Seed Bank	Location	Total Number
South Africa	Gumbu CSB	Gumbu village, Limpopo province	3
	Jericho CSB	Jericho village, North west province	
	Sterkspruit CSB	Sterkspruit town, Eastern Cape province	
Zimbabwe	Sarukwe Seedbank - under construction	Kavango West	20
	Bveke Seed Bank	Mashonaland Central	
	Kaseunzi Seed Bank		
	Nyamarodza Seed Bank		
	Mabvundudzi Seed Bank		
	Dotito Seed Bank		
	Chimukoko Seed Bank	Mashonaland East	
	Masahwa Seed Bank		
	Chibika Seed Bank		
	Chomazumba Seed Bank		
	Geze Seed Bank		
	Saunyama Seed Bank	Manicaland	
	Mpyinga Seed Bank	Masvingo	
	Dula Seed Bank	Matabeleland south	
	Matobo Seed Bank		
	Bubude Seed Bank	Matabeleland North	
	Tsholotsho Seed Bank		
	Majiji Seed Bank		
	Ktesani Seed Bank		
	Igusi Seed Bank		

Namibia launched a Community Seedbank project at National and local level. Construction of the community Seed Bank is underway, once the building is complete, capacity building of the farmers through training on the establishment and management of Community Seed Banks will be conducted.

Table 9: Status of Field Genebanks

Member States	Field Genebank Location	species held in the Genebank	No. of accession conserved
Angola	Kwanza and Uige Province	Coffee	
	Bengwela, K. Sul and Huambo	Mango Trees	
	Huambo	Eucalyptus, Pine, Cedar and Acacia	
	Cabinda	Palm Trees	
Comoros	3 Islands	Mixed	239
Eswatini		Mixed (Manihot esculenta 7, Musa sp. 7, Ipomea batatas 7, Plectrantus esculantus 1, Scolopia sp. 1, Aloe vanballei 87, Agave sisalana 2, Demia sp. 2,	114
Malawi	Chitedze research station	Ground yams, living stone potato, air yams, coco yams, wild cowpeas	1588
	Kandiyani experimental site	Re-established a Banana Field gene bank	
Madagascar		Cassava, Taro, Maize, Cotton, Cacao, Vanilla, Coffee, cocos, Musa, Orange, Mangos, Cashew Groundnuts Vigna, Bambara	951
Mauritius	Kandiyani Research Station	Banana Field genebank	178
	Chitedze research station.	Ground yam, Livingstone potato, Air yams, Taro.	
	Kasinthula Research Station	All Sugarcane at the field gene bank	
South Africa		Sweet potato 28, Taro 12, Cassava 7	47
Zambia		Sweet Potatoes – 260, Cassava - 40	300
Total			**3417**

4.2.2 Germplasm Collection

During the 2022-23 season, Germplasm Collection missions were conducted in four (4) Member States during the reporting period. A total of 322 accessions were collected for conservation compared to 545 samples collected in 2021/22 season 170 mixed crops, 107 bananas,229 maize and 13 crop wild relatives) were collected for conservation. The number of collected samples are shown in table 10.

Table 10: Germplasm Collection Missions in the 2022/23 Season

Member State	Total Collection	Planned Collection 2022/23	Report not received 2021/2022
Angola	-	90	84
Comoros			107
Malawi	185	200	200
Mozambique	84		141
Namibia	60		13
South Africa	50		
Total	**379**	**290**	**545**

4.2.3 In-Situ Trainings

The SPGRC's In-Situ programme conducted the following Trainings in 2022/23 as indicated in table 11.

Table 11: Training conducted by In-Situ Programme

Trainees	Training Description	Trainer
14 Member States NPGRCs (Except DRC and Seychelles)	Accession handling processes to enhance quality. Areas covered included seed handling and processing in the Genebank (seed drying, viability testing, storage in the Genebank and Tissue Culture). Also included in the training was the establishment and management of Community Seed banks.	SPGRC
Community Technology Development Organisation from and farmers in Chimukoko, Harare, Zimbabwe	Establishment and management of Community Seedbanks	SPGRC
76 Chalimbana University Students	Climate Smart Agriculture and on-farm conservation	SPGRC

4.2.4 SPGRC Arboretum

The two arboretums maintained at the SPGRC have 25 different species of wild fruits, medicinal plants and ornamentals that were collected from various parts of Zambia. These wild species attract a lot of students from schools and colleges for educational purposes.

4.2.5 Farm Management

The In-Situ Conservation team prepared five (5) hectares of land at SPGRC for regeneration and Multiplication of accessions. A total of 1215 accessions comprising of Maize, Pearl Millet, finger millet, sorghum, cowpeas and common beans, were planted at SPGRC under the two programs for Ex Situ Conservation and In-situ Conservation. Characterization is also progressing well with vegetative traits concluded and left with seed characters.

Additionally, 20 mixed crop accessions were planted in the Field Museum, 150 Pearl Millet, 150 Finger Millet and 160 mixed Traditional Vegetable Accessions were planted in the Tamarind Field for the 2022-23 season.

All planted accessions have been harvested with Lab analysis is being done on the harvested samples. This is not yet concluded.

All the Key farm equipment which includes the Tractor and all the Tractor driven implements and the irrigation system were serviced and kept in good condition.

4.2.6 SADC Harmonized Seed Regulatory System

In addition to its mandate of coordination the conservation and utilization of plant genetic resources for food and agriculture, SPGRC has also been tasked with the coordination of the SADC Harmonized Seed Regulatory System through the SADC Seed Centre. This is because the SADC Seed Centre is currently not staffed The Seed Centre has so far registered 106 varieties on the SADC Variety Catalogue.

4.3 Documentation and Information

4.3.1 Maintenance of SPGRC Computer Hardware and Software

4.3.1.0.1 Software

The Documentation and Information programme continued to maintain the Centre's hardware and software. Ensured and facilitated the timely renewal of services for internet, voice and offsite data backup. The section also renewed the fortiGATE firewall license, CISCO smartcare services and antivirus licenses. Further the section setup and installed the SPGRC Electronic freezer monitoring system in the genebank that assists recording temperature in real-time.

4.3.1.0.2 *Hardware*

The SPGRC Procured new laptops (14), docking stations (12), projector (1) and monitors (12) for staff. A server (1), tape library for onsite backup and a new UPS were also procured.

4.3.2 PGR Database Development and Technical Backstopping

4.3.2.1 *Database Development*

The SPGRC upgraded WebSDIS to include DOI registration module at Member State level and NPGRC numbers appearing on reports for easy referencing. Further the Centre upgraded Bitinami WAMP stack to the latest version.

4.3.2.2 *NPGRCs Technical Backstopping*

The SPGRC provided technical support to seven (7) Member States remotely using remote tools. It installed the latest version of WebSDIS to the Zambian NPGRC, assisted Angola, Malawi, Lesotho, Tanzania, Zambia, South Africa and Zimbabwe on how to generate reports in the system, data capturing and general user access to the system and conducted two (2) technical backstopping missions in Lesotho and Namibia. The two Member States requested physical training for their staff and installation and migration of the system to newly procured computers (Table 12).

Table 12: Member States Technical Supported and Trained.

Member State	Technical Support Provided
Angola	· Reports generation, data capturing and general user access to the WebSDIS
Namibia	· Staff training, WebSDIS installation and migration
Malawi	· Reports generation, data capturing and general user access to the WebSDIS
Lesotho	· Reports generation, data capturing and general user access to the WebSDIS;
	· Staff training,
	· WebSDIS installation and migration
South Africa	· Reports generation, data capturing and general user access to the WebSDIS
Tanzania	· Reports generation, data capturing and general user access to the WebSDIS
Zambia	· Latest version of WebSDIS installation.
	· Reports generation, data capturing and general user access to the WebSDIS
Zimbabwe	· Reports generation, data capturing and general user access to the WebSDIS

The SPGRC also helped and encouraged all Member States to capture their data in WebSDIS by sending quarterly data capture reminders to Curators. This activity culminated into a regional workshop in February 2023 in Harare, to capacitate Member States on use of SDIS, specifically on reporting for Genebank managers and use of DOIs.

4.3.3 Network News and Publicity

4.3.3.1 *Publications*

To enhance visibility of PGR activities in the region, the SPGRC compiled, translated and published the SPGRC 2022/23 Annual Report (500 copies) and the network newsletter (1000 copies), and shared the publications with Member States. Hard copies of newsletters (20 copies per country) and annual reports (10 copies each) were further dispatched to all Member States through courier services. Additionally, the SPGRC compiled and published 1000 copies of the second issue of the SPGRC newsletter (Table 13).

The SPGRC also designed and compiled the Southern African Development Community (SADC) Regional Plant Genetic Resources Conservation and Sustainable Utilization Strategy booklet.

Table 13: Hard copy distribution of publication during the 2022-23 financial year

Member State	Annual Report	July Newsletter	Calendars	March Newsletter
Angola	10	20	20	30
Botswana	10	20	20	30
DRC	10	20	20	30
Comoros	10	20	20	0
Eswatini	10	20	20	30
Lesotho	10	20	20	30
Madagascar	10	20	20	30
Malawi	10	20	20	30
Mauritius	10	20	20	30
Mozambique	10	20	20	30
Namibia	10	20	20	30
Tanzania	10	20	20	30
South Africa	10	20	20	30
Seychelles	10	20	20	30
Zambia	10	20	20	30
Zimbabwe	10	20	20	30

4.3.3.2 *SPGRC Publications translation status*

During the reporting period, the following publications were developed and translated into the official SADC languages as indicated in table 14.

Table 14: Publications developed and translated into the official SADC languages

Publication Title	Translation Status (Yes/No)	
	French	Portuguese
SPGRC 2021/2022 Annual Report	Yes	Yes
SPGRC Mid-year 2022 Newsletter	Yes	Yes
Guidelines on the Operations of SPGRC	Yes	Yes
SPGRC 2022 Calendars	Yes	Yes

4.3.4 Publicity Events and Promotional Materials

The SPGRC participated and exhibited in Two public shows: the 2022 Zambia International Trade Fair (ZITF) and the 2022 Agriculture and Commercial Shows, both in Zambia. The ZITF was held from 29th June to 5th July 2022 in Ndola, Copperbelt Province of Zambia while the Agricultural and Commercial Show took place in Lusaka held from 27th July to 1st August 2022. At these events, the SPGRC showcased and promoted the importance of plant genetic resources conservation and utilization in the SADC region (figure 6).

Figure 6: SPGRC member of staff exhibiting at the 2022 Agricultural Show in Lusaka, Zambia

The SPGRC also organized two radio interviews and one TV show where it raised awareness of the SADC PGR program. Additionally, the Center hosted the 2022 SADC Day commemoration, which falls on 17 August. The event was jointly held with the Ministry of Information and Media of the Republic of Zambia. A team of 15 journalists from both print and electronic media houses in Lusaka, Zambia who participated in the event, publicized the importance and impact of the SADC Plant Genetic Resources Centre in promoting food security in the region through their various media channels.

The SPGRC also promoted and enhanced the visibility of its activities by writing/ developing content on Plant Genetic Resources at least once a month and shared with the Communications and Public Relations Unit of the SADC Secretariat. The content was shared on the SADC official twitter handle and Facebook pages. Further contributed five (5) articles that have featured on the SADC website.

Additionally, the SPGRC procured branded promotional material including two (2) backdrops, popup banners (6), and teardrops (10) for use at SPGRC events. The Centre further procured branded t-shirts (20) and caps (20), which were distributed to journalists who covered the SADC day event. One hundred (100) brochures with content of the SPGRC technical activities were designed and printed for distribution to the public.

5. INTERIM FINANCIAL REPORT 2022/2023

Below are the interim SPGRC financial statements for the year 2022/2023

SADC Plant Genetic Resource Centre		
Interim Statement of financial performance		
For the Period Ended 31 March 2023		
	2023	**2022**
	USD	**USD**
Revenue from non-exchange transactions	**829,781.00**	**1,121,829.36**
Member States contributions	829,781.00	1,120,545.00
Exceptional revenue from Member States	-	1,284.36
Development partners contributions	-	-
Revenue from exchange transactions	**21,029.84**	**22,731.65**
Institutional property rentals	17,406.30	21,352.84
Investment revenue	3,623.54	1,378.81
Total revenue	**850,810.84**	**1,144,561.01**
Expenditure		
Programme Expenditure	**1,312,125.61**	**1,227,031.54**
Staff costs	**814,954.52**	**801,197.01**
Transport, subsistence and conferences	**152,358.96**	**11,131.83**
Lease expenditure	**-**	**-**
Contingent rental on finance leases	**-**	**-**
General expenses and supplies	**222,370.28**	**260,157.09**
Communications	**27,457.43**	**34,694.39**
Audit and professional fees	**4,017.65**	**3,792.92**
Depreciation current year charge	**90,966.77**	**116,058.30**
Depreciation effect of changes in residual values	**-**	**-**
Finance cost	**-**	**-**
Other gains /(losses)	**-1,206.93**	**10,160.86**
(Loss)/Gain on sale of assets	- 93.74	0.00
(Loss)/Gain on foreign exchange transactions	-1,113.19	10,160.86
Surplus/(deficit) for the year	**(460,107.84)**	**(72,310)**

SADC Plant Genetic Resource Centre		
Interim Statement of financial position		
For the Period Ended 31 March 2023		
	2023	**2022**
	USD	**USD**
Current assets		
Cash and cash equivalents	611,008.40	754,895.21
Receivables exchange transactions	59,062.42	28,507.54
Receivables non-exchange transactions	233,639.88	-
Prepayments	1,333.02	1,578.23
	905,043.72	**784,980.98**
Non-current assets		
Property, plant and equipment	1,772,942.27	1,785,030.78
	1,772,942.27	**1,785,030.78**
Total assets	**2,677,985.99**	**2,570,011.76**
Liabilities		
Current liabilities		
Trade and other payables from exchange transactions	95,688.81	96,818.28
Trade and other payables from non exchange transactions	-	-
Finance lease liability	-	-
Post-employment benefit	278,296.06	184,071.68
Deferred revenue from development partners	-	-
Member States Special Funds	-	-
	373,984.87	**280,889.96**
Non-current liabilities		
Post-employment benefit	-	-
Finance lease liability	-	-
	-	**-**
Total liabilities	**373,984.87**	**280,889.96**
Net assets	**1,836,721.36**	**2,289,121.80**
Reserves	74,837.17	156,095.94
Accumulated surplus	2,221,992.03	2,205,335.53
Surplus for the year	(460,107.84)	(72,309.67)
Total net assets and liabilities	**2,210,706.23**	**2,570,011.76**

SADC Plant Genetic Resource Centre		
Interim Statement of cash flows		
For the Period Ended 31 March 2023		
	2023	**2022**
	USD	**USD**
Cash flows from operating activities		
Surplus for the year	(460,108)	(72,310)
Adjustments:		
Depreciation	90,967	116,058
Assets adjustments	-	-
costs	-	-
Gain on sale of assets	-	-
Reclassification of small value assets	-	-
Finance income	-	(1,284)
Finance costs		
Increase/ (decrease) in Post-employment benefit	94,224	(32,649)
Increase /(decrease) in Deferred revenue from ICP	-	-
Increase/(decrease) in Member States Special Funds	-	-
increase/(decrease) in payables	(1,129)	43,045
Decrease/(increase) in receivables	(263,950)	24,893
Net cash flows from operating activities	**(539,996)**	**77,753**
Cash flows from investing activities		
Purchase of property, plant, equipment	(79,435)	(57,859)
Purchase of intangibles	-	-
5year SEOM	-	-
Transfer to RLD	-	-
Proceeds from sale of property, plant and equipment	94	-
Interest received	(3,624)	(1,379)
Interest paid	-	-
Net cash flows used in investing activities	**(82,965)**	**(59,238)**
Cash flows from financing activities		
Finance charges paid on SADC House	-	-
SADC house lease repayments	-	-
Funds received for Asset Replacement	-	51,499
Cash proceeds from Issuing Loans	3,431	1,339
Net cash flows used in financing activities	**3,431**	**52,838**
Net increase in cash and cash equivalents	(143,887)	71,354
Opening cash and cash equivalents	754,895	683,542
Closing cash and cash equivalents	**611,008**	**754,895**

SADC Plant Genetic Resource Centre
Interim Statement of comparison of budget and actual amounts (Revenue)
For the Year Ended 31 March 2023

Description	Notes	Original Budget 2023	Final Adjusted Budget 2023	Actual Comparable Amount 2023	Variance 2023	Budget Utilisation 2023
Col 1	**Col 2**	**Col 3**	**Col 4**	**Col 5**	**Col 6**	**Col 7**
Revenue from non-exchange transactions						
Member states contributions		1,589,197.68	1,756,442.68	829,781.00	926,661.68	
Member states special contributions		-	-	-	-	
Transfers and asset donations		-	-	-	-	
Development partners contributions		-	-	-	-	
Total revenue from non-exchange transactions		**1,589,197.68**	**1,756,442.68**	**829,781.00**	**926,661.68**	**53%**
Revenue from exchange transactions						
Institutional property rentals		-	-	17,406.30	(17,406)	
Investment revenue		-	-	3,623.54	(3,624)	
Total revenue from exchange transactions		**-**	**-**	**21,029.84**	**(21,030)**	
Total revenue		**1,589,197.68**	**1,756,442.68**	**850,810.84**	**905,631.84**	**52%**

SADC Plant Genetic Resource Centre
Interim Statement of comparison of budget and actual amounts (Expenditure)
For the Year Ended 31 March 2023

Description	Original Budget	Final Adjusted Budget	Actual Comparable Amount	Variance	Utilisation rate
	2023	2023	2023	2023	2023
Col 1	**Col 2**	**Col 3**	**Col 4**	**Col 5**	**Col 6**
Programme activities					
SADC Plant Genetics and Resources Center (SPGRC)	620,368.48	787,613.48	486,392.37	301,221.11	62%
Sub-total: Programmes Funded by Member States	**620,368.48**	**787,613.48**	**486,392.37**	**301,221.11**	**62%**
Support activities	-	-	-	-	-
Sub-Total	**620,368.48**	**787,613.48**	**486,392.37**	**301,221.11**	**62%**
Staff costs activities					
Programme staff	962,875.80	962,875.80	815,501.24	147,374.56	85%
Support staff	-	-	-	-	
Sub-total: Staff costs	**962,875.80**	**962,875.80**	**815,501.24**	**147,374.56**	**85%**
Total Costs	**1,583,244.28**	**1,750,489.28**	**1,301,893.61**	**448,595.67**	**74%**

6. APPENDICES

Appendix I: Members of the PGR Subcommittee, 2022/2023

NO.	NAMES	COUNTRY	EMAIL ADDRESS
1	MS JOANA VARINIA JOAQUIM SALVADOR	ANGOLA	joannasalvador@hotmail.com
2	PROF. SAMODIMO NGWAKO	BOTSWANA	sngwako@buan.ac.bw
3	MS CHARMILA MOHAMED ANOIR	COMOROS	charm-i2m@hotmail.fr
4	Prof. LUTALADIO NE BAMBI JACQUES (To be confirmed)	DRC	nb.lutaladio@gmail.com
5	MR THEMBINKOSI GUMEDZE	ESWATINI	tg.tgumedze@gmail.com
6	DR LEBESA LEFULESELE	LESOTHO	lefulesele@gmail.com
7	TBA	MADAGASCAR	
8	TBA	MALAWI	
9	MS INDRANEE BULDAWOO	MAURITIUS	ibuldawoo@govmu.org
10	DR PAULINO MUNISSE	MOZAMBIQUE	pmunisse@gmail.com
11	MR. EDDIE B. S. HASHEELA	NAMIBIA	eddie.hasheela@mawlr.gov.na
12	TBA	SEYCHELLES	
13	DR NOLUTHANDO NKOANA	SOUTH AFRICA	noluthandon@daff.gov.za
14	DR EFREM AKILEI NJAU	TANZANIA	efraim njau@tpri.go.tz
15	DR DICKSON NG'UNI	ZAMBIA	dickson.nguni@gmail.com
16	DR CLAID MUJAJU	ZIMBABWE	mujajuclaid@gmail.com; mujajuclaid@yahoo.com
17	MR DOMINGOS GOVE (Ex Officio)	SADC SECRETARIAT	dgove@sadc.int
18	DR JUSTIFY G SHAVA	SADC SECRETARIAT – SPGRC	jshava@sadc.int

Appendix II: SPGRC Staff Members, 2022/2023

Name	Position	Appointment Date
Dr. Justify Shava	Head, SPGRC	9 July 2017
Ms Tilabilenji Phiri	Senior Programme Officer - *In Situ* Conservation	20 September 2020
Mr Kasonde Mubanga	Senior Programme Officer - Doc & Information	3 April 2023
Ms Sthembiso A. Mbhele	Senior Programme Officer – *Ex Situ* Conservation*	1 July 2019
Ms Tamara Phiri	Assistant Admin./HR Officer	1 July 2021
Ms Florence Chitulangoma	Assistant Finance Officer	8 March 1993
Ms Peggy S Ng'ono	Technical Officer- Ex Situ Conservation	1 June 2005
Mr Mike Daka	Technical Officer - Doc & Info	21 May 2012
Mr Ferdinand Mushinge	Technical Officer – *In Situ* Conservation	1 March 2004
Ms Phillis M K Litula	Personal Secretary	12 November 2001
Mr Wilbroad M Chashi	Accounts Assistant	1 July 2002
Mr Julius Daka	Driver	1 June 2016
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 Olipen Phiri	General Worker	5 January 2009
Mr Stephen Siakanchele	General Worker	1 December 2016
*Position became vacant in November, 2022		

Appendix III: List of Some Prominent Visitors to SPGRC (2022/2023)

Name	Contacts	Motivation
Prof. Julian Osuji	African Biogenome Project, Nigeria	Official Visit
Manyewa Mutamba	NEPAD, South Africa	Official Visit
Dr. Inonge Milupi	University of Zambia, Zambia	Official Visit
Beatrice N Egulu	African Union Commission, Ethiopia	Official Visit
Dr Claid Mujaju	Research Services Department, Zimbabwe	Official Visit
Dr Kingstone Mashingadze	Agricultural Research Council, South Africa	Official Visit
Dr John Adriko	National Agricultural Research Org., Uganda	Official Visit
Benjamin Abugri	FARA Africa, Ghana	Official Visit
HE Elias Mgosi	SADC, Botswana	Official Visit
Mubita L	SADC, Botswana	Official Visit
Domingos Z Gove	SADC, Botswana	Official Visit
Barbara C. Lopi	SADC, Botswana	Official Visit
Kelly Moi C	SADC, Botswana	Official Visit
Kennedy Kalunga	Permanent Secretary – Information and Media, Zambia	Official Visit
Evans Lupiya	District Commissioner, Chongwe Zambia	Official Visit
Fr. Bondo Bena	Kasisi Agricultural Training Centre, Zambia	Student's Visit
Bodo Tantely Radaody-Ralarosy	SADC, Botswana	Official Visit
Rosalia Haufiku SADC, Botswana Official Visit		
Shuichi Asanuma	JICA, Tokyo Japan	Official Visit
Evan Moyo	SADC, Botswana	Official Visit
Mpatso Kautule	SADC, Botswana	Official Visit

NOTES