CCARDESA

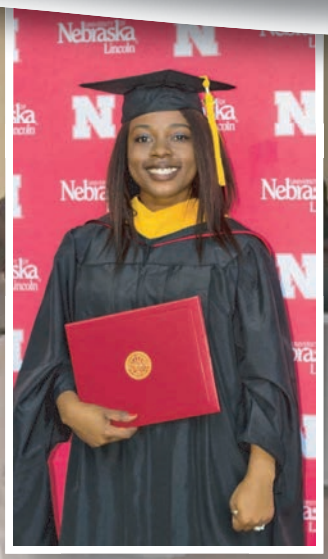
Centre for Coordination of Agricultural Research and Development for Southern Africa

SADC

SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

TOWARDS A COMMON FUTURE

APPSA BUILDS CAPACITY OF AGRICULTURAL RESEARCHERS AND FARMERS IN THE SADC REGION



AGRICULTURAL PRODUCTIVITY PROGRAMME FOR SOUTHERN AFRICA (APPSA)

Government of Malawi

Government of Mozambique

Government of Zambia

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Challenges

Huge volumes of investments have been made in agricultural development projects worldwide; however, some of the projects fail because of lack or shortage of well-trained local expertise. Advice, lessons, and technical guidance are equally important in ensuring success and sustainability of agricultural projects. Human capital has been placed at the heart of knowledge production and is considered as one of the main forces that underlie countries' ability to absorb and assimilate new technologies. Shortage of skills especially in developing countries has been identified as one of the key barriers to successful delivery and implementation of new agricultural technologies. It is therefore important that project designers incorporate capacity development strategies during project design phase to ensure that there is a plan of capacity building for relevant stakeholders.

Since 2013, the Agricultural Productivity Programme for Southern Africa (APPSA) established three Regional Centres of Leadership (RCoLs) in Malawi, Mozambique and Zambia to provide leadership in generation and dissemination of commodity-based technologies. The Malawi RCoLS was for maize and maize-based farming systems, Mozambique provided leadership in rice, while Zambia opted for legumes. . Capacity building was one of the key strategies employed by APPSA to improve the the generation and dissemination of technologies, as such relevant training courses were selected for each RCoL based on the identified capacity gaps listed below:

- The national maize program in Malawi had capacity in breeding and agronomy, but gaps were identified in the areas of economics, biotechnology, irrigationplant pathology, entomology, information systems, and soil science.
- In Mozambique, staffing gaps were identified in the areas of molecular biology, agronomy (soil, water, and environment), mechanization and agro-processing, economics, extension, sociology, and innovation systems.
- Zambia had skills gaps in plant breeding, agronomy, plant pathology, entomology,

biometrics, soil fertility, and farming systems.

Having identified these capacity gaps, APPSA project put together a plan on how these capacities were to be developed in researchers, staff and farmers to ensure the success of the project.

Accomplishments

One of the three main components as set out by the APPSA project was aimed at **"Strengthening Regional Centres of Leadership through developing human capital including provision of scientific training at the post graduate level and by upgrading skills through short courses or targeted training".** This component was considered a success as evidenced by the project outputs, outcomes, and results. Findings from the Scientist' survey conducted in November 2019 showed that 74% and 55% of the respondents respectively attributed the long-term and short- term training as two of the major factors that influenced their choice on research topics in APPSA Research and Development projects. The Scientist survey also proved that Capacity building of National Agricultural Research Stations (NARS) staff and farmers was one of the things that worked well in the APPSA project.

Short Course Trainings

Several short-term training sessions were carried out in the three countries during the 6-year project term. The workshops were in areas of management, leadership, procurement, finance and support functions, and were meant to improve the capacity of the RCoL's effectiveness. A total of 75 staff and researchers were trained in Management and leadership in all three countries whilst 2037 received training in administrative processes. Another 1855 staff and researchers received training on Technical research & dissemination.
A total of 97,700 farmers were trained in a number of topics such as:

- Demonstration plot layout
- Data collection

- Entrepreneurship, seed production
- Plant genetic resource collection and conservation
- Seed production and storage
- Integrated Crop Management (ICM) technologies
- Conservation Agriculture
- Good Agricultural Practices and
- Agro-processing.

APPSA also supported research institutions such as Msekera Research Station in Zambia, Chitedze Research Station in Malawi and the Institute of Agriculture

Research of Mozambique to build their research capacity and testing of selected crop varieties for quality improvements and other characteristics such as pests, diseases, and drought tolerance.

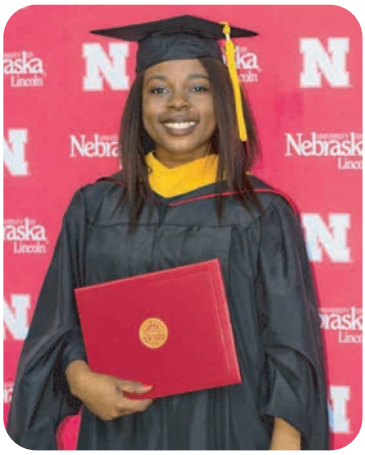
Elisase Phiri, a 23-year old farmer from Lundazi district, Zambia, had been struggling to find a good and ready market for her groundnut and other leguminous crops which she had been growing, due to the crop failing to meet set market standards. Elisase then had a chance to join the Zambia Agriculture Research Institute (ZARI)'s improved groundnut seed multiplication programme where she learnt best management practices for multiplying her groundnuts together which resulted in improved production of her groundnut. From the one lima of groundnut seed sowed, Phiri managed to secure a good market for her produce and subsequently earned enough income which she used to purchase 4 bags of fertilizer each weighing 50kilogrammes. She also used some of the funds she got from selling the produce to access more improved groundnut seed varieties and because of the good produce she expanded the area of production from one lima of groundnut seed to 2 hectares.

In Malawi, Aness Tenesi, a 27-year old smallholder farmer, who was a consistent groundnut seed grower for close to 10 years managed to diversify into livestock management of goats and pigs through the help of courses she took with Chitedze Agricultural Research, working in collaboration with ICRISAT. She used part of the proceeds from her farming business to build herself a modern

house and to acquire farming inputs for growing maize every farming season, and thus, reducing dependency on government support.

The APPSA Seed project strengthened the capacity of more than 1,341 farmers in Zambia, Malawi, and Mozambique. In Zambia, 501 farmers benefited from the seed project training and in addition to the farmers, two seed inspectors received seed testing and quality training and were certified to work in the major rice production areas.

APPSA also offered short training on environmental social safeguards to farmers in the three project countries. The aim of the trainings was to mitigate against any negative social and environmental concernswhich might result from the use of chemical fertilizer and pesticides, which could affect ground and surface water, aquatic life, birds, mammals, and insects. Results of a



Mumba R. Mwape

Agricultural Research officer based at Mount Makulu Central Research Station at **Zambia Agricultural Research Institute (ZARI).**

'I studied for a double Master of Science in Advanced Water Management for Food Production. I was awarded a Master of Science in Water Science and Engineering, specializing in Land and Water Development by the then UNESCO-IHE (now IHE-Delft) in the Netherlands and Master of Science in Biological Systems Engineering, specializing in Mechanized Systems Management by the University of Nebraska-Lincoln, USA.

Using the knowledge gained from the degrees, I can claim to be one of the irrigation experts that ZARI needs and I am more confident in the research and any other work that I do. The opportunity to study helped me meet and interact with a lot of people in the irrigation field who have vast experience and were willing to collaborate. I am now being invited to international conferences and can represent my country on any platform because of the network created and confidence gained.'

survey carried out in November 2019 showed that 58% of the farmers had attended various trainings on environmental and social safeguards.

Long-term Training

In Malawi, APPSA has supported long-term training of 43 students in BSc, MSc, and PhD levels to improve research capacity in various agricultural related disciplines. Part of the beneficiaries of the long-term training were diploma holders within Department of Agricultural Research Services (DARS) who got their skills upgraded through the project.

In Mozambique, staff received scholarships for long-term training in various disciplines under research and dissemination. Scholarships were also offered to extension officers from public and private sectors. A total of 30 (8 PHD, 9 MSC and 12 BSC) students were sponsored through the project.

In Zambia, APPSA sponsored 98 members of staff to pursue various long-term trainings at BSc, MSc, PhD and Diploma levels . Zambia managed to upgrade diploma holders and technicians within the Zambia Agriculture Research Institute (ZARI) system to acquire degrees through long-term trainings.

Samson F.M. Kazombo

Studying **MA Agriculture and Rural Development (MAARD)** at The University of East Anglia (UEA), United Kingdom

'My work in the Ministry of Agriculture/Department of Agricultural Research Services (DARS) involves carrying out socio-economic studies, monitoring and evaluation as well as developing R&D programs that address diverse constraints in the agriculture sector. My choice of MA Agriculture and Rural Development (MAARD) at UEA was shaped by my current position in the department and my future plans to pursue Ph.D. in Public Policy. MAARD offers advanced and specialized training that emphasizes agrarian change and rural development practice and the course substantially addresses debates about the notions of contemporary rural development in different parts of the world in the context of increasing globalization.

The course has enabled me to have a better understanding on how to analyse agrarian change, understand rural development paradigms in policy and practice and develop skills in policy research, design and implementation. MAARD has provided me with a perfect grounding in historical and contemporary ideas in rural development, with an emphasis on agriculture, rural livelihoods, policy and politics, as well as the local-global connections that shape rural development practice which are priority areas for development in Malawi,

Lessons Learnt

- Both long and short-term trainings provide researchers with technical expertise to implement complex R&D projects
- The project should possibly engage dedicated staff in the project management unit responsible for identifying priority training needs for the country and reconciling these with the scientists' choice of training themes and monitoring training costs.
- Participants of the long-term training should be engaged earlier to enable them to complete their trainings within the project funding phase.

APPSA was a project funded by the World Bank and was coordinated and facilitated by the Centre for Coordination of Agricultural Research and Development in Southern Africa (CCARDESA). It was

established in 2013 where each participating country was given a loan facility of approximately $30 million. The six- year programme ended in January 2020.

Group photo – Zambia Statistical Analysis workshop, August 2017

Group of students in Malawi receiving explanation on best management practices on groundnut

Rosângela Xavier Pereira

Agronomy (Precision Agriculture) at Universidade Católica de Cuamba/Mozambique (2016- 2018)

I work for the Mozambique Agricultural Research Institute as an Agronomist. Decision making data in agricultural research has been one of the challenges in our field. The utilization of advanced technologies such as GIS, GPS and remote sensing is becoming more and more relevant in agriculture for accurate outcomes. Thanks to APPSA I successfully graduated in Precision Agriculture in which I have been trained on how to collect accurate data using a wide range of technologies including drones to build maps with specific recommendations on agricultural production such as pH correction, fertilizer application and other relevant aspects.

The course has enabled me to critically analyse the precision agriculture situation in developing countries as well as collect data remotely but keeping the quality. And my contribution for my organization and country will be even better given that I will be introducing new approaches of geo-referencing and developing maps using current and advanced technologies.

Ndashe Kapulu Agricultural Scientist ZARI, Zambia 2015/16 Class

Why I chose Lancaster University

Not only does the university have a growing global research and innovation reputation, the course content for the MSc Sustainable Agriculture program was relevant to my area of interest and work. Having worked for nine years in the agricultural sector of my country (Zambia), I was looking for a course that would broaden my understanding of food security from a global context. Lancaster University provided a flexible combination of modules, ranging from mainstream agriculture to environment and development.

What I learnt during my degree

The program gave me a broader perspective to addressing food security issues. My exposure to and interaction with several experts in crop sciences and food security, changed my outlook to addressing food insecurity from just a production point of view.

I have learnt that combating food insecurity goes beyond merely producing more food, to a whole system approach. I also acquired research and analytical skills, which are essential in my area of work. It has been a career goal to be able to communicate my work to a wider scientific community, Lancaster has equipped me with the necessary skills.

My future plans

I plan to incorporate some of the skills I acquired to my work, particularly in a World Bank funded project addressing food security in Zambia, Malawi and Mozambique.
I then intend to pursue a PhD, which will not only further my academic qualifications, but provide opportunities for managing larger research grants within my institution and regional networks.

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