CCARDESA

Centre for Coordination of Agricultural Research and Development for Southern Africa

SADC

SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

TOWARDS A COMMON FUTURE

Revised Long -Term Strategic Plan for 2020 – 2029

REVISED LONG-TERM STRATEGIC PLAN FOR 2020 – 2029

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About CCARDESA

The Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) was founded by SADC member states to harmonise the implementation of agricultural research and development (R&D) in the SADC region. CCARDESA intends to address agricultural research and design issues in the SADC region through the following interventions:

- Coordinating implementation of regional agricultural R&D programmes
- Facilitating collaboration among stakeholders of the national agricultural research systems (NARS)
- Promoting public – private partnerships in regional agricultural R&D
- Improving agricultural technology generation, dissemination and adoption in the region through collective efforts, training and capacity building

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ABBREVIATIONS AND ACRONYMS

Abbreviation	Description
AgGDP	Agricultural Gross Domestic Product
APPSA	Agriculture Productivity Programme for Southern Africa
AR4D	Agricultural Research for Development
ASARECA	Association for Strengthening Agricultural Research in East and Central Africa
AU	African Union
AU-IBAR	African Union-Inter African Bureau for Animal Resources
CCARDESA	Centre for Coordination of Agricultural Research and Development for Southern Africa
CCSAP	Climate Change Strategy and Action Plan
CDAIS	Capacity Development in Agricultural Innovation Systems
CGIAR	Consultative Group for International Agricultural Research
CSA	Climate Smart Agriculture
DRRM	Disaster Risk Reduction Management
EU	European Union
F4F	Foresight for Food
FANR	Food, Agriculture and Natural Resources
FANRPAN	Food, Agriculture and Natural Resources Policy Analysis Network
FAO	Food and Agriculture Organisation of the United Nations
FARA	Forum for Agricultural Research in Africa
FNSS	Food and Nutrition Security Strategy
FSRP	Food Systems Resilience Programme
GIZ	Gesellschaft für Internationale Zusammenarbeit
GRA	Global Research Alliance on Agricultural Greenhouse Gases
ICKM	Information, Communication and Knowledge Management
ICP	International Cooperation Partner
IFPRI	International Food Policy Research Institute
IPCC	Intergovernmental Panel on Climate Change
ICT	Information Communication Technology
IT	Information Technology
K4DP	Knowledge for Development Partnership
KM	Knowledge Management
KM4AgD	Knowledge Management for Agricultural Development
KP	Knowledge Products
LiDeSA	Livestock Development Strategy for Africa
LTS	Long Term Strategy
LTSP	Long Term Strategic Plan
M&E	Monitoring and Evaluation
MTOP	Medium-Term Operational Plan
NAIP	National Agriculture Investment Plan
NARES	National Agricultural Research and Extension System
NARS	National Agricultural Research System
NGO	Non-Governmental Organisation
NSA	Non-State Actor
OIE	World Organisation for Animal Health
PBR	Plant Breeders' Rights
PhD	Philosophical Doctorate
PHL	Post-Harvest Loss
PoU	Prevalence 0f Undernourishment
PVP	Plant Variety Protection
R4D	Research for Development
R&D	Research and Development

Abbreviation	Description
RAIP	Regional Agriculture Investment Plan
RAP	Regional Agricultural Policy
RCoL	Regional Centre of Excellence
RISDP	Regional Indicative Development Plan
RLTSP	Revised Long Term Strategic Plan
RUFORUM	Regional Forum for Capacity Building in Agriculture
RVAA	Regional Vulnerability Assessment and Analysis
RVAC	Regional Vulnerability Assessment Committee
S3A	Science Agenda for Agriculture in Africa
SAAIKS	Southern Africa Agricultural Information and Knowledge Systems
SADC	Southern Africa Development Community
SDG	Sustainable Development Goal
SRO	Sub-regional Research Organisation
SSA	Sub-Saharan Africa
STI	Science Technology and Innovation
STISA	Science, Technology and Innovation Strategy for Africa
SWOT	Strengths, Weaknesses, Opportunities and Threats
TIMP	Technologies, innovations, and Management Practices
ToC	Theory of Change
UN	United Nations
UNDESA	Department of Economic and Social Affairs
UNICEF	United Nations International Children Emergency Fund
WEF	Water-Energy-Food Security nexus
WFP	World Food Programme
WHO	World Health Organization

FOREWORD

The research and development landscape is always evolving, thereby requiring organizations to adjust their strategies and tactics to deal with emerging issues. Research and development challenges that affect the performance of the agricultural sector in the SADC region are well documented. In particular, the effects of climate change on agriculture and its allied sectors as well as disruptions of value chains due to unforeseen disasters such as the COVID-19 Pandemic and the regional and global conflicts, have added to this growing list of challenges which all need to be addressed.

I am pleased to present to you the revised CCARDESA Long-term Strategic Plan (2020 -2029), which provides a broad direction of how CCARDESA as a key regional institution intends to address the identified regional priorities. These priorities were identified through a consultative process involving different stakeholders.

The useful inputs from various stakeholders who participated in the consultative process is greatly appreciated. This has helped the CCARDESA Secretariat to consolidate views and perceptions from stakeholders on what CCARDESA, as an important torchbearer, needs to fucus on.

The strategy has aligned its interventions to the CCARDESA objectives to ensure that the organisation fully addresses its mandate. Therefore, the strategic objectives of the LTS are informed by the CCARDESA mandate as specified in the CCARDESA Charter. The strategy is well-aligned to the key continental and regional policies relevant to agricultural development and sustainable rural livelihoods. It also incorporates recent initiatives such as the fertilizer and soil health continental programme, agroecology, and the post-Malabo CAADP agenda.

The revised LTS has embraced topical elements to ensure inclusivity and good stewardship of the environment. The strategy gives strong recognition to partnerships as an important means through which CCARDESA can take advantage of its partners to deliver on its ambitious mandate.

This LTS has taken the bold step of proposing an organizational structure that will enable the delivery of the CCARDESA Strategy. This structure also suggests growth of the organisation as it matures in the discharge of its regional mandate. Therefore, the LTS will remain a key document to guide international development partners and other stakeholders on possible areas of collaboration with CCARDESA for the benefit of the SADC region.

Availability of resources at various levels influences the level of response by CCARDESA and the national research and development organisations. In recognition of this, the revised LTS proposes measures to mobilise more funding to ensure the delivery of this ambitious strategy. Furthermore, the document has also incorporated elements to facilitate learning and to track progress in the implementation of the strategy. I hope the CCARDESA stakeholders will take note of the priority interventions proposed in the document and play their part in ensuring that this strategic plan is successfully implemented to improve regional food and nutrition security and positively impact the lives of the people in our region, most of whom are still heavily reliant on agriculture for a living.

Prof. RAZAFINJARA Aimé Lala
Chairperson of the CCARDESA Board of Directors

ACKNOWLEDGEMENTS

The revised Long-Term Strategy (LTS) is a result of extensive collaborative efforts and contributions by stakeholders, including representatives from National Agricultural and Extension Services (NARES) from SADC Member States, CG Centres, academia, private sector, and cooperating partners. CCARDESA is grateful for your participation and contributions in the physical and virtual consultative workshops, which provided diverse information, expertise, and experience, all of which are reflected in the revised CCARDESA LTS.

The CCARDESA Board of Directors is acknowledged for its leadership in steering the development and adoption of the revised LTS (2025-2029). CCARDESA is also grateful to Dr Martin Muchero (consultant) who was instrumental is providing technical support to the Secretariat in the review process, synthesised inputs from stakeholders, enabling the Secretariat to produce a final copy of the document.

CCARDESA is especially grateful to its development partners (the European Union Commission and the World Bank) who supported the process of producing the revised LTS in various forms.

The hard work and dedication of the CCARDESA Secretariat staff did not go unnoticed. I am grateful for the teamwork and leadership you showed throughout the process.

Professor Cliff Sibusiso Dlamini (Ph.D.)
CCARDESA Executive Director and Head of Mission

EXECUTIVE SUMMARY

1. Introduction

This document constitutes the Revised Long-Term Strategy (LTS) for CCARDESA for the period 2020-2029. The review of the Long-Term Strategic Plan (LTSP) 2020-2029 was necessitated by the recent events around the world, as well as those internal to the CCARDESA. Cognisant of the evolving opportunities to strengthen CCARDESA's capacity and competency to be proactive in responding to the current and emerging challenges in agricultural research for development (AR4D) that the SADC Member States face, the LTSP was revised within the AR4D framework, with a focus on addressing the requirements of key stakeholders in the AR4D sector.

2. Situational Analysis

The agriculture sector is crucial for economic growth, poverty reduction, food security, and social stability in the SADC economies. It contributes between 4% and 27% to the GDP of 16 countries, with small-scale farming dominating the sector. Over 70% of the region's population relies on agriculture for food, income, and employment. However, food and nutrition insecurity persist due to population growth, urbanization, increasing rural poverty and malnutrition, inequality, low agricultural production due to climate change, poor soil and water management, and lack of diversity in diets. Additional challenges facing the agriculture sector include high post-harvest losses, constrained market access, limited access to finance, poor infrastructure development, inefficient information and knowledge management systems, climate change risks, gender concerns, inadequate youth involvement, and lack of supportive policies. Despite these challenges, the region has the potential to sustainably produce various commodities by exploiting the agro-ecologically diverse, land abundant and marine water bodies. CCARDESA's role in these processes is vital.

3. The role of agricultural research in development

Agricultural research for development (AR4D) generates technologies to address technical and policy challenges faced by farmers and value chain actors. Despite the fact that agricultural research can promote commodity-specific technologies that are adaptable across countries where there are sufficient similarities in agroecology, farming systems and other socio-economic factors, investment in agriculture research in the SADC region is quite low, with only 50% of SADC member countries allocating more than 1% of their Agriculture GDP to AR4D. At such low rates of investment in AR4D, supporting particularly smallholder farmers to recover, rebuild, and respond to climate change, and promote gender and youth empowerment remains at best a struggle.

Food diversification including within the crops, livestock, fisheries and forestry sectors, and holistic value chain approaches are key in unlocking realistic avenues for agricultural transformation. To transform the agriculture sector from subsistence to commercial levels, increased investment including through public-private partnerships is needed. This calls for stronger collaboration among national, regional, continental, and international institutions representing governments and the private sector.

4. The challenges in agricultural research, trends and opportunities

Several major constraints contributing to the poor performance of agricultural research and innovation for development efforts by National Agricultural Research and Extension Systems (NARES[1]) in the region are well established. These include, among others, low levels of funding in research for

[1] Please note that while there is a difference between National Agricultural Research and extension Systems (NARES) and National Agricultural Research Systems (NARS), in this report, where NARS is applied, it is assumed to also include extension systems. The Glossary provide detailed definitions of these two terms.

development; mismatch between research agendas and end users' needs; capacity constraints (human, infrastructure); inadequate collaborative efforts in the agriculture sector and weak farmer-research extension linkages; barriers to transnational technology spillovers; threats of climate change; and weak monitoring, evaluation, performance and reporting. All these challenges need to be effectively addressed and CCARDESA plays a critical role in providing solutions.

The future development of the agriculture sector in the Southern African region will be shaped by several megatrends whose effects remain subject to high degrees of uncertainty. These megatrends include climate change; land degradation and depletion of natural resources; global health crises and economic disruptions; demographic changes; rapid urbanisation; a considerable shift from farm to non-farm employment; expansion of the middle class; technological developments resulting in easier access to new communication and information technologies; shifts in consumer preferences; rise in agricultural commodity prices; decline in public research funding; energy insecurity; water insecurity; and high post-harvest losses. Going forward, AR4D interventions need to be capacitated to deal with these megatrends.

This revised strategy identifies opportunities for CCARDESA to support member states in achieving sustainable agricultural development. These include increased research and knowledge-based efforts to mitigate climate change; the increasing role of ICT in agriculture; the need to strengthen priority commodity value chains; identifying and learning from new opportunities from science and technology; facilitating increased participation in agriculture by youths and women empowerment; enhancing private sector contributions to agricultural development; strengthening networks and partnerships; and enhancing the contribution of agricultural research to food and nutrition security. This revised strategy acknowledges the need for a multi-sectoral approach to tackling the challenges faced by the agriculture sector in the SADC region and the need to harness the region's significant natural resource potential.

5. CCARDESA's Vision, Mission, Objectives and Result Areas

The goal of CCARDESA's revised long term strategy is *to facilitate delivery of sustainable, equitable and inclusive resilient agri-food systems for food and nutrition security in the SADC region*. Its vision is for *A regional leader in coordination, harmonisation, catalysation, and facilitation of agricultural research and development for the attainment of transformed agri-food systems in the SADC Region.* Mandated with the agricultural research and development agenda for the SADC region, CCARDESA's mission statement, is *to coordinate regional agri-food systems transformation in the Southern African region through agricultural research and innovation for development for the benefit of SADC Member States.* CCARDESA draws its mandate from its objectives as set out in the Charter establishing the organisation. These objectives are to:

a. Coordinate and promote collaboration among regional and national agricultural research and development systems (NARES) through regional and international cooperation;
b. Facilitate the exchange of information and technology among SADC Member States;
c. Promote partnerships in the SADC region between public, private, civil society and international organizations in R&D;
d. Improve agricultural technology generation, dissemination and adoption in the region through collective efforts, training and capacity building; and
e. Strengthen research and development in State Parties by mobilising human, financial and technological resources to implement and sustain demand-driven activities.

While carrying out its functional responsibilities to achieving the above objectives, CCARDESA, supported by its partners and stakeholders, strives to uphold guiding principles that aim to: (i) enhance incremental benefits; (ii) apply the principle of subsidiarity; (iii) promote pluralism; (iv) enhance partnerships; and (v) encourage regional harmonization and alignment of efforts to SADC frameworks.

To this end, CCARDESA's value proposition, is that:

a. CCARDESA has convening power as a SADC Subsidiary Regional Organisation within the formulation and implementation processes of strategic SADC frameworks. CCARDESA is empowered to convene, within the agricultural research and development sphere, and high-level meetings, discussions, and activities that involve relevant organs in the SADC member States.
b. CCARDESA offers a platform to influence policy in SADC through the SADC structures.
c. CCARDESA offers a knowledge and information broking capacity in addition to access to available research information, knowledge and practices for adoption in the agriculture sector in the region, through its Information, Communications and Knowledge Management network of nodes in the SADC member states.
d. CCARDESA has a regional presence giving CCARDESA regional coverage in agricultural research and development.
e. CCARDESA contributes to increased agricultural productivity and food and nutrition security in the SADC region through its networks of national agricultural research system (NARES), regional and national NARES, farmers and other agricultural value chain actors.
f. CCARDESA contributes directly to sustainable management of natural resources and increased resilience to climate change and other emerging agricultural risks.
g. CCARDESA contributes directly to increased commercialisation of smallholder agriculture and access to markets through improved technologies and strengthened regional and national NARES, farmers and other agricultural value chain actors.
h. CCARDESA actions are gender sensitive promoting gender equality, women empowerment and increased employment and participation of youth and vulnerable groups in agricultural value chains through mainstreaming of women and youth in projects and programmes undertaken by CCARDESA.

In delivering its value proposition, CCARDESA will be guided by six core values, namely, *integrity; relevance; respect; professionalism; teamwork; and innovation.*

Armed with the above, CCARDESA aims to achieve in the implementation of this Revised Long-Term Strategy (2020-2029) the following results:

a. **Result Area 1:** Improved coordination, generation, dissemination and adoption of R&D technologies, innovations and management practices for increased agricultural production, productivity and competitiveness in the agri-food systems especially amongst smallholder farmers, small to medium enterprise agri-business, and priority value chains.
b. **Result Area 2:** Strengthened capacity of regional and national agricultural research for development (AR4D) institutions and other agricultural value chain actors.
c. **Result Area 3:** Enhanced resource mobilisation and partnerships in agricultural research and development
d. **Result Area 4:** Enhanced gender, youth and social inclusion for their effective participation in agricultural value chains
e. **Result Area 5:** Sustainable management of natural resources, including agroecology, fertilizer & soil health management for increased resilience to climate change and other emerging agricultural risks.
f. **Result Area 6:** Use of improved agricultural digital solutions and agricultural information, communication and knowledge management systems by diverse CAARDESA stakeholders enhanced

6. Adoption of Results Based Management Approach

While the CCARDESA Long-Term Strategic Plan (LTSP) (2020-2029) was anchored on thematic areas of action, these are considered in this revised Long-Term Strategy (LTS) to be groupings of outputs expected to achieve desired outcomes. Using the Results-Based Management approach in the review of this LTS, the focus shifted to a results-based approach rather than a thematic based approach. Resultantly, this Revised LTS (2020-2029) is more results-oriented that its predecessor. The results framework for CCARDESA therefore outlines the results chain expected of actions in the implementation of this strategy. While noting this change in focus, thematic areas will still play a role as an implementation approach for the strategy but not the strategic approach.

7. Theory of Change

The theory of change (ToC) of CCARDESA is based on delivery of the AR4D mandate grounded on institutions with strong organisational and governance systems, sustainable funding mechanisms, strong networking, collaborative partnerships, strong outreach and advocacy, participatory regional and national agenda setting and strong programme management (planning, monitoring, evaluation and lessons learning).

8. Monitoring and Evaluation

CCARDESA will develop a robust Monitoring, Evaluation, Reporting and Learning (MERL) system in it MTOP III which will enable it to track, evaluate, and report on the implementation of proposed interventions.

9. Resource Mobilisation

Funding for CCARDESA's operations have remained a major challenge. A resource mobilisation strategy has however been developed and is currently under implementation.

10. Structure of the Document

This document is structured into four Part as follows:

Part I: Introduction
This part provides an overall introduction to the document by outlining the purpose of this document and the history of CCARDESA's establishment.

Part II: Contextual Background
This part contextualises the CCARDESA Revised Long-Term Strategy (LTS) (2020-2029) within the agricultural research related global, continental and regional frameworks. The part also provides the results of a situational analysis conducted with particular to any emerging trends that may influence the trajectory of this strategy. The part further recounts the achievements CCARDESA recorded in the first half of implementing its LTSP (2020-2029). Lastly, the part summarises the strengths, weaknesses and opportunities and threats to CCARDESA successfully achieving its mandate.

Part III: Strategic Thrust.
This part sets the goal, vision and mission of CCARDESA, its value proposition and its strategic intent in terms of expected key results and the theory of change that guides CCARDESA's actions.

Part IV: Delivery of the Strategy

This last part of this strategy outlines the strategy implementation modalities; the institutional arrangements required to drive and implement the strategy; the methods of tracking implementation of the strategy; and finally, the resourcing requirements to implement the strategy.

PART I: INTRODUCTION

1. PURPOSE AND STRUCTURE OF THE DOCUMENT

1.1. Purpose of this Document

This document constitutes the Revised Long-Term Strategy (LTS) for the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) for the period 2020-2029. This revised long-term strategy will be used by the CCARDESA Secretariat and its governance structures as the platform for technical engagement with the SADC Secretariat, Member State institutions, technical, funding and implementing partners. It will also be used as the basis for developing CCARDESA's third Medium-Term Operational Plan (MTOP III) 2025-2029.

1.2. Definition of Key Selected Terms

Selected key terms used in this document are defined in the Glossary at Annex 1.

2. ESTABLISHMENT OF CCARDESA

2.1. Overview

The Centre for Coordination of Agriculture Research and Development in Southern Africa (CCARDESA), established as a subsidiary organization of the Southern African Development Community (SADC), is mandated with the agricultural research and development agenda for the SADC region. It was established through a decision of the SADC Council Meeting of 26 February 2010 and the Charter which came into force on 5 April 2011. CCARDESA came into operation in 2012 and is officially hosted in Botswana since 2014 when the hosting agreement was signed.

2.2. CCARDESA's Objectives

According to the Charter establishing CCARDESA, and in pursuance of Pillar IV of the African Union Comprehensive Africa Agriculture Development Programme (CAADP) at the continental level and in support of the SADC Regional Agricultural Policy (RAP) at the regional level, CCARDESA's objectives are to:

a. Coordinate and promote collaboration among regional and national agricultural research and development systems (NARES) through regional and international cooperation;
b. Facilitate the exchange of information and technology among SADC Member States;
c. Promote partnerships in the SADC region between public, private, civil society and international organizations in R&D;
d. Improve agricultural technology generation, dissemination and adoption in the region through collective efforts, training and capacity building; and
e. Strengthen research and development in State Parties by mobilising human, financial and technological resources to implement and sustain demand-driven activities.

2.3. CCARDESA's Functions

To the above effect, the functions of CCARDESA, also outlined in the Charter establishing CCARDESA, are to:

a. Coordinate, harmonise, promote and advocate research and development (R&D) policy among State Parties;

b. Update regional agricultural R&D priorities and to coordinate joint programmes among stakeholders, including promotion and development of agro-based value-adding technologies;
c. Facilitate development of sustainable education, training and learning systems that contribute to farmer-oriented innovation and technology transfer systems for the region;
d. Empower and strengthen farmers and their organisations or groups into effective partners in agricultural development and enhancing their access to markets and negotiating skills;
e. Promote co-operation, consultation and exchange of scientific and technical information on best practices in agricultural research and advisory services in the SADC region;
f. Facilitate regional capacity building of agricultural and natural resources scientists in terms of training, development and management; and
g. Mobilise and generate resources for the SADC region and to foster partnerships and collaboration with national, regional, continental and international agricultural research organizations.

2.4. CCARDESA as a Subsidiary Institution of SADC

As a subsidiary institution of SADC, CCARDESA, through a signed Memorandum of Understanding with the SADC Secretariat, established the following working relationship with SADC:

a. The SADC Secretariat provides overall strategic policy guidance and leadership to CCARDESA in order to ensure that the regional research for development (R4D) agenda and priorities are consistent with the SADC mandate on agriculture and food security;
b. CCARDESA operates as a semi-autonomous institution established under the principle of subsidiarity and focuses on technical coordination and related harmonization functions of facilitation of the regional R4D agenda; and
c. CCARDESA submits Annual Reports to the State Parties Ministers through the SADC Secretariat.

Guiding CCARDESA's operations are the principles that aim to: (i) enhance incremental benefits; (ii) apply the principle of subsidiarity; (iii) promote pluralism; (iv) enhance partnerships; and (v) encourage regional harmonization and alignment of efforts to SADC frameworks.

The CCARDESA Secretariat has the responsibility for the day-to-day implementation of tasks in agricultural research and development. The CCARDESA Secretariat reports to the Board of Directors appointed by SADC State Parties Ministers. The Board provides oversight and guidance to the Secretariat and reports to the General Assembly. The General Assembly is expected to meet at least once every two years and comprises members from the following institutions from each State Party: (a) Ministries responsible for Agriculture and Food Security; (b) Agro-industry; (c) Agricultural Education Institutions; (d) Farmer Organisations; and (e) Agricultural Civil Society Organisations. The General Assembly approves the auditors, strategic plans and priorities of CCARDESA and reports to the Ministers of Agriculture and Food Security.

2.5. Historical Overview of CCARDESA's Strategic Planning

CCARDESA's inaugural Medium-Term Operational Plan (MTOP) (2013-2018) guided the operations of CCARDESA following its establishment. This six-year plan substantially drew from the SADC Multi-country Agricultural Productivity Programme (SADC MAPP) of 2008. The main objective of this first strategic plan for CCARDESA was *to increase productivity of smallholder crop, livestock, fisheries and forestry enterprises through the adoption of improved agricultural technologies, husbandry and marketing practices.* The first strategic plan was revised in 2015 for the remainder of the period and an MTOP (2016-2018) was developed.

At the end of MTOP (2016-2018), two strategic frameworks were developed in 2019, namely:

a. A long-term (10 year) strategy, the Long-Term Strategic Plan (LTSP) (2020-2029). The purpose of this strategic plan was to provide CCARDESA with a long-term vision and mission and to guide its operational planning processes, including preparation of Medium-term Operational Plans (MTOPs). The LTSP was formulated through a participatory process with key regional stakeholders who approved the June 2019 draft.
b. A draft 5-year Medium-Term Operational Plan (MTOP) (2020-2024) was also considered and approved by key stakeholders following which the MTOP (2021-2025) was adopted by CCARDESA for implementation.

Several recent events changed the landscape of agriculture in the SADC region and beyond. These events include the COVID-19 pandemic, global and regional geopolitical conflicts including the Russia-Ukraine war and disturbances in the Cabo Delgado region of Mozambique; digitalization in agriculture; the intensification of the impact of climate change; the introduction of new or revised frameworks including the SADC Vision 2050 and the SADC Regional Indicative Strategic Development Plan (2020 – 2030); and institutional re-arrangements and re-organisations in the agricultural research sector; among others. These events have necessitated the review and re-orientation of CCARDESA's strategic framework, in particular the Long-Term Strategic Plan (2020-2029) and the Medium-Term Operational Plan (MTOP).

In February 2023, at the consultative workshop for the SADC Directors of Agricultural Research, Agricultural Extension and SADC Deans of Faculties of Universities of Agriculture convened by CCARDESA to obtain feedback on the relevance of the priorities that CCARDESA needs to address in the medium to long-term in view of the unfolding global, continental and regional trends, the need for re-orienting the LTSP and MTOP was emphasised. In the process and while noting the urgency to re-orient the LTSP and MTOP to align with and meet the challenges posed by recent events in the agriculture sector, the meeting of SADC Directors also observed that the work of CCARDESA had been skewed towards crop related interventions and called for increased scope towards other underserved commodities such as livestock, forestry, fisheries and aquaculture.

To the above effect, CCARDESA commissioned in 2024, the review of the 2020-2029 Long-Term Strategy Plan (LTSP) and the Mid-Term Operational Plan (MTOP) (2021-2025). The result of this review was the resetting of the CCARDESA Long-Term Strategy Plan (RLTSP) (2020-2029) into the CCARDESA Revised Long-Term Strategy (2020-2029) and the development of a new MTOP (2025-2029), hereinafter generally referred to as MTOP III, as the third MTOP to guide CCARDESA's operations. Both the revised LTS and MTOP III were called to be responsive to the needs of the region and the changed operating environment while ensuring the attainment of the objectives of CCARDESA. The Revised LTS, therefore, reset CCARDESA's trajectory in such a manner that brings positive and progressive impact towards a more food and nutrition secure Southern African region by 2029.

PART II: CONTEXTUAL BACKGROUND

This part contextualises the CCARDESA Revised Long-Term Strategy (LTS) (2020-2029) within the agricultural research related global, continental and regional frameworks. The part also provides the results of a situational analysis conducted with particular to any emerging trends that may influence the trajectory of this strategy. The part further recounts the achievements CCARDESA recorded in the first half of implementing its LTSP (2020-2029). Lastly, the part summarises the strengths, weaknesses and opportunities and threats to CCARDESA successfully achieving its mandate.

3. GLOBAL, CONTINENTAL AND REGIONAL HIGH-LEVEL FRAMEWORKS

3.1. Sustainable Development Goals

At the global level, SADC's ambitions resonate with the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs)[2] to be achieved by 2030. CCARDESA contributes to several of these SGDs particularly SDGs 1 (No Poverty); 2 (Zero Hunger); 5 (Gender Equity); 9 (Industry, Innovation and Infrastructure); 12 (Responsible Consumption and Production); 13 (Climate Action); 14 (Life Below Water); 15 (Life on Land); 17 (Partnerships for the Goals). Committing to achieving the SDGs by SADC Member States, therefore, requires effective action in the agriculture sector. CCARDESA's central role in agricultural research and development is crucial to the attainment of the SADC regional goals and targets in alignment with the global goals and targets.

3.2. African Union Agenda 2063

At the continental level, the ambitions of SADC also resonate with the seven aspirations of the African Union Agenda 2063[3] that provide for, in alignment with the SDGs, '*A shared strategic framework for inclusive growth and sustainable Development and a global strategy to optimize the use of Africa's Resources for the benefit of all Africans*'[4]. Key among the instruments to achieve these continental aspirations, in the agriculture sector, was the AU Comprehensive Africa Agriculture Development Plan (CAADP) which in 2014 was reaffirmed by the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods. The formation of CCARDESA was in direct response to call under Pillar IV of CAADP[5]. Post Malabo Declaration will be the Kampala Declaration to be signed in 2025. Among its key areas of focus will include:

a. **Intensification of Sustainable Food Production, Agro-Industrialization, and Trade** in contribution to the transformation of agri-food systems through the sustainable production of agricultural products for consumption, value addition, and trade. This also aims to contribute to food and nutrition security, foster economic growth, create wealth and jobs, ensure environmental sustainability, and mitigate the impact of other shocks.
b. **Boosting Investment and Financing for Accelerated Agri-Food Systems Transformation** by boosting investment and finance targeting the allocation of 10 percent of total public expenditure to agriculture. One of the key interventions expected under this strategic objective is to increase investments in agriculture research and development, innovations, technologies, energy, and water and irrigation infrastructure.
c. **Ensuring Food Security and Nutrition** security across the continent by investing in diversified nutrient-dense crops.

[2] https://www.dev-practitioners.eu/media/key_documents/SDGs_Booklet_Web_En.pdf
[3] https://au.int/en/agenda2063/aspirations
[4] https://au.int/sites/default/files/documents/33126-doc-framework_document_book.pdf
[5] https://www.nepad.org/caadp/publication/comprehensive-africa-agriculture-development-programme

d. **Advancing Inclusivity and Equitable Livelihoods** to address the inequality and power imbalances that constrain women, youth (both young women and men), and other marginalized groups (poor rural people, small-scale producers, informal workers, agricultural wage workers, landless people, migrants and refugees, indigenous peoples, ethnic minorities, persons with disabilities, and the elderly) equal access to resources, services, employment opportunities, and decision-making.
e. **Building Resilient Agri-Food Systems** to adapt to climate change, which poses a significant challenge, with extreme weather events affecting crop yields, livestock, fisheries, and water resources. One of the suggested ways is by promoting precision agricultural technologies, including the use of remote sensing and satellite imagery combined with geographic information systems (GIS) to assess, monitor, and report crop, forage, and livestock and fisheries conditions in real-time and to invest in biological and physical assets to protect lives, livelihoods, and agri-food systems. More importantly, ***inclusive agricultural research*** *is considered vital, with focus targeted at c*onducting research that incorporates local knowledge and effectively disseminate findings, that reduces food loss and waste by improving storage facilities and transportation infrastructure to minimize post-harvest losses and food waste, encouraging the adoption of practices and technologies that extend the shelf life of agricultural products (e.g., improved drying, packaging, and refrigeration), and promoting behaviour change among consumers.
f. ***Sustainable Agricultural Practices and Land Management*** to promote, among other actions, sustainable land management to reduce erosion, enhance soil health and agricultural productivity, contribute to carbon sequestration, and restore degraded lands through integrated soil fertility management, sustainable grazing practices, reforestation, and afforestation and to preserve and use indigenous genetic resources to enhance the development of diverse, nutritious, resilient, indigenous crop varieties.
g. ***Infrastructure and Systems Development, Diversification and Resilience Building*** to promote crop and livestock diversification to reduce the sensitivity of agri-food systems to climate change and other shocks and boost food and nutrition security. The aim is to reduce dependency on single crops or livestock types, thereby increasing household income stability and reducing vulnerability to shocks.
h. ***Technology, Innovation, and Market Support*** by promoting technology and innovation to drive agricultural productivity, efficiency, and resilience, especially among smallholder producers and young agricultural entrepreneurs.
i. **Strengthening Agri-Food Systems Governance** through effective governance as the cornerstone of building resilient, inclusive, and sustainable agri-food systems in Africa.
j. **Strengthening Institutional and Human Capacity at All Levels (National, Regional, and Continental)** for effective implementation of the CAADP agenda.
k. **Fostering Coordination and Collaboration** efforts among stakeholders as a key to successful CAADP implementation. Strengthening coordination mechanisms and fostering partnerships at all levels will create synergies, optimize resource use, and accelerate progress towards achieving the CAADP goals. Inadequate stakeholder coordination and collaboration hinder CAADP implementation.
l. **Enhancing Knowledge Management and Evidence Use** providing for data-driven decision-making for effective agricultural development. Strengthening knowledge management systems and the use of evidence will inform policy formulation, resource allocation, and program implementation. Weak knowledge management systems constrain the use of evidence for effective planning, learning, and adaptation.
m. **Resource Mobilization and Financial Sustainability** as adequate and sustainable financing is essential for the successful implementation of CAADP. Diversifying funding sources, optimizing resource allocation, and leveraging public-private partnerships are key to ensuring the financial sustainability of agricultural initiatives.

Clearly, agricultural research and development takes a high priority in several of the proposed interventions and CCARDESA's role therefore is even heightened going forward.

3.3. SADC Vision 2050, Regional Indicative Strategic Development Plan and Regional Agricultural Policy

At the regional level, the SADC Vision 2050 outlines the region's aspirations, and the SADC Regional Indicative Strategic Development Plan (RISDP) (2020-2030) provides the region's multi-sectoral blueprint for regional integration. Guided by the Vision 2050, the RISDP operationalises the SADC Treaty. In August 2014, the SADC Council approved the SADC Regional Agricultural Policy (RAP)[6] as the region's overarching long-term policy framework in the agricultural sector. The SADC RAP defines common agreed objectives and measures to guide, promote and support actions at regional and national levels in the SADC agriculture sector towards the attainment of the SADC Common Agenda as expressed in both the Vision 2050 and RISDP 2020-2030.

Specifically, CCARDESA draws its policy mandate from the first strategic objective of the SADC Regional Agricultural Policy of 2014, one of whose measures is to *complement and support Member States' measures designed to promote agricultural research and development in crops, livestock, fisheries and forestry.*

3.4. Complementary Other Strategies and Policies

Other complementing SADC protocols, policies and strategies that inform the CCARDESA research agenda include:

- the SADC Food and Nutrition Security Strategy (FNSS) of 2014 which aims to, among other objectives, promote availability of food through improved production, productivity and competitiveness;
- the SADC Animal Genetic Resources, Conservation and Utilisation Strategy which will function to conserve, preserve and ensure effective utilisation of animal germplasm (CCARDESA is likely to host this centre);
- the SADC Plant and Genetic Resource Centre's conservation and preservation of germplasm on the crops programme;
- The SADC Climate Change Strategy and Action Plan of 2015; and
- Several SADC Protocols including the SADC Protocol on environmental management for sustainable development, and the SADC Protocol on Plant Variety Protection (PVP), also known as Plant Breeders' Rights (PBR).

Other complementary continental and global level strategies and policies relevant to CCARDESA's mandate include:

- the AU Nairobi Declaration on Africa Fertiliser and Soil Health Summit of 2024;
- the OIE One-Health strategy;
- The 2009 Global Research Alliance (GRA) on Agricultural Greenhouse Gases that aims to reducing greenhouse gas emissions from agriculture while increasing food security;
- the Sendai Framework for Disaster Risk Reduction adopted in 2015;
- the AU Science, Technology and Innovation Strategy for Africa (STISA) which places science, technology and innovation at the epicentre of Africa's socio-economic development and growth;
- the Science Agenda for Agriculture in Africa (S3A) which addresses agricultural challenges in Africa through scientific research and innovation; and
- the AU-Inter African Bureau for Animal Resources (AU-IBAR) Livestock Development Strategy for Africa (LiDeSA) 2015–2035 to transform the African livestock sector for accelerated and equitable growth.

[6] https://www.nepad.org/publication/sadc-regional-agricultural-policy-0

4. SITUATIONAL ANALYSIS

4.1. Overview

With the majority of the population in Africa largely rural and dependent on agriculture for their livelihoods, the importance of agriculture and particularly by smallholder farmers is unmistakable. Agriculture food (agri-food) systems are at the centre of poverty reduction in Africa and CCARDESA's role through agriculture research for development (AR4D) is central to achieving SADC's ambitions.

4.2. Agriculture Landscape in the SADC Region

Agriculture's contribution to the Gross Domestic Product (GDP) of the 16 SADC Member States varies between 4% and 27%, and average SADC regional crop production contribution is estimated at 61%. Approximate export earnings from agriculture average 13% across the SADC countries (World Bank 2016 – World Development Indicators; SADC portal – www.sadc.int/pillars/crop-production). Small-scale farming dominates the agriculture sector, covering approximately 80% of the region's cultivated land and contributing 90% of its produce. With more than 70% of the region's population of just over 400 million people in 2023 depending on the agricultural sector for its food, income, and employment, efforts to support smallholder production in order to ensure food security and sustained livelihoods are a priority for almost all SADC Member States.

Despite the diversified natural resource base of the region, overall agricultural growth and productivity have remained low with the potential to undermine food security, economic growth and social stability. The main constraints to growth of the agriculture sector in the region include low agricultural production and productivity; high post-harvest losses; constrained market access; limited access to finance and credit; poor capital and social infrastructure development (such as irrigation systems and storage facilities); lack of meaningful off-farm enterprises; and inefficient information and knowledge management systems, and limited access to finance for smallholder farmers, among others. Exacerbating this situation are stress factors including declining soil fertility; natural resources degradation including land degradation due to deforestation, overgrazing, and unsustainable agricultural practices among others; agro-biodiversity loss; intensifying climate change effects; and water scarcity.

Despite these challenges, the SADC region has great potential to sustainably produce a wide range of commodities (crops, livestock, aquaculture, fisheries, and forestry) by exploiting the agro-ecologically diverse, land abundant and marine water bodies. The countries in the region are working to improve agriculture and food security through development and implementation of policy frameworks to support agricultural development and food security. Land tenure systems, agricultural extension services, agribusiness growth, and regulatory frameworks for food safety and quality standards are some of the main areas of focus for these programs.

SADC Member States have also been supporting initiatives to promote sustainable farming practices including agroecology practices; increased access to agricultural inputs and technologies; enhanced infrastructure; improved market access for smallholder farmers; and strengthened resilience to climate change. With the growing recognition of the importance of technology in transforming agriculture in the region, adoption of precision agriculture, climate-smart farming practices, digital technologies for market access and information dissemination, and biotechnology for crop improvement are being promoted.

Agricultural production and food systems need to change and become more resilient, with ability to function well in the face of disruptive events in order to sustain output, income, and deliver on nutrition. This is where CCARDESA can play a significant role in addressing the region's needs to

meet the ever-changing challenges to ensure a significant contribution of agriculture in regional socio-economic growth.

4.3. The Need for Agricultural Research for Development

Agricultural research plays a crucial role in food security and agricultural development by increasing agricultural production to meet the food needs of the population. In the SADC region, agricultural research for development (AR4D) is recognised as one of the prime movers of agricultural development and economic growth, and its role in fighting poverty and hunger, supporting more rapid and sustainable development and increasing sustainable food security and livelihoods cannot be overemphasised.

4.3.1. Systems approach in agricultural research and innovation for development

A systems approach in agricultural research and innovation for development extends beyond integrated natural resource management to include markets and policy issues and their impacts on the sustainability, profitability, and productivity of agriculture. The key issues that AR4D must, therefore, address in the Southern Africa region include low productivity, limited access to markets for smallholder farmers, risks associated with climate change, inadequate addressing of gender concerns in agriculture, poor involvement of youth in agriculture, malnutrition, poverty and lack of supportive policies.

With the climate crisis already putting stress on agriculture systems, AR4D efforts aimed at supporting farmers to recover, rebuild and respond to climate change will also be required to make the farming systems more resilient. The AR4D efforts to mainstream women and youth empowerment require concerted support to facilitate participation of youth and vulnerable groups in agricultural value chains. Food diversification and the holistic value chain approaches are key in unlocking realistic avenues for employment, particularly to the youth and improving livelihoods.

4.3.2. Appropriate technologies, innovations and management practices

Agricultural research in the region has generally made significant contributions towards improving productivity through the development of improved crop varieties and livestock breeds, coupled with the generation and dissemination of other appropriate technologies, innovations and management practices. Supported by an enabling policy environment, the development of science-based agricultural technologies through agricultural research has been crucial for boosting productivity while preserving and sustaining the environment. The SADC Regional Crop and Livestock Development Programmes provide the frameworks to stimulate and increase production, productivity and competitiveness of the crop and livestock value chain commodities as well as improving market access for the various value chain products.

The region has a varied ecology with many different farming systems producing a wide range of agriculture commodities. Notwithstanding this diversity, many countries in the region share similar problems and opportunities, which makes it possible for agricultural research and innovation for development to promote some commodity-specific technologies that are adaptable across countries where there are sufficient similarities in agroecology, farming systems, and other socioeconomic factors. Crops, livestock, aquaculture, fisheries and forestry are key agricultural commodities in the Southern Africa region. There is need to strike a balance between these key agricultural commodities in setting up regional priorities for research for development, so that sustainable, equitable and inclusive agricultural development can be achieved in the region.

4.3.3. Collaboration and partnerships in agricultural research and development

The agricultural research landscape has changed significantly in recent years due to significant shifts in the objectives of funding partners, farmers' awareness and level of collective organization, private sector involvement, policy environment, and market conditions. Given the gradual decline in levels of investment in agricultural research over the years, there is need to make concerted efforts in forging public private partnerships in agricultural research to facilitate transformation of the agriculture sector from subsistence to commercial levels.

Increasing the efficiency of AR4D in the region will also require strong partnerships among national agricultural research and development systems (NARES) at the national level and regional level agriculture research for development institutions. Thus, CCARDESA has a key role to play in facilitating these partnerships to ensure the success of AR4D efforts in the Region. For the agricultural sector to improve on its contribution to the overall goal of national economic growth, wealth creation, food security and poverty alleviation, the sector must be transformed from subsistence to a commercial and profitable business enterprise.

Moving forward, CCARDESA will need to make concerted efforts to strengthen collaboration and partnerships in agricultural research and development by strengthening and employing strategies that include networking and partnerships (collaborating with national, regional and international partners, fostering information exchange and knowledge sharing); promoting equity and transparency in partnerships; and ensuring effective coordination in addressing common challenges facing agriculture in the Region. A multifaceted holistic approach involving research, technology, and community engagement is essential for improving AR4D efficiency in the region.

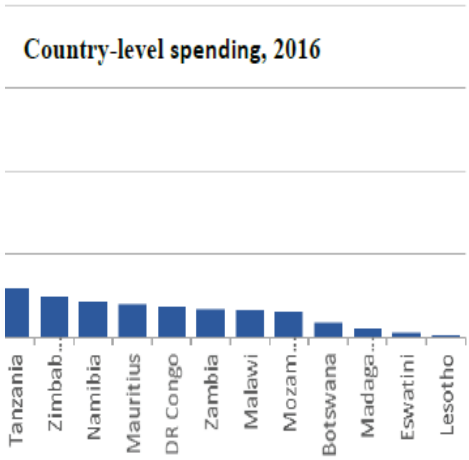
4.4. Challenges in Agricultural Research for Development

Several major constraints contributing to the poor performance of agricultural research for development (AR4D) efforts by research institutions in the region are well established and include the following:

4.4.1. Funding for Research and Development

The seventh indicator of the second commitment of the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods of June 2014, is "*total agricultural research spending as a share of agriculture value added, with a target of 1% each year from 2015 to 2025".* The African Union 4th Biennial Review Report of March 2024 revealed that only eight AU Member States, including Mauritius and South Africa in Southern Africa, achieved this target (AU, 2024). The rest did not achieve and are unlikely to achieve this target by 2025. This makes a big statement about the status of agricultural research in Africa as a whole and particularly in the SADC region.

The CCARDESA 2021 report on the status of agricultural research investment in the SADC Region noted that following a period of stagnation during the 1980s and 1990s, agricultural research spending in the SADC region (excluding the private for-profit sector) grew steadily. However, there has been a recent 9% drop in total spending from 2014 to 2016 (Figure 1). In terms of absolute levels of agricultural research spending, these varied considerably across the SADC countries, with South Africa accounting for about half of the region's total investments in 2016; whereas Madagascar, Eswatini and Lesotho spent less than 10 million each that same year.



6 (*Source: CCARDESA, 2021)*

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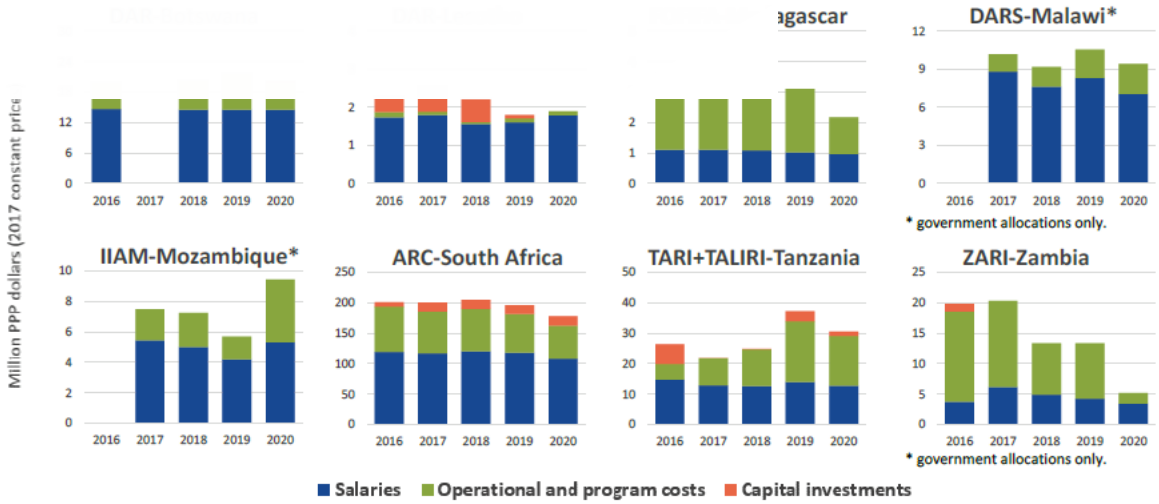


Figure 2: Spending trends at selected national agricultural research institutes, 2016-2020 (*Source: CCARDESA 2021)*

New evidence collected through a survey of various research and higher education agencies showed that most governments had seriously cut their budgets to agricultural research during 2016-2020. The report further noted that almost all SADC countries are highly dependent on government contributions, but these funds mostly cover the salaries of staff and the costs of the basic operations. Research programs and infrastructure improvements are mostly funded by donor contributions and development bank loans. These sources of funding have been erratic and limited; in fact, all agricultural research agencies reported serious infrastructural and equipment constraints (CCARDESA, 2021).

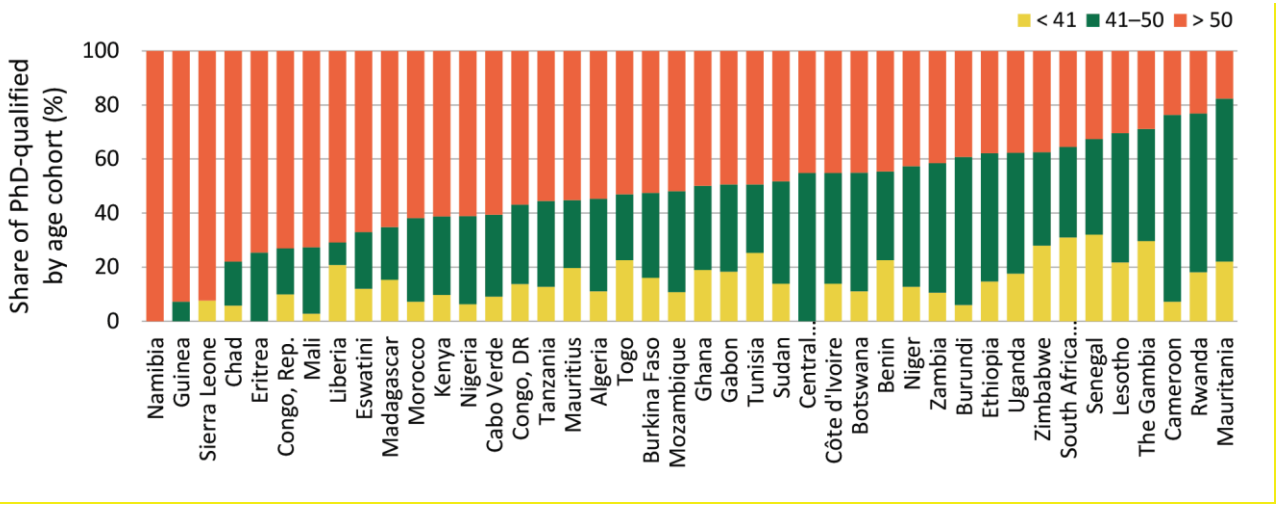
CCARDESA therefore has a critical and serious role to play in the resourcing of research in agriculture. In fact, its fifth specific objective as designed in the Charter establishing it, CCARDESA is tasked with strengthening research and development in State Parties by mobilising human, financial and technological resources to implement and sustain demand-driven activities. In light of this, the key question for this revised long-term strategy is ***how can CCARDESA address the challenge of limited funding for research development.***

4.4.2. Human and capital capacity constraints

Capacity constraints (human, infrastructure) are also cited as key challenges. Many countries in the SADC region lack sufficient human resource capacity in agricultural research, and strengthening this capacity continues to be a challenge. Physical infrastructure at most NARES is also poor.

In its report, Boosting Investment in Agriculture Research In Africa: Building a Case for Increased Investment in Agricultural Research in Africa, the African Union sought to bring about the funding options for efficient agricultural research system in the African Union Member States with regards to the proportion of Agriculture Gross Domestic Product (AgGDP) to be allocated for research. It also attempted to depict the best funding scenarios in correlation with countries macro-economic settings and agricultural production landscape (AU, 2022). As part of the report, it also looked at the human capacity needs for agricultural research and development. The report noted that due in most part to substantial donor support for training and capacity strengthening, qualifications of agricultural researchers in sub-Saharan Africa (SSA) improved steadily in the decades leading to 2000. More recently, however, growth in the number of PhD-qualified agricultural researchers in SSA had slowed (AU, 2022).

According to the report, it has been the norm that a minimum number of PhD-qualified scientists is generally considered fundamental to the conception, execution, and management of high-quality research; to effective communication with policymakers, donors, and other stakeholders, both locally and through regional and international forums; and for increasing an institute's chances of securing competitive funding. The current environment has seen a growing aging pool of senior researchers, many of whom are approaching or have reached the official retirement age. As of 2016, in 21 of the 42 countries in Africa for which detailed data were available, at least half of all researchers with PhD degrees were over the age of 50 (Figure 3), while in 8 of these countries, more than 70 percent of the PhD-qualified agricultural researchers were older than 50 (AU, 2022).



Source: AU, 2022.

Figure 3: Share of PhD-qualified agricultural researchers by age cohort, 2016

4.4.3. Collaborative capacities and farmer-research extension linkages

Also linked to the above constraint on capacity is the challenge of inadequate collaborative efforts in the agriculture research sector. The lack of internal and external collaborative research efforts is often accompanied by lack of inter- or multi-disciplinarity in research. Usually, the socio-economic issues are not adequately addressed. At the implementation level, the lack of coordination and collaboration between relevant stakeholders is also a challenge. Examples can be identified particularly in the areas of sharing and dissemination of research results. Generally, there has been reluctance to sharing research results across SADC, with researchers and their institutions holding onto their research results. Through its webpage, CCARDESA has offered to disseminate research results but there is still little uptake of that opportunity.

Also identified as a key collaborative capacity challenge are the weak research-extension-farmer linkages, which persist even after decades of efforts in this area. The agricultural research efforts are not always demand-driven because of poor involvement of farmers in the research planning processes. A smaller percentage of smallholder farmers seek out extension guidance and wealthier farmers are typically the ones that often benefit from extension services.

Given these challenges, the key question is ***to what extent can CCARDESA effectively implement its functions, including the promotion of co-operation, consultation and exchange of scientific and technical information on best practices in agricultural research and advisory services in the SADC region? Again, how can CCARDESA facilitate the development of sustainable education, training and learning systems that contribute to farmer-oriented innovation and technology transfer systems for the region?***

4.4.4. Transnational technology spillovers

Barriers to transnational technology spill overs remain a challenge. Despite having similarities in ecologies, the actual spill over of research technologies across national boundaries is not happening as would have been expected.

4.4.5. Dissemination of technologies and information

Ensuring that the use of animation and ICT platforms effectively reaches a diverse audience, particularly in regions with limited access to digital infrastructure is a major challenge affecting the agriculture. Creating engaging and simplified animations requires technical expertise and resources, which may be constrained.

Another challenge lies in the translation of research findings into easy-to-understand formats and local languages, which can be time-consuming and may not always capture the nuances of the original research. Additionally, while employing a multi-channel approach is essential for broad reach, coordinating across various platforms—such as social media, radio broadcasts, SMS campaigns, and printed materials—can be logistically complex and resource-intensive. Ensuring that these channels are effectively integrated and that the information penetrates even the most remote communities remains a persistent challenge. The question is ***what can CCARDESA do to drive the adoption of agricultural innovations?***

4.4.6. Climate change threats

Southern Africa is particularly vulnerable to the impacts of climate change, including increased frequency of erratic rainfall patterns, prolonged droughts, floods, increases in surface temperature. Recent history has shown an increased trend in the frequency and strength of droughts and floods in Southern Africa. Agribusiness output is expected to be significantly impacted by the temperature

changes and rainfall variations, while the effects may vary according to the commodity. There is also the challenge of climate-driven emergence of new pests and diseases which needs adequate financial and human resources to be effectively addressed. The key question in this area is ***to what extent is CCARDESA addressing this area of climate resilience building in the agriculture sector?***

4.4.7. Post-harvest losses

Post-harvest losses (PHL) in Southern Africa are a significant challenge in the agriculture sector. These losses occur due to various factors such as inadequate storage facilities, poor transportation infrastructure, inefficient handling practices, pests, and diseases. They significantly reduce the income of farmers and the overall profitability of agricultural enterprises. Research efforts have concentrated on increasing production and productivity with little attention to the fact that sometimes upwards of 40% of the food produced is lost post-harvest. This is an area where agricultural research and technologies can have a huge impact, yet little attention seems to be paid to this area.

Focusing investment on reducing post-harvest losses can hugely be beneficial to the economies of SADC. The key question in this area is ***to what extent is CCARDESA addressing this area of post-harvest losses in the agriculture sector?***

4.4.8. Value addition

During the first General Assembly of CCARDESA held in 2014, one of the key matters raised was about value addition and the role of CCARDESA in this area. The report of the General Assembly noted that in terms of agriculture, progress was being made globally to meet the food security situation but in Africa, the continent was still lagging behind. The Assembly called for the continent to develop innovative pathways to transformation, which will improve production and productivity and one such pathway identified was the need to increase value addition and access to better functioning markets and the development of trade links within the continent and beyond. The question for this revised long-term strategy is ***to what extent is CCARDESA supporting value addition in its activities?***

4.4.9. Soil health and fertiliser use

Decrease of vegetation cover, deforestation, soil erosion, overgrazing and other inappropriate land management practices contribute to land degradation and the degradation of biodiversity while disrupting ecosystems critical for farmers and pastoralists reliant on biodiverse environments. This undermines agricultural productivity, availability of surface and ground water and exacerbates food insecurity in the region. Under such a scenario, resilience-building efforts can contribute to ecosystem resilience by restoring degraded lands, protecting biodiversity, and enhancing ecosystem services. Promoting agrobiodiversity will increase resilience to various shocks and stresses, including pests, diseases, extreme weather events, and market fluctuations

With the goal of developing food systems that are more productive, resilient, and equitable, **agroecology** may provide a holistic approach to smallholder farmer needs in the face of high costs of industrialisation agriculture input requirements. By promoting farming methods based on natural cycles, agroecology contributes to biodiversity preservation and spurs long term sustainable agriculture through improved soil health.

4.4.10. Monitoring, Evaluation and Learning

Weak monitoring evaluation and reporting of performance remain a major challenge in the area of agricultural research and development. There is often a general lack of institutionalized results

monitoring and organizational learning, which negatively impact on performance and accountability. This too is associated with very low visibility of activities in and by NARES.

4.5. Emerging Megatrends

In summary, the following are key megatrends that will influence agriculture in the SADC Region and therefore key drivers that shape CCARDESA's agenda going forward.

- **Climate change**, global health crises and economic disruptions, demographic change, rapid urbanisation, a considerable shift from farm to non-farm employment, expansion of the middle class, technological development resulting in easier access to new communication and information technologies, shifts in food demand, and a rise in agricultural commodity prices. These megatrends will have significant impact on the growth of the agriculture sector.
- The **agri-food systems** will be under a lot of strain in the near to medium term future as the rise in food consumption is not matched by agricultural yield increases. The negative impact on smallholder farming households is expected to intensify. Due to increased competition for food and agricultural products on the worldwide market, farmers in the region will be more vulnerable to rising demands for premium produce and fluctuating global market prices. Additionally, the detrimental effects of climate change are intensifying, particularly for smallholder farming households that depend on rainfed agriculture.
- Worsening **energy security** will have an impact on the livelihoods of many in the region. A lot of rural communities in the SADC region mostly rely on traditional biomass (wood and charcoal) for cooking and heating – a dependence which causes deforestation, soil erosion, and biodiversity loss, among other problems. The limited availability of modern energy negatively impacts agricultural productivity as it causes restricted use of agricultural operations such as irrigation systems, post-harvest processing technologies and use of mechanized farming equipment. Using renewable energy sources will help promote sustainable farming practices, in addition to improving energy security in rural areas.
- Scarce **water supplies** in the face of shifting rainfall patterns places more strain in a region whose majority has hitherto depended on rain-fed agriculture. Sustainable and affordable interventions to enhance the ability of farmers to manage water through climate- and drought-proofing rainfed agriculture will be required.
- The pace of adoption of **technology and digital solutions** including digitalisation, AI and precision agriculture in agriculture are required to improve productivity, efficiency, and market access while decreasing the unpredictability and risk of production.
- **Global pandemics and economic disruptions** such as the recent Covid-19 pandemic and geopolitical disturbances in Ukraine have impacted market accessibility and commodity prices. Price volatility, supply chain interruptions, and changes in international trade patterns, all had a huge impact on the region's farmers, agribusinesses, and food security.

From an agricultural research and development perspective, CCARDESA can play a significant role in addressing the SADC region's needs to meet these ever-changing challenges to its agri-food systems involving crops, livestock, fisheries and forestry.

5. ACHIEVEMENTS ATTAINED IN THE IMPLEMENTATION OF CCARDESA'S AGENDA

Key achievements attained during implementation of the CCARDESA Medium-Term Operational Plan (2021 – 2025) include the following:

5.1. Coordination and Facilitation of Agricultural Research for Development

CCARDESA has been facilitating work between countries to promote regional collaboration and putting mechanisms to encourage technology generation and dissemination across national borders

of participating countries in the SADC region. This has been done through several interventions including the implementation of AR4D programmes.

5.1.1. Research agendas

A mismatch between research agendas and end users' needs is common. The declining access to financial resources leads to poor balance between research relevance and quality versus priority areas, which renders the technology generation and dissemination process ineffective and not relevant to the problems and priorities of end users. The level of attention given in the SADC region on smallholder farmers will make or break the food insecurity and poverty chain. Research agendas should therefore focus on providing for and supporting smallholder agriculture in the SADC region.

To respond to the question on ***how CCARDESA can ensure convergence in the varied research agendas and particularly with smallholder farming in mind,*** CCARDESA commissioned a write-shop in September 2023 to revise its list of regional agricultural research and development priorities. This exercise involved an analysis of the challenges and opportunities facing the crop, livestock, fisheries and aquaculture, forestry sectors of agriculture as well as cross-cutting issues affecting the agriculture sector; the main research gaps for the above sectors; and identified priority areas of investment in research, development and learning. The outcome of this exercise was that for CCARDESA to address the many challenges facing agricultural development in SADC, from an agricultural research and development perspective, its strategy should focus on:

a. **Knowledge, Technology, and Innovation Systems**: developing and disseminating knowledge, technology, and innovation to improve productivity and sustainability.
b. **Research Infrastructure Development:** developing physical and digital infrastructure to support production and trade.
c. **Marketing and Trade Development:** developing markets and trade systems to support production and trade.
d. **Finance and Credit:** developing financial and credit systems to support production and trade to support R&D.
e. **Environment and Climate Change**: developing strategies and technologies to mitigate and adapt to the impacts of climate change.

Resulting from this exercise, a set of priority research areas for CCARDESA were established and ranked by importance. Annex 2 (Table 7(Crops); Table 8 (Livestock); Table 9 (Fisheries); Table 10 (Aquaculture); Table 11 (Forestry) and Table 12 (Cross-Cutting) are a summary of the agricultural research priorities established by CCARDESA in 2023 for the implementation of this revised long-term strategic plan.

5.1.2. Increasing the Efficiency of Agriculture Research for Development

Increasing the efficiency of AR4D in the region requires strong partnerships among national agricultural research and development systems (NARES) at the national level; regional level NARES, including the SADC Plant and Genetic Resource Centre (SPGRC); continental level AR4Ds, including FARA and sister organisations to CCARDESA on the continent; and international institutions including One Consultative Group on International Agricultural Research (One CGIAR).

During implementation of the CCARDESA medium-term operational plan for the period 2021 - 2025, CCARDESA strengthened its role as a regional entity for coordinating AR4D in the SADC region through forging partnerships with strategic partners within the CGIAR, FARA, other Sub-Regional Organisations, other institutions with AR4D mandates and NARES in the SADC region. Through these partnerships, a number of continental and regional projects were jointly implemented within thematic and impact areas of climate adaptation and mitigation; food security and nutrition; reducing vulnerability to disasters; transforming agriculture under changing market and trade conditions;

improving livelihoods; gender, youth and social inclusion. These collaborative projects were funded by International Cooperating Partners such as the European Union (EU), the World Bank, and United States Aid for International Development (USAID).

CCARDESA organized several strategic workshops involving AR4D practitioners and decision-makers to facilitate dialogue and capitalize on synergies in AR4D efforts. Through these efforts, collaboration among the NARES was enhanced.

5.1.3. Agricultural Productivity Programme for Southern Africa (APPSA)

The Agricultural Productivity Programme for Southern Africa (APPSA) programme is a World Bank funded programme initially designed to support three countries (Malawi, Mozambique and Zambia) during the period October 2013 to January 2020. The programme was then expanded to cover Angola and Lesotho for the period November 2019 to January 2025.

The implementation of APPSA is based on partnerships and collaboration among SADC countries. Each country under APPSA establishes a Regional Centre of Leadership (RCoL) in its respective commodity area that distinguishes it as a leader in the region. By 2024, only Zambia had established a RCoL in legume-based farming systems, Malawi in maize- based farming systems and Mozambique in rice-based farming systems. In the current phase, Angola and Lesotho are establishing RCoLs in Cassava and Horticulture-based farming systems, respectively. The benefits from these facilities are expected to spill over to other countries within the region and beyond.

These RCoLs were established through supporting institutional capacity strengthening, infrastructural development to enhance the generation and dissemination of Technologies, innovations, and Management Practices (TIMPs). 117 collaborative sub-projects were implemented over the two phases of APPSA (first phase from 2013 to 2019 and second phase from 2019 to January 2025). The first phase of APPSA led to the generation of about 160 technologies, innovations, and management practices (TIMPs), 68 TIMPs were shared across the participating countries and around 301 TIMPs were disseminated. APPSA Phase 2 availed slightly over 100 TIMPs to end-users. Slightly over 200 members of staff from the five participating countries benefited from long-term trainings (37 PhDs, 85MSc, 76 BSc and 8 Diplomas).

CCARDESA facilitates the collaboration among the countries as well as managing the quality control aspects of the projects. It also provides platforms for information sharing and assists the countries in improving the capacity of the national research and extension systems through various activities.

5.1.4. Food Systems Resilience Programme

CCARDESA has also facilitated the harmonization of seed policies regulatory systems. It has supported the establishment and strengthening of variety/technology release systems, phytosanitary services and seed services and knowledge management. The current Food Systems Resilience Programme (FSRP) is upscaling the APPSA achievements including supporting the establishment and strengthening of more Regional Centers of Leadership and climate smart agri-food systems interventions.

5.1.5. Adaptation to Climate Change in Rural Areas in Southern Africa (ACCRA) programme

In the area of knowledge products, the GIZ funded Adaptation to Climate Change in Rural Areas in Southern Africa (ACCRA) programme supported CCARDESA in developing 78 climate smart agriculture knowledge products (KPs). These knowledge products were aimed at assisting

policymakers and extension services to navigate and implement different climate smart agricultural (CSA) technologies and practices across the four key agricultural value chains - Maize, Sorghum, Rice, and Livestock - in the Southern African region. Each of these knowledge products is available in English, French and Portuguese and these can be viewed here Knowledge Products here.

5.1.6. Global Climate Change Alliance Plus (GCCA+)

In the ares of climate change, CCARDESA also implemented the Global Climate Change Alliance Plus (GCCA+) progamme in Eswatini, Botswana, Malawi, Mozambique, Namibia, Zambia, and Zimbabwe in collaboration with strategic partners. Climate-smart irrigation infrastructure was established, and climate-smart technologies were implemented using the Water-Energy-Food Security (WEF) Nexus approach. Key deliverables included enhanced capacity of SADC Member States to integrate climate change into agriculture programs and investments through promoting climate-smart Agriculture, increased access to CSA information, products, technologies, and innovations and ensure that value chain actors acquire knowledge on CSA technologies and practices. Beneficiaries were provided with climate smart inputs and were financed to construct of CSA infrastructure. The project provided resources for CSA trainings, development of the CSA handbook and communication materials, and for stakeholder's engagement meetings.

5.2. Knowledge Exchange and Dissemination

Building human and social capital to improve agricultural productivity requires increased and improved knowledge and information sharing through effective use of communication methods, channels and processes. Many smallholder farmers, however, have largely been by-passed by knowledge, technology and information exchange systems. Empowering smallholders to improve agricultural production efficiency and to generate income through market engagement is a process that requires better access to appropriate information and the generation of local knowledge to shape existing and new technologies to suit local situations. To this end, agricultural stakeholders, including farmers, need to have access to information on available technologies for them to respond appropriately to market demands.

5.2.1. Information, Communication and Knowledge Management (ICKM) system

CCARDESA has been one of the champions on the use of Foresight for Food (F4F) tools which assist in analysing and synthesising the drivers, trends and future scenarios for food systems with the aim to support stakeholder dialogue, informed by science, about the future of food systems and therefore be in a position to made improved decisions for healthy, sustainable and equitable food systems. The emergency of technologies such as AI, internet developments, and generally improved ICT facilities are tools at CCARDESA's disposal for improving the agriculture sector performance in the SADC region.

Tasked with facilitating the development of sustainable education, training and learning systems that contribute to farmer-oriented innovation and technology transfer systems for the region, CCARDESA continued to maintain an active Information, Communication and Knowledge Management (ICKM) system through which over 950 knowledge products were shared on the CCARDESA Knowledge Hub. In October 2024, CCARDESA reported an increase in the number of visitors accessing the website, from across the globe, with a cumulative total of 29,961 visitors, who had visited the website 32,631 times, resulting in 41,971 page views, of which 10,098 were regular users of both the website and the Knowledge Hub. The numbers on discussion groups (Dgroups) stood at 5,020 in October

2024. The rating of the ICKM system by users indicates that 13 out of 16 Member states rate the CCARDESA website and Knowledge Hub as satisfactory.

5.2.2. Soil health and fertiliser use - Compendium of best-bet climate smart agriculture technologies

As part of the knowledge exchange and dissemination intervention, CCARDESA supported the development, packaging and dissemination of several climate smart agriculture knowledge products that include a compendium of best-bet climate smart agriculture technologies for the SADC region aimed at enhancing soil health and address fertilise use. Furthermore, CCARDESA supported the development of the CSA Handbook for Southern Africa. News articles from 8 member states promoting effective and equitable management, conservation and sustainable use of Trans-Frontier Conservation Areas were also generated and disseminated on the CCARDESA media section.

5.2.3. Transnational technology spillovers

Barriers to transnational technology spillover remain a challenge. Despite having similarities in ecologies, the actual spillover of research technologies across national boundaries is not happening as would have been expected. In response to the question ***how CCARDESA can address the challenge of limited transnational technology spillovers***, CCARDESA has been promoting the sharing of technologies across SADC Members States through the APPSA programme. Specifically, a total of 24 technologies have been promoted across countries (Angola 18 and Lesotho 6). Angola received 18 crop varieties in December 2022 from Malawi, Mozambiaue and Zambia that are being multiplied to increase the seed stock. For Lesotho, the technologies include 6 bruchid resistant bean varieties sourced from Malawi (Chitedze BN1, Chitedze BN3, Chitedze BN4, Chitedze BN5, Namtupa and Nyambitila).

5.3. Partnerships in Agricultural Research for Development

The third objective of CCARDESA is to promote partnerships in the SADC region between public, private, civil society and international organisations in research and development. Key among the observed challenges facing the agriculture sector as a whole and particularly agricultural research and development include the inadequate collaborative efforts in the agriculture research sector. Similarly, weak farmer-research-extension linkages persist even after decades of efforts in this area due mainly to poor involvement of farmers in the research planning processes. To address these and other challenges, CCARDESA has consistently acted as a catalyst, during implementation of the CCARDESA medium-term operational plan for the period 2021 - 2025, in assisting regional stakeholders to form relevant partnerships to address challenges in the agriculture sector.

5.3.1. Partnerships with International Cooperating Partners

With support from several international cooperating partners including the German Government, the European Union (EU), the World Bank, and the International Fund for Agricultural Development (IFAD):

- CCARDESA enhanced partnership between academia and research by organizing meetings between the Network for Directors of Research and the one for Deans of Agriculture to foster relevant discussions on AR4D matters in the SADC Region. These discussions resulted in the prioritisation of research areas of focus.

- CCARDESA partnered with International Livestock Research Institute (ILRI) and Alliance Bioversity-CIAT in coordinating the scaling up of Climate Smart Agriculture / Climate Information Services (CSA/CIS) activities in a pilot project in Zambia. The partnership

facilitated knowledge sharing among key stakeholders in East and Southern Africa. The best bet options for climate-smart agriculture (CSA) which were piloted in Zambia can be up-scaled throughout the SADC region.

- CCARDESA partnered with the SADC Secretariat to conduct Trans-Frontier Conservation Areas (TFCA) Training for the media personnel from 6 Countries, which resulted in increased awareness of the need to strengthen conservation and sustainable use of natural resources.

5.3.2. Engagement with the private sector

In February 2022, CCARDESA validated its Regional Strategy for Engagement of Private Sector in Agricultural Research and Development on the backdrop that involvement of the private sector in identifying climate change risks and response measures will go a long way in reducing or eliminating the negative impacts of climate change. Successful engagement of the private sector in climate change adaptation was seen to catalyse greater investment in reducing vulnerability and accelerating the replication of climate-resilient technologies. Stronger private sector engagement was therefore considered an important vehicle to enhance climate resilience through financing climate-related research and identification of research needs and mapping action plans.

CCARDESA, therefore, seeks to actively engage private sector stakeholders to collaborate in the implementation of regional AR4D programmes. Active public-private partnerships in climate related AR4D are critical for enhancing the generation, dissemination and adoption of CSA technologies.

5.4. Human and Capital Capacity

Given its objective to *strengthen research and development in State Parties by mobilising human, financial and technological resources to implement and sustain demand-driven activities* and its mandate to *empower and strengthen farmers and their organisations or groups into effective partners in agricultural development and enhancing their access to markets and negotiating skills*, and *facilitate regional capacity building of agricultural and natural resources scientists in terms of training, development and management,* the key question this strategy aims to address is **how to improve on human and capital challenges the region is facing**.

5.4.1. Masters' and PhD training programmes

Under the APPSA programme, CCARDESA has facilitated the training of PhD and Masters students. Through long-term scholarships, the project had funded 59 students by the end of 2024 for post graduate training (45 for Angola and 14 for Lesotho). These include 8 PhD, 44 MSc and 7 BSc students.

Acknowledging that there is more to be done, CCARDESA has promoted the use of the capacity development in agricultural innovation systems (CDAIS) which enhances organizational capacity by equipping stakeholders with the skills, knowledge, and tools needed to effectively innovate and collaborate. This approach strengthens the ability of organizations to adapt to changing agricultural landscapes, solve complex challenges, and implement sustainable practices. By fostering a culture of continuous learning and innovation, CDAIS builds the overall resilience and effectiveness of organizations within the agricultural sector

5.4.2. Training and capacity building needs assessment

During implementation of the CCARDESA medium-term operational plan for the period 2021 - 2025, the organisation determined capacity building needs in various areas through discussions with important stakeholders in the region. These areas include data management, setting up of research trials and demonstration plots, communication and information dissemination, digital skills,

partnership management, monitoring and evaluation, marketing, enhancing social networking skills. Consequently, CCARDESA has been facilitating several trainings to improve technical capacity of AR4D scientists to undertake collaborative AR4D efforts. Target groups were trained on key issues to enable them to effectively analyse climate change issues and build gender response climate resilience.

In the area of knowledge management, the Comprehensive Africa Agriculture Development Programme ex-Pillar 4 (CAADP-XP4) consortium has jointly held a Knowledge Management for Agricultural Development (KM4AgD) Challenge and Conference. The KM4AgD Challenge is an initiative aimed at boosting knowledge-based development in AR4D in Africa by developing communities of practice of knowledge management practitioners across Africa. The overall objective of this initiative is to enable agricultural research and innovation, including extension services, to contribute effectively to food and nutrition security, economic development and climate change in Africa. The challenge and conference takes place annually, with a growing number of countries participating. The climax for each annual Challenge is a KM Conference (hybrid) where participants present their results and receive certificates as "AR4D KM Agents for Sustainable Development". The program's three-month course, in collaboration with the Knowledge for Development Partnership (K4DP), builds the individual and collective capacities of the critical supra-national agricultural research and innovation institutions. During the implementation of the LTSP 2020-2029 thus far, over 100 knowledge managers have been certified and are successfully implementing KM in their respective institutions.

5.5. Resource Mobilisation Towards Strengthening Research and Development

The fifth objective of CCARDESA is to *strengthen research and development in State Parties by mobilising human, financial and technological resources to implement and sustain demand-driven activities*. In general, low levels of funding in Research for Development are among the top challenges. Despite making commitments on increasing expenditure in AR4D, several countries in the Region are not meeting the African Union commitments on public spending in agriculture. The amount of time it takes for agricultural investments to show effects is considered to be one of the main causes of underinvestment in agricultural research by national governments. In general, the limited investments that currently support AR4D are mostly from international cooperating partner contributions. These funds are highly volatile in nature, giving rise to vulnerability of NARES in terms of funding stability, and their resultant inability to address current and emerging challenges in a holistic manner.

5.5.1. Funding from Member States and International Cooperating Partners

During implementation of the CCARDESA medium-term operational plan for the period 2021 - 2025, the organisation undertook several activities towards enhancing its resource mobilisation efforts. At the formation of CCARDESA Member States pledged and supported in its start up capital needs and have intervened and provided for CCARDESA's needs from time to time.

To a larger extent, however, CCARDESA has relied for its financial and human resources on grants from various international cooperating partners (ICPs). While bilateral funding remains crucial, CCARDESA is also exploring new avenues for non-traditional fundraising and investment to diversify its funding sources and reduce risks. To this effect, CCARDESA developed and is implementing its Resource Mobilisation Strategy.

5.5.2. Competitive research grants

In the area of grants management, CCARDESA successful launched a competitive research grant system in 2014. At the end of the first cycle, seven research grants were awarded. The lessons learnt from this process positioned CCARDESA for more effective grant management in future.

5.6. Policy Engagement

In the area of policy engagement, CCARDESA supported advocacy efforts to influence agricultural policy decisions through participation in or convening of strategic workshops discussing policy issues. Key policy engagement achievements by CCARDESA include:

a. Facilitating the interpretation and domestication of the regional harmonised seed system within some SADC member countries, which enabled the easy sharing of improved seed technologies across countries.
b. Facilitating the production and distribution of knowledge materials and resources to address key gaps in the implementation and provision of agricultural climate services.
c. Facilitating informed decision-making for climate-related investments.
d. Formulating policies that promote the adoption of climate-smart agricultural practices.
e. Promoting and supporting effective documentation and sharing of information to improve climate change adaptation policy in the region.
f. Establishing frameworks for discussions and development of climate change policy options.
g. Generating knowledge products that highlight issues in existing Transfrontier Conservation Areas policies in the implementing countries, and
h. Supporting the NARES in reporting on the Malabo commitments, advancing policy frameworks that align with the African Union's agenda for agricultural transformation and sustainable development as demonstrated in this **Video.**

5.7. Women and Youth Empowerment

Gender and social inclusion issues are integral to agricultural research and development. During implementation of the CCARDESA medium-term operational plan for the period 2021 - 2025, CCARDESA drafted a gender policy to guide the mainstreaming of gender and youth empowerment aspects in its interventions.

CCARDESA has promoted engagement that ensures gender-responsiveness and confronts the social and cultural norms perpetuating gender disparities in agricultural research and development. It has also supported the participation of women and youth in various exchanges. CCARDESA deliberately integrates gender mainstreaming as a core principle. By prioritizing equity and equality, CCARDESA not only promotes fairness in project formulation and implementation but also ensures that the diverse needs and perspectives of all genders are considered. This commitment to gender mainstreaming creates inclusive environments, where everyone can contribute to and benefit from agricultural development efforts.

5.8. Forestry and the Blue Economy

Simply defined, apiculture is the scientific method of rearing honeybees. Often referred to as beekeeping, the trade is the care and management of honeybees for the production of honey and wax. CCARDESA has initiated the ‘Apiculture Industry Action Plan 2024’ which acknowledges environmental health as key considering that specific forest resources provide food for the bees. CCARDESA has a role to play in promoting good apiculture practices to boost the region’s honey production. This requires targeted focus on certain areas of forestry and agroforestry, livestock, fisheries and aquaculture and value chains by CCARDESA.

The CCARDESA report of November 2015 on the role of fisheries in food and nutrition security in the SADC Region’ (CCARDESA, 2015) examined case studies in the role of small-scale inland aquaculture and consumption with particular focus on the challenges and opportunities in shaping policy to increase consumption through inland small-scale aquaculture and applicable lessons for the rest of the SADC region.

6. SWOT ANALYSIS

Deriving from the implementation of the LTSP (2020-2029) through its MTOP II (2021-2025), the following were identified as the key strengths, weaknesses, opportunities and threats to the effective attainment of CCARDESA's long-term strategy (Table 1)

Table 1: Strengths, weaknesses, opportunities and threats to achieving objectives of CCARDESA

Strengths	Weaknesses
1. Ability to effectively coordinate implementation of joint programmes 2. CCARDESA has successfully established itself as a regional focal point for agricultural research and development in Southern Africa including in agricultural research and development information Communication and Knowledge Management (ICKM) 3. Developed and is implementing a Resource mobilisation strategy exists	1. Heavy reliance on donor / development partner funding for its programmes 2. Lack of a business case to showcase with SADC member states 3. Lack of visibility of CCARDESA's value making it less attractive for funding 4. Inadequate human and financial capacity in CCARDESA's establishment.
Opportunities	**Threats**
1. CCARDESA has a showcase of achievements in programme management, an opportunity to collaborate more in joint or singular programme implementation 2. CCARDESA has convening powers on SADC Member States in the area of agricultural research	1. Competition for funding from the same sources with similar organisations 2. Lack of funding for both the establishment and for programmes 3. Speed with which megatrends are affecting regional agriculture base placing pressure on quicker delivery by CCARDESA

PART III: STRATEGIC THRUST

This part sets the goal, vision and mission of CCARDESA, its value proposition and its strategic intent in terms of expected key results and the theory of change that guides CCARDESA's actions.

7. RESULTS FRAMEWORK OF CCARDESA

7.1. Overview

In the revision of the long-term strategy of CCARDESA, the Results Based Management (RBM) system was adopted as the overall guiding approach to structuring the revised strategic thrust. This new approach emphasises focus on results. In the original long-term strategy, the approach to the organisation's strategic thrust was anchored on thematic areas.

7.2. Goal

In line with the SADC Regional Agricultural Policy, the goal of CCARDESA's revised long term strategy is *to facilitate delivery of sustainable, equitable and inclusive resilient agri-food systems for food and nutrition security in the SADC region*.

7.3. Vision

A regional leader in coordination, harmonisation, catalysation, and facilitation of agricultural research and development for the attainment of transformed agri-food systems in the SADC Region

7.4. Mission

The mission of CCARDESA is *to coordinate regional agri-food systems transformation in the Southern African region through agricultural research and innovation for development for the benefit of SADC Member States*

7.5. CCARDESA'S Value Proposition

By virtue of its mandate and functions as outlined in the introductory chapter, CCARDESA offers several benefits to the citizenry of the SADC Region. Key among its value proposition are that:

i. CCARDESA has convening power as a SADC Subsidiary Regional Organisation within the formulation and implementation processes of strategic SADC frameworks. CCARDESA is empowered to convene, within the agricultural research and development sphere, and high-level meetings, discussions, and activities that involve relevant organs in the SADC member States.
j. CCARDESA offers a platform to influence policy in SADC through the SADC structures.
k. CCARDESA offers a knowledge and information broking capacity in addition to access to available research information, knowledge and practices for adoption in the agriculture sector in the region, through its Information, Communications and Knowledge Management network of nodes in the SADC member states.
l. CCARDESA has a regional presence giving CCARDESA regional coverage in agricultural research and development.
m. CCARDESA contributes to increased agricultural productivity and food and nutrition security in the SADC region through its networks of national agricultural research system (NARES), regional and national NARES, farmers and other agricultural value chain actors.
n. CCARDESA contributes directly to sustainable management of natural resources and increased resilience to climate change and other emerging agricultural risks.

o. CCARDESA contributes directly to increased commercialisation of smallholder agriculture and access to markets through improved technologies and strengthened regional and national NARES, farmers and other agricultural value chain actors.
p. CCARDESA actions are gender sensitive promoting gender equality, women empowerment and increased employment and participation of youth and vulnerable groups in agricultural value chains through mainstreaming of women and youth in projects and programmes undertaken by CCARDESA.

In delivering its value proposition, CCARDESA will be guided by six core values:

- ***Integrity:*** We commit to conduct ourselves in a transparent, impartial and honest manner in all our dealings and to be accountable to our stakeholders for the correct use of resources and delivery of results.

- ***Relevance:*** Our programmes, knowledge products and information are inclusive and designed in a participatory manner to timely meet the needs of all our stakeholders.

- ***Respect:*** We hold all our stakeholders in high esteem and commit to comply with international and regional conventions and protocols as well as all laws and regulations in our host country and Member States, while upholding the intellectual property rights of partners.

- ***Professionalism:*** We commit to observe the highest ethical standards and to promote the use of appropriate skills and high-quality science in our research and development initiatives.

- ***Teamwork:*** We believe in participatory, collaborative and inclusive approaches, building effective institutional arrangements and partnerships that deliver benefits to all agricultural stakeholders.

- ***Innovation:*** We are committed to delivering a cutting-edge regional research agenda and foster new approaches to agricultural research and innovation for development and dissemination, adoption and use of results, creating value for all our stakeholders.

7.6. Strategic Objectives

In alignment with the objectives of CCARDESA as outlined in the introduction, the strategic objectives of this revised long-term strategy are to:

a. Catalyse and coordinate the generation, dissemination and adoption of R&D technologies, innovations and management practices for increased agricultural production, productivity and competitiveness in the agri-food systems especially amongst smallholder farmers, small to medium enterprise agri-business, and priority value chains.
b. Strengthen capacity of regional and national agricultural research for development (AR4D) institutions and other agricultural value chain actors.
c. Improve resource mobilisation and enhanced partnerships in agricultural research and development
d. Enhance gender, youth and social inclusion for their effective participation in agricultural value chains
e. Promote sustainable management of natural resources, including agroecology, fertilizer & soil health management for increased resilience to climate change and other emerging agricultural risks.

f. Promote mainstreaming and use of improved agricultural digital solutions and agricultural information, communication and knowledge management systems by diverse CAARDESA stakeholders enhanced

7.7. Results

In order to achieve the goal of CCARDESA, the following result areas are expected:

g. **Result Area 1:** Improved coordination, generation, dissemination and adoption of R&D technologies, innovations and management practices for increased agricultural production, productivity and competitiveness in the agri-food systems especially amongst smallholder farmers, small to medium enterprise agri-business, and priority value chains.
h. **Result Area 2:** Strengthened capacity of regional and national agricultural research for development (AR4D) institutions and other agricultural value chain actors.
i. **Result Area 3:** Enhanced resource mobilisation and partnerships in agricultural research and development
j. **Result Area 4:** Enhanced gender, youth and social inclusion for their effective participation in agricultural value chains
k. **Result Area 5:** Sustainable management of natural resources, including agroecology, fertilizer & soil health management for increased resilience to climate change and other emerging agricultural risks.
l. **Result Area 6:** Use of improved agricultural digital solutions and agricultural information, communication and knowledge management systems by diverse CAARDESA stakeholders enhanced

7.8. Outputs and Main Activities

To achieve the above results, the following outputs and their related main activities were identified for each result area as elaborated below.

7.8.1. Result Area 1

Improved coordination, generation, dissemination and adoption of R&D technologies, innovations and management practices for increased agricultural production, productivity and competitiveness in the agri-food systems especially amongst smallholder farmers, small to medium enterprise agri-business, and priority value chains

One of the key functions of CCARDESA in support of this result area is *to coordinate, harmonise, promote sound innovation process policies in and among SADC Member States for sustainable agricultural growth and socio-economic development.* In addition, the second key function of CCARDESA that also supports this result area is *to update regional agricultural research and innovation for development priorities and coordinate joint programmes among stakeholders, including promotion and development of agro-based value-adding technologies*.

Faced with several emerging challenges and opportunities including climate change, land degradation, water scarcity, expected temperature increases, increasing threats from plant and animal diseases and rising land and resource demands due to urbanisation; inadequate access to key agricultural inputs and markets and lack of capacity to adopt improved technologies; high post-harvest losses, this result area will focus on producing the following outputs.

a. **Output 1.1:** New and existing climate smart technologies, innovations and sustainable management practices (for crops, livestock, fisheries and forestry products) developed and promoted by NARES in the SADC Member States.

b. **Output 1.2:** Nutrition-sensitive and climate smart agricultural technologies, innovations, sustainable management practices and interventions integrated into AR4D food systems research programmes for crops, livestock, forestry and fisheries to enhance dietary diversity and nutrition outcomes.
c. **Output 1.3:** Public sector facilitated, private sector-led and market driven agri-food systems (for crops, livestock, forestry and fisheries) promoted especially to enhance viability of smallholder farming enterprises
d. **Output 1.4:** Output 1.4: Value chain actors' capacity to access and adopt technologies, innovations and management practices that lead to improved production, productivity and competitiveness enhanced

7.8.2. Result Area 2

Strengthened capacity of regional and national agricultural research for development (AR4D) institutions and other agricultural value chain actors.

The key functions of CCARDESA in support of this result area aim *to (i) facilitate regional capacity building of agricultural and natural resources scientists in terms of training, development and management*; and (ii) *mobilise and generate resources for the SADC region and to foster partnership and collaboration with regional and international agricultural research organizations*

Strengthening organizational capacities is crucial for the region's agriculture sector to effectively respond to emerging issues, technological advancements, and changing socio-economic conditions. Capacity building is therefore essential for the accomplishment of sustainable development objectives, promoting innovation, and tackling the intricate problems the region's agriculture industry faces. Strengthening capacities of CCARDESA and NARES fosters the local expertise, reduces external dependence, and promotes sustainable agricultural challenges by understanding socio-economic contexts, cultural practices, and environmental conditions.

Outputs that achieve this result area should therefore aim to *strengthen capacity to support AR4D initiatives in the SADC Region; align and better coordinate financial support from development partners and financial institutions towards common AR4D priorities; and enhance research quality and impact.* While acknowledging that capacity is cross cutting and that it covers all areas of action, the following outputs were identified under this result area.

a. **Output 2.1:** Institutional capacities of CCARDESA strengthened
b. **Output 2.2:** Institutional capacities of NARES strengthened.
c. **Output 2.3:** Harmonisation of national and regional food and agriculture policies supported

7.8.3. Result Area 3

Enhanced resource mobilisation, partnerships and collaborations in agricultural research and development

The first key function of CCARDESA in support of this result area aims *to mobilise and generate resources for the SADC region and to foster partnership and collaboration with regional and international agricultural research organizations.* According to the SADC MAPP programme that founded the basis for the establishment of CCARDESA, initial funding for CCARDESA was expected to come from the international cooperating partners (ICPs). Over time, it had been anticipated that other stakeholders would make an increasing contribution. These stakeholders included SADC Members States through the SADC Secretariat, private sector entities in the region, and CARDESA's own resources from the collection of fees for managing projects.

It was recognised that continuing support from Member States would provide a strong foundation, motivation and confidence building for development partners to complement these efforts. It had

been anticipated that Member State funding should at least cover the recurrent running costs and the core mandate functions of coordination, information and knowledge sharing and partnerships, which are not commonly funded from project funding. This aspiration has not been realised as funding from Member States has fallen far too short of the CCARDESA's needs.

The second key function of CCARDESA in support of this result area aims *to empower and strengthen farmers and their organisations or groups into effective partners in agricultural development and enhance their access to markets and negotiating skills.*

The key outputs identified as contributing to the attainment of this result area were as follows:

a. **Output 3.1:** Resource mobilisation systems for CCARDESA and NARES systems strengthened
b. **Output 3.2:** New strategic partnerships and collaborations established, and existing ones strengthened

7.8.4. Result Area 4
Enhanced gender, youth and social inclusion for their effective participation in agricultural value chains

Gender inequalities undermine agricultural productivity. By mainstreaming gender and social inclusion considerations into agricultural research initiatives, countries can harness the full potential of diverse stakeholders to drive agricultural transformation, promote inclusive development, and build a more sustainable and equitable future for rural communities. CCARDESA will make efforts to mainstream gender and social inclusion considerations into agricultural research and innovation for development programs in order to promote gender equality, empower women and youth in agriculture, and ensure their inclusion in decision-making processes and the benefits of agricultural development initiatives.

The key expected outputs under this result area are:

a. **Output 4.1:** NARES supported to develop gender-sensitive interventions that will increase participation of women, youth and other vulnerable groups in agricultural value chains
b. **Output 4.2:** AR4D technologies, innovations and sustainable management practices specifically targeting women, youth and vulnerable groups developed and promoted

7.8.5. Result Area 5
Sustainable management of natural resources, including agroecology, fertilizer & soil health management for increased resilience to climate change and other emerging agricultural risks

The key function of CCARDESA in supporting this result area is *to promote co-operation, consultation and exchange of scientific and technical information on best practices in agricultural research and advisory services in the SADC region*. In the Southern Africa region, the predominantly rainfed agriculture sector is particularly vulnerable to climate change which presents significant challenges that worsen the already existing vulnerabilities, thereby affecting food security and livelihoods. Some of the documented major effects of climate change in the region include the steady decline in agricultural productivity particularly by smallholder farmers who fail to effectively adapt to climate change due to lack of requisite resources. Yield losses due to changes in timing and length of growing period have been observed.

Besides reduced productivity, climate change has also been linked to decreased nutrient content of a number of the staple crops such as maize, millets, rice, wheat, legumes, affecting their nutritional quality. Climate-related weather extremes, like heat waves, droughts, and floods, are becoming more common in Southern Africa, along with the increase in frequency and intensity of diseases and pests linked to the climate change, including zoonotic disease outbreaks affecting human health and agricultural productivity. As the temperatures continue to increase and the atmosphere warms, it is predicted that the climate-related weather extremes will occur more frequently and intensely, changing the production seasons, the pest and disease prevalence and changes in production and supply of food.

Given the increasing impacts of climate change on agriculture in the Region, it will be necessary to support research to develop adaptive strategies and resilient farming systems that can withstand extreme weather events and climatic variability. Integrated strategies that prioritize sustainable intensification, soil health improvement, improving water management and irrigation infrastructure, conserving biodiversity, enhancing crop resilience through breeding, promoting diversified and resilient crop and livestock systems, giving farmers access to climate-smart agricultural technologies, strengthening early warning systems for extreme weather events and enhancing the capacity of farmers to adapt to changing conditions are needed to mitigate the climate change effects.

Research into heat-resistant cultivars, drought-tolerant crops may all be part of efforts to address nutrient loss in staple crops caused by climate effects. In addition, strategies to support dietary diversity and address micronutrient deficiencies in vulnerable groups should also be included in efforts to improve food security and nutrition in the face of climate change. Preserving natural resources, promoting sustainable development, ensuring food security, and protecting livelihoods all depend on developing resilience to new agricultural threats.

Interventions in support of this result area will be guided by global, regional and national frameworks that guide and facilitate collaboration to address these emerging risks. Such frameworks include the SADC Climate Change Strategy and Action Plan, The African Union's Agenda 2063, the Africa Adaptation Initiative (AAI), Partnership for Aflatoxin Control in Africa (PACA), to name but a few.

The following outputs were identified in support of this immediate outcome:

a. **Output 5.1:** AR4D systems capacitated to support climate change mitigation and adaptation for resilience-building at regional and national level.
b. **Output 5.2:** AR4D systems capacitated to support sustainable management of natural resources at regional and national level.
c. **Output 5.3:** AR4D systems capacitated to support management of transboundary pests and disease in a sustainable manner at regional and national levels.
d. **Output 5.4**: Inclusive fertiliser and soil health management practices for resilient agri-food systems promoted.

7.8.6. Result Area 6
Use of improved agricultural digital solutions and agricultural information, communication and knowledge management systems by diverse CAARDESA stakeholders enhanced.

The key function of CCARDESA in support of this result area is *to facilitate the development of sustainable education, training and learning systems that contribute to farmer-oriented innovation and technology transfer systems for the region*. Knowledge and information management, along with communication strategies, play a vital role in agricultural research and innovation for development by facilitating knowledge sharing, capacity building, evidence-based decision-making, stakeholder collaboration, and adaptive management. Providing timely, relevant, and accessible

agricultural information and knowledge to stakeholders through various knowledge-sharing platforms enables stakeholders to make informed decisions and act. CCARDESA has developed an Information, Communication and Knowledge Management (ICKM) system which is widely used for sharing knowledge and information with various stakeholders in the Region and beyond.

With the use of digital technologies in agriculture gaining momentum, it is imperative that these be widely promoted to facilitate improved dissemination of research findings, best practices, and agricultural technologies to stakeholders across the region. Prioritizing communication and knowledge management facilitates the shift to agricultural transformation and strengthens the effectiveness, efficiency, and sustainability of agricultural interventions, ultimately contributing to improved livelihoods, food security, and environmental sustainability.

Policy support and advocacy are crucial for advancing agricultural research and development by providing strategic direction, mobilizing resources, coordinating efforts, facilitating technology transfer and adoption, building capacity, promoting stakeholder engagement, and ensuring evidence-based decision making. If national and regional policies are to be aligned to current developments, their development and review must be founded on evidence. With evidence-based policies, innovation, collaboration, and sustainable development in the agricultural sector will be fostered, ultimately contributing to improved food security and livelihoods, and environmental resilience.

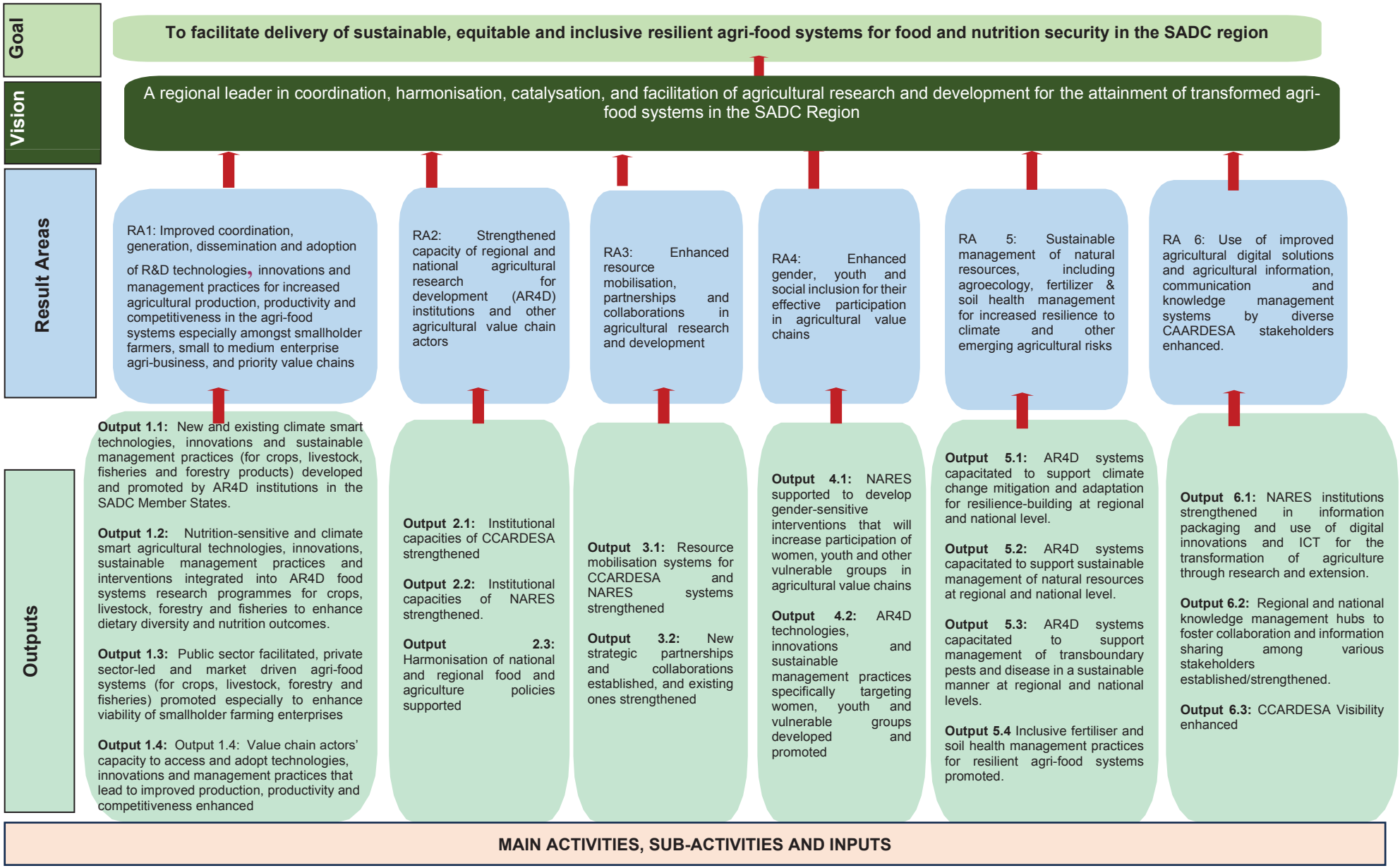
The following key outputs were identified under this immediate outcome:

a. **Output 6.1:** NARES institutions strengthened in information packaging and use of digital innovations and ICT for the transformation of agriculture through research and extension.
b. **Output 6.2:** Regional and national knowledge management hubs to foster collaboration and information sharing among various stakeholders established/strengthened.
c. **Output 6.3:** CCARDESA Visibility enhanced

7.9. Results Framework of CCARDESA

Deriving from the above, Figure 4 presents the Results Framework for CCARDESA's Revised Long-Term Strategic Plan (2020-2029).

Figure 4: Results Framework of CCARDESA's Revised Long-Term Strategic Plan (2020- 2029)



7.10. Theory of Change of CCARDESA

Based on the proposed CCARDESA Results Framework (Figure 4) and the alignment of CCARDESA's mandate to the global, continental and regional agricultural frameworks, a review of the current CCARDESA ToC showed that it remained valid as outlined in the LTSP. With minor adjustments, CCARDESA's ToC for the Revised LTSP 2020 – 2029 is shown in Figure 5.

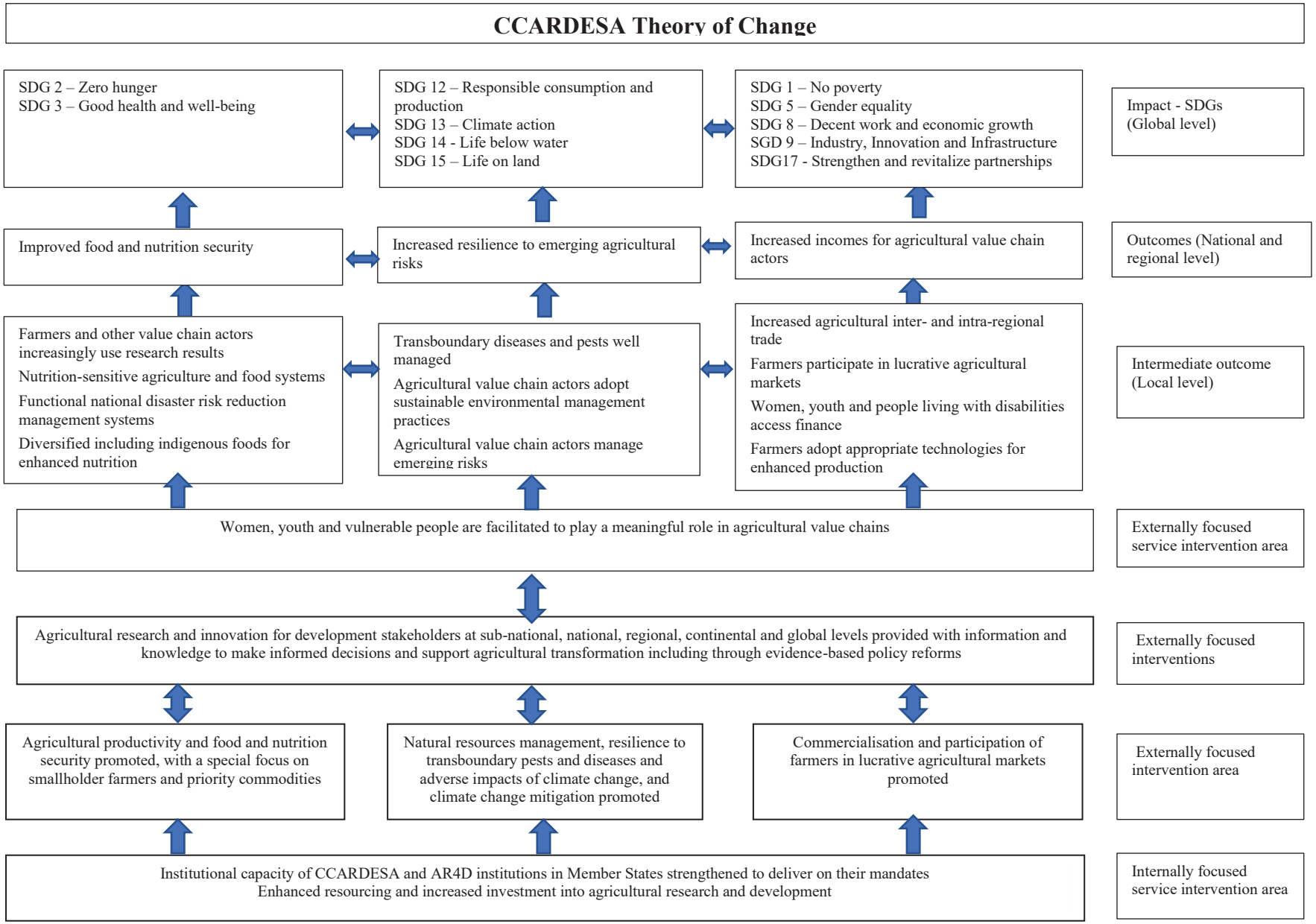
Delivery of the AR4D mandate is grounded on institutions with strong organisational and governance systems, sustainable funding mechanisms, strong networking, collaborative partnerships, strong outreach and advocacy, participatory regional and national agenda setting and strong programme management (planning, monitoring, evaluation and lessons learning). Adequate resourcing and investment into agricultural research and development is therefore paramount.

All programmes at regional and national level should be gender sensitive and inclusive of the need to increase the participation of youth in agricultural value chains and catering for the special needs of vulnerable groups such as people with disabilities and those living with HIV/AIDS. Women have always been the major player in the agriculture sector but remain unrecognised. Empowering women in the agriculture sector and recognising their important role has positive ripple effects in the economy including in enhancing food and nutrition security. Key among the enabling factors is improved information and knowledge sharing. CCARDESA and NARES will promote the use of existing information and knowledge management systems and digital and ICT applications to ensure that all agricultural value chain actors have adequate information for decision making and action.

As NARES increasingly deliver on their mandates, this will result in increased use of research results to improve agricultural productivity; management of natural resources, climate change and other emerging agricultural risks; increased regional trade and market access; and increased participation of women and youth in agricultural value chains. National and regional outcomes will include improved food and nutrition security, improved management of natural resources (land, water and biodiversity), increased resilience to climate change and other emerging risks and increased incomes for agricultural value chain actors, especially smallholder farmers.

Attainment of these outcomes will contribute to the global SDGs as shown in Theory of change in Figure 5, especially SDGs 1, 2, 5, 8, 9, 10, 12, 13, 14, 15 and 17. With specific refence to SGD 17, strengthening the means of implementation is vital and partnerships at all levels are key to achieving this objective. To this end, CCARDESA Secretariat aims to build effective partnerships with various organizations, starting with the SADC Secretariat through FANR Directorate, and extending to development partners, UN agencies, CGIAR institutions, NGOs, and farmer organizations. These partnerships are crucial for policy guidance, resource mobilization, access to new technologies, and strengthening national agricultural research systems (NARES) in SADC countries. CCARDESA will focus on joint delivery and capacity building at the national level while ensuring responsibilities are delegated to partners best suited for specific roles, with CCARDESA maintaining its focus on areas where it has competitive advantage.

Figure 5: Revised CARDESA's Theory of Change



PART IV: DELIVERY OF THE STRATEGY

This part outlines the strategy implementation modalities; the institutional arrangements required to drive and implement the strategy; the methods of tracking implementation of the strategy; and finally the resourcing requirements to implement the strategy.

8. STRATEGY IMPLEMENTATION MODALITIES

CCARDESA's plan for implementing the LTSP 2020-2029 in achieving its results areas / results areas has so far been focused on six thematic areas, namely:

a. Thematic Area 1: Agricultural productivity and food and nutrition security.
b. Thematic Area 2: Resilience to emerging agricultural risks: environmental, climate change and transboundary diseases and pests.
c. Thematic Area 3: Commercialisation of the agricultural sector and market access.
d. Thematic Area 4: Women, youth and social inclusion.
e. Thematic Area 5: Knowledge and information management, communication and policy support; and
f. Thematic Area 6: Capacity strengthening of CCARDESA and NARES.

In adopting the Results Based Management, this revised long-term strategic plan adopts a results-oriented approach to achieving CCARDESA's objectives. Consequently, the concept of thematic areas is considered as a way of implementing a group of outputs. By their nature, thematic areas are interlinked and intertwined such that they may each contribute to more than one result area. For brevity purposes, the old thematic areas have been aligned to the identified outputs for this revised long-term strategy (Table 2).

Table 2: Alignment of Thematic Areas and Strategy Outputs

Thematic Area	Outputs Implemented under each (See Chapter 5)
Thematic Area 1: Agricultural productivity and food and nutrition security	**Output 1.1:** New and existing climate smart technologies, innovations and sustainable management practices (for crops, livestock, fisheries and forestry products) developed and promoted by NARES in the SADC Member States. **Output 1.2:** Nutrition-sensitive and climate smart agricultural technologies, innovations, sustainable management practices and interventions integrated into AR4D food systems research programmes for crops, livestock, forestry and fisheries to enhance dietary diversity and nutrition outcomes. **Output 1.3:** Public sector facilitated, private sector-led and market driven agri-food systems (for crops, livestock, forestry and fisheries) promoted especially to enhance viability of smallholder farming enterprises **Output 1.4:** Value chain actors' capacity to access and adopt technologies, innovations and management practices that lead to improved production, productivity and competitiveness enhanced.
Thematic Area 3: Commercialisation of the agricultural sector and market access	
Thematic Area 2: Resilience to emerging agricultural risks: environmental, climate change and transboundary diseases and pests	**Output 5.1:** AR4D systems capacitated to support climate change mitigation and adaptation for resilience-building at regional and national level. **Output 5.2:** AR4D systems capacitated to support sustainable management of natural resources at regional and national level. **Output 5.3:** AR4D systems capacitated to support management of transboundary pests and disease in a sustainable manner at regional and national levels. **Output 5.4**: Inclusive fertiliser and soil health management practices for resilient agri-food systems promoted.
Thematic Area 4: Women, youth and social inclusion	**Output 4.1:** NARES supported to develop gender-sensitive interventions that will increase participation of women, youth and other vulnerable groups in agricultural value chains

Thematic Area	Outputs Implemented under each (See Chapter 5)
	Output 4.2: AR4D technologies, innovations and sustainable management practices specifically targeting women, youth and vulnerable groups developed and promoted.
Thematic Area 5: Knowledge and information management, communication and policy support	**Output 6.1:** NARES institutions strengthened in information packaging and use of digital innovations and ICT for the transformation of agriculture through research and extension. **Output 6.2:** Regional and national knowledge management hubs to foster collaboration and information sharing among various stakeholders established/strengthened. **Output 6.3:** CCARDESA Visibility enhanced.
Thematic Area 6: Capacity strengthening of CCARDESA and NARES	**Output 3.1:** Resource mobilisation systems for CCARDESA and NARES systems strengthened **Output 3.2:** New strategic partnerships and collaborations established, and existing ones strengthened **Output 2.1:** Institutional capacities of CCARDESA strengthened **Output 2.2:** Institutional capacities of NARES strengthened. **Output 2.3:** Harmonisation of national and regional food and agriculture policies supported

9. INSTITUTIONAL ARRANGEMENTS

9.1. Process of review

The process of review of the CCARDESA Long-Term Strategic Plan (2020-2029) organisational structure took into account suggestions and propositions made in the SADC Multi-country Agricultural Productivity Programme (MAPP) of 2008 which gave the rationale for the establishment of CCARDESA; the Governance Manual of CCARDESA of 2011 which set out the roles, responsibilities and decision-making processes of CCARDESA's governance institutions; the LTSP (2020-2029) which gave strategic guidance to achieving the objectives of CCARDESA; the concept note for the setting up of the CCARDESA Business Development Unit document of 2023; and the current (2024) existing operational organisational structure of CCARDESA.

In addition to these documents, the review also took into account and made comparisons with organisational structure frameworks of other Sub-regional organisations responsible for the coordination of agricultural research and related organisations.

9.2. Rationale, guiding principles

A set of guiding principles were applied in the review of the CCARDESA institutional arrangement with the view to structuring a revised organogram and establishment that would deliver the revised strategy. The following guiding principles were adopted:

1. Delivery of the CCARDESA programme must be efficient and effective using the leanest structure possible staffed by highly professional and experienced staff.
2. Minimisation of duplication of functions. Related functions should be consolidated for effective coordination and implementation.
3. While noting the importance of projects / programmes in implementing the CCARDESA agenda, a two-tier functional structure that incorporates core staff (long term) and project staff (project life cycle based) should be considered with the view to ensuring a lean but adaptable operational structure.
4. CCARDESA is not alone in the agricultural research and development arena and therefore to emulate effective sister organisational structures while acknowledging that their different mandates require different structures to fulfil each organisation's objectives.

5. Accountability of performance is critical for the attainment of the organisation's objectives. To this end, a sound structure should have in-built accountability towards the attainment of the organisation's objectives; and
6. Last but not least, the principle of 'form follows function' will be adopted in this review. This is a principle of design associated with late 19th- and early 20th-century architecture and industrial design in general, which states that the shape of a building or object (in this case, the CCARDESA organisational structure) should primarily relate to its intended function or purpose (CCARDESA's objectives and functions).

9.3. Objectives and functions of CCARDESA

The objectives and functions of CCARDESA remain valid today as they were at the time of its establishment in 2011 even taking into account emerging issues. Primarily, CCARDESA was established, as implied in its name, as a centre for the coordination of agricultural research and development in Southern Africa. To this effect, CCARDESA was mandated, overall, with the agricultural research and development agenda for the SADC Region. To achieve this overall mandate, several results areas were identified as in the previous section. The organisational / institutional structure of CCARDESA should therefore fulfil these functions.

The effective undertaking of the above functions requires that the CCARDESA be set up to deal with four groups of institutional activities, namely:

a. Governance function of the organisation.
b. Administrative functions of the organisation.
c. Technical functions of the organisation.
d. Resource mobilisation functions of the organisation

9.4. Governance Function of CCARDESA

As a Subsidiarity Organisation of SADC, CCARDESA has a legal status and capacity to operate as a semi-autonomous institution. The organisation therefore requires a structure that provides for the overall governance of the organisation to guide the execution / implementation of the region's agricultural research and development agenda. The CCARDESA General Assembly, the CCARDESA Board of Directors and the Executive Directors' Office serve to provide the overall governance function of the CCARDESA institution.

The Executive Office of the CCARDESA Secretariat is headed by the Executive Director supported by associated functions including legal; internal audit; planning, monitoring, evaluation and reporting; and strategic communications or public relations. In terms of the objectives of CCARDESA, the Executive Office, is accountable to the Board of Directors for the overall governance of the organisation and the overall achievement of all the five results areas of CCARDESA.

9.5. Administrative Functions of CCARDESA

As the executive arm of the CCARDESA institution, the CCARDESA Secretariat provides for the administrative functions of the organisation. In particular, these functions include the financing, human resources and administration of the organisation's affairs. These functions therefore call for a Finance and Human Resources Management unit.

9.6. Technical Functions of CCARDESA

The formulation of the organisational structure for the technical functions of CCARDESA are structured around the specific objectives that they will be accountable to. Table 3 proposes this revised formulation based on the result areas of CCARDESA.

Table 3: Proposed Programme Units for CCARDESA

CCARDESA's Results areas	Proposed CCARDESA Programme Units	Associated Thematic Area Coverage	Suggested Programme Coordination
Results area (RA)1: Improved agricultural technology generation, adoption and dissemination and competitiveness	**Research, Innovation & Development Unit**	Thematic Area No. 1: Agricultural Productivity and Food and Nutrition Security	Research, Agricultural Technologies and Innovation Coordinator
		Thematic Area No. 3: Commercialisation of the Agricultural Sector and Market Access	
Results area (RA)5: Sustainable management of natural resources and increased resilience to climate change and other emerging agricultural risks		Thematic Area No. 2: Resilience to emerging agricultural risks: Environmental, climate change and transboundary diseases and pests.	Climate change, environmental and social Safeguards Coordinator
Results area (RA)6: Improved exchange of agricultural information and knowledge management	**Policy Support, Information Communications & Knowledge Management Unit**	Thematic Area No. 5: Knowledge and Information Management, Communication and Policy Support	Knowledge Management, Communications and Policy Support Coordinator
Results area (RA)4: Enhanced gender, youth and social inclusion		Thematic Area No. 4: Women Empowerment, Youth and Social Inclusion	Markets, Trade and Gender Empowerment Coordinator
Results area (RA)2: Strengthened capacity of regional and national agricultural research for development (AR4D) institutions, farmers, and other agricultural value chain actors	**Resource Mobilisations and Partnerships Unit**	Thematic Area No. 6: Capacity strengthening of CCARDESA and NARES	Partnerships and Institutional Capacity Strengthening, Coordinator
Results area (RA)3: Improved Resource Mobilisation and Enhanced Partnerships in agricultural research and development			Resource Mobilisation Coordinator
Corporate Services			
RA1, RA2, RA3, RA4, RA5, RA6	**Corporate Services Unit**	TA1,TA2,TA3,TA4,TA5,TA6	Administration Finance Legal Procurement Monitoring and Evaluation Audit

Suggested roles and responsibilities for the above functions are as follows:

1. **Research, Innovation and Development Unit**

This unit primarily focuses on advancing the transformation of the agricultural sector within the region. It oversees innovations aimed at boosting agricultural productivity, sustainability, and resilience, thereby enhancing food security and livelihoods. The responsibilities include coordinating the execution of agricultural research and innovation for development initiatives, capacity building, conducting investigations into agricultural practices, technologies, and market trends to uncover opportunities for innovation and enhancement, as well as analysing and disseminating lessons learned and experiences from agricultural research and development systems in the region.

2. **Policy support, Information Communications and Knowledge Management Unit**

The unit will undertake the responsibility of developing and analysing policies, aiding in the formulation and evaluation of agricultural policies that foster research and innovation, while ensuring these policies are grounded in evidence and consistent with national and regional priorities. It will establish and uphold systems for the collection, organization, and dissemination of knowledge derived from research and development efforts, facilitating easy access for all stakeholders. Additionally, it will devise and execute thorough communication strategies to enhance awareness of the organization's research endeavours and policy initiatives and build capacity in identified gaps.

3. **Resource Mobilisation and Partnerships Unit**

The Unit is responsible for identification of funding opportunities. It will develop initiatives for investment, recognizing and obtaining financial resources from diverse sources; Developing and sustaining strategic alliances with relevant stakeholders; drafting persuasive funding proposals and grant applications that correspond with the organization's objectives and the interests of prospective funders; overseeing relationships with current and potential donors; training staff and partners on resource mobilization techniques and best practices to improve the organization's capacity to attract and manage resources.

4. **Corporate Services Unit**

The unit will be responsible for:

- Overseeing the execution of the Secretariat's human resources and administrative functions, including policies and procedures.
- Promoting dialogue and collaboration among stakeholders to ensure that a variety of perspectives are integrated into the policy development process.
- Monitoring and evaluation will involve assessing the effectiveness of research and innovation initiatives to confirm they are achieving their goals and contributing to agricultural development objectives.
- Finance is tasked with the comprehensive administration and execution of the Secretariat's financial operations, policies, and procedures.
- Procurement will be tasked with coordinating and execution of the Secretariat's procurement strategies.
- Audit will be responsible for facilitating audits.

9.7. Suggested Revised CCARDESA Organisational Structure

On the above basis and through consultations, the proposed CCARDESA organisational structure is as per Figure 6.

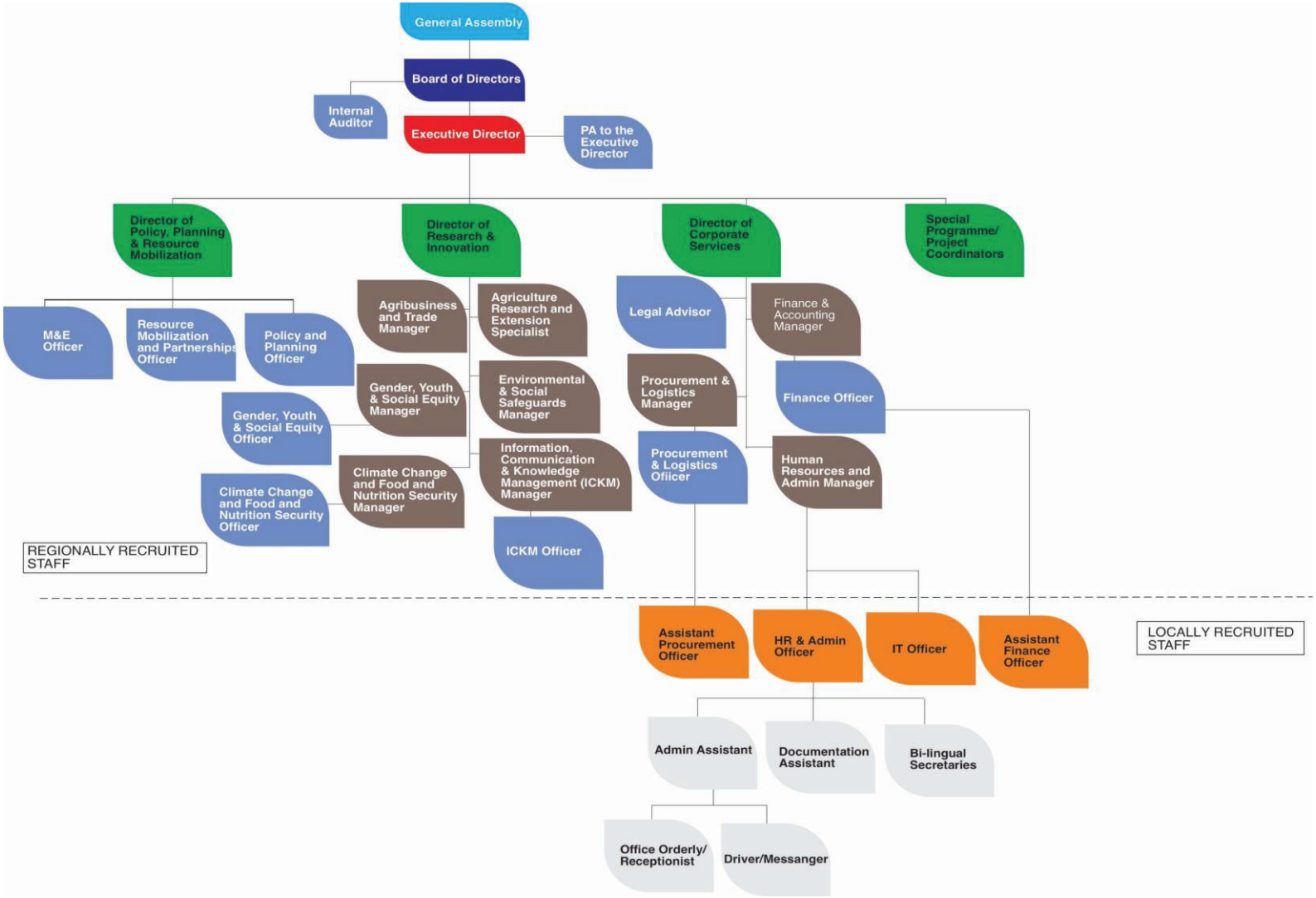


Figure 6: Proposed organisational structure of CCARDESA (2024 - 2029)

Table 4 compares the envisioned organisation structure in the SADC MAPP programme to the proposed organisational structure (Figure 6) of CCARDESA which took into account the proposed Business Development Unit structure. The original envisaged organisational structure for CCARDESA had an estimated full staff establishment of 18 staff to deliver on core and non-core functions. The proposed new structure has a staff establishment of 34 staff with core and non-core functions.

Table 4: Envisioned vs Current Organogram Structure of CCARDESA

Functions	Envisioned Organogram (SADC MAPP, 2008)	Proposed New Organogram for Revised Long-Term Strategic Plan (2025-2029)	
		Director and Managerial Post	Supported by
Executive Level	Director	Executive Director	
	Personal Assistant	Personal Assistant	
Programmes & Grants	Programmes & Grants manager	Director of Research and Innovation	
		Agriculture Research and Extension Specialist	
		Agribusiness and Trade Manager	
	Grants Management Assistant	Environmental and Environmental Safeguards Manager	
		Gender, Youth & Social Equity Manager	Gender, Youth & Social Equity Officer
		Information, Communication & Knowledge Management (ICKM) Manager	ICKM Officer
		Climate Change and Food and Nutrition Security Manager	Climate Change and Food and Nutrition Security Officer
M&E	M&E Coordinator	Director of Policy, Planning & Resource Mobilisation	M&E Officer
			Resource Mobilisation and Partnerships Officer
			Policy and Planning Officer
Finance & Administration	Finance & Administration Manager	Director of Corporate Services	
		Finance & Accounting Manager	Finance Officer
	Finance Officer		Assistant Finance Officer
	Documentation Assistant	Human Resources and Admin Manager	HR & Admin Officer
			Documentation Assistant
			Bi-lingual Secretaries
	Internal ICT Officer		IT Officer
	Administrative Assistant		Administration Assistant
			Office Orderly / Receptionist
	Cleaner / Orderly		
	Driver		Driver / Messenger
Procurement	Procurement Officer	Procurement & Logistics Manager	Procurement & Logistics Officer
			Assistant Procurement Officer
Legal	Legal Officer	Legal Advisor	
Audit	Internal Auditor	Note: Internal Auditor reports directly to the Board of Directors	
Thematic Programmes	Farmer Empowerment Thematic Coordinator	Special Programmes / Project Coordinators	

Functions	Envisioned Organogram (SADC MAPP, 2008)	Proposed New Organogram for Revised Long-Term Strategic Plan (2025-2029)	
		Director and Managerial Post	Supported by
	Research and Advisory Thematic Coordinator		
	Knowledge, Information and Communication Thematic Coordinator		
	Capacity Building Thematic Coordinator		
GRAND TOTAL	**18**	**34**	
NB: While the Special Programme / Project Coordinators group has been indicated in the Organogram [and is inclusive of other project staff positions, though counted in this establishment as one (1), it should be noted that in general, organisations do not include project staff in the Organogram as that complicates the organogram requiring frequent updates as projects start and end. Current project teams and their roles should rather be reflected using separate management tools that can be updated frequently as the projects start and end.			

9.8. Roles and Responsibilities

While the actual job descriptions will be elaborated on in the CCARDESA Governance Manual, the following are overall roles and responsibilities of selected key entities in the overall CCARDESA institutional framework.

9.8.1. The CCARDESA Secretariat

The CCARDESA Secretariat will lead and coordinate the implementation and review of the Revised Long-Term Strategic Plan (2024-2029). It will specifically:

a. Lead resource mobilization by coordinating efforts to secure funding from development partners, private sector, and civil society to finance the Strategic Plan's implementation.
b. Ensure staffing adequacy within the Secretariat to ensure sufficient capacity to execute the Strategic Plan effectively.
c. Regularly revise and update the operational plan to align with strategic goals and evolving circumstances.
d. Foster partnerships and collaboration with national NARES, other research bodies and private sector to enhance synergies and achieve the Strategic Plan objectives effectively.
e. Build organizational capacity through enhancement of the skills and capabilities of both the organization and staff of national NARES to enable successful implementation of the Strategic Plan.
f. Monitor and evaluate the impact and effectiveness of implementation of the Strategic Plan.

To ensure broader support, implementation of the proposed interventions in the strategic plan will be a collaborative effort involving relevant partners. The key institutions responsible for carrying out the activities outlined in the Strategic plan will have their roles and responsibilities outlined and allocated according to the principle of subsidiarity. In general, the following are some of the proposed key actors in the implementation of the CCARDESA agenda.

9.8.2. National NARES

The National NARES will:

a. Lead efforts to develop and advocate for adoption of agricultural technologies, innovations, and management practices at national and regional levels.

b. Take ownership of and sustain AR4D initiatives promoted by CCARDESA to ensure their successful implementation and continuity.
c. Collaborate with the CCARDESA Secretariat to jointly develop regional projects, mobilize resources, and oversee their implementation.
d. Engage actively in the Secretariat's regional AR4D agenda-setting meetings, training events and strategic workshops.
e. Document and share lessons and best practices with CCARDESA for regional dissemination

9.8.3. Stakeholders and partners in agricultural value chains

Stakeholders and partners in agricultural value chains, such as farmer organizations, financial institutions, civil society, and the private sector, are expected to:

a. Contribute to strategic planning, agenda setting, resource mobilization, and policy development, which are critical for guiding the overall direction and impact of agricultural research and development.
b. Engagement with stakeholders across different sectors of agriculture, promoting collaboration, sharing of knowledge, and fostering agribusiness transformation.
c. Managing and disseminating agricultural knowledge and innovations, ensuring that relevant information reaches stakeholders effectively and contributes to agricultural development.

9.8.4. International Cooperation Partners

The International cooperation partners and other continental, regional and sub-regional organisations in collaboration with the SADC Secretariat are expected to contribute to and facilitate:

a. Provision of institutional and technical support, focusing on supporting and building the capacity of NARES and stakeholders involved in agricultural research and development, thereby strengthening the foundation for effective implementation of initiatives.
b. Technical and financial resource mobilization and advocacy: advocating for allocation of adequate resources and their effective use in advancing CCARDESA's results areas at different levels.

9.8.5. Partnerships

Successful delivery of the Strategic Plan requires the CCARDESA Secretariat to build effective partnerships, first with the SADC Secretariat through the FANR Directorate, then with bilateral and multilateral development partners, private sector foundations, appropriate UN agencies, the CGIAR institutions, commodity networks, agri-business associations, regional NGOs, regional and continental farmers' organisations and continental and sub-regional research organisations (SROs) promoting agricultural research for development.

The partnership with SADC Secretariat is critical for policy guidance, technical support, joint planning and collaborative initiatives for resource mobilisation. The partnership with development partners and private sector foundations investing in agriculture is essential for technical support, linkages with complementary initiatives in the region and CCARDESA's financial sustainability. Through the partnership with development partners, the CCARDESA Secretariat will remain informed about pipeline resources and projects that it can tap into to support its work.

The partnership with global technical assistance institutions, UN agencies and the CGIAR system is crucial for access to new technologies and innovations, and cutting-edge approaches in agricultural research for development, including socio-economic impact evaluation of new technologies and innovations. Such partnerships will facilitate linkages between CCARDESA and national NARES in the SADC region, on the one hand, and global players in agricultural innovation and technology generation. These players can assist CCARDESA and national NARES to benefit from knowledge and skills transfer by accessing intellectual property on new technologies and innovations.

Collaborating with continental institutions such as FARA and SROs is essential for sharing information, lessons and joint planning for dealing with global issues such as climate change. In addition, this level of partnership will be used to share expertise as a cost minimisation strategy and development of joint project proposals.

Building of strategic partnerships with organisations within the mandate countries of CCARDESA will be essential for promoting joint delivery with national NARES, the private sector, farmer organisations, commodity networks, NGOs and any other organisations within the agricultural sectors of SADC countries. The impact of CCARDESA will be visible at national level, where the organisation will be strengthening the capacities of NARES to deliver services to the final target groups: farmers, input suppliers, marketing agents, processors, and other actors in the targeted agricultural value-chains. This partnership is crucial for dialogue, strategic planning, establishment of priority needs and the actual implementation of projects and programmes of CCARDESA. National NARES that have been identified as centres of excellence will be important in extending capacity building support to their weaker counterparts.

Joint tracking and review of progress will be done with all partners. In addition, CCARDESA will facilitate learning among the stakeholders.

In forging the partnerships, CCARDESA will ensure that responsibility for actions is delegated to the partners best placed to play this role. CCARDESA's role will remain within the areas and at levels of its competitive advantage.

9.8.6. Regional Projects

Through carefully selected regional projects, jointly developed and implemented with funding and technical cooperation partners, CCARDESA will serve as an entry point for coordinated support to national NARES. Development partners will sponsor parts of the strategic plan and request CCARDESA to coordinate and work with country-level implementing partners to deliver the solutions

10. TRACKING IMPLEMENTATION AND RISK MANAGEMENT

10.1. Monitoring, Evaluation and Reporting

Deriving from the Results Framework, MTOP III will outline the Monitoring, Evaluation, Reporting and Learning (MERL) system for this revised long-term strategy.

10.2. Risk Management

Risk management is regarded as an integral part of good management practice and the provision of a safe workplace environment. The organisation's risk management philosophy seeks to periodically identify, assess and manage risks which may prevent the achievement of strategic goals and objectives. The philosophy seeks to integrate risk management into

organisational culture, decision-making processes, programs, practices, business planning and performance reporting activities.

More recently, and through risk-informed development principles, it has also become important to manage the risk, generally unintended, caused by the outcomes and outputs deriving from the organisation's implementation of its objectives. What may be good results produced by an organisation may have unintended consequences. It is this risk that organisations must also take into account in their risk management practices. Resultantly, risk management should be concerned with ***risk to*** achieving the organisation's objectives and ***risk from*** the attainment of the organisation's objectives.

The organisation uses the risk matrix to prioritize different risks and develop appropriate mitigation strategies. The risk matrix is based on two intersecting factors, the likelihood (probability) that the risk event will occur and the **potential impact (severity)** the risk event will have on the organisation or on the recipients in the case of unintended risks emanating from the attainment of the organisation's objectives. Depending on likelihood and severity, risks are categorized as:

- **Extreme** which required **i**mmediate action to actively manage risk and limit exposure and therefore a matter requiring that it be escalated to the Board;
- **High** which requires cost-benefit analysis to assess the extent to which the risk should be treated / monitored to ensure the risk does not adversely change over time. Such risks are generally escalated to head of the organization;
- **Medium** which requires constant / regular monitoring to ensure risk exposure is managed effectively, disruptions are minimized, and outcomes are monitored. This level of risk should be escalate to relevant senior management level; and
- **Low** risks are generally effectively managed through routine procedures and appropriate internal controls. This is done at the relevant officer or operational level

Table 5 presents the risk to attaining CCARDESA's objectives, the likelihood of occurrence of that risk, its potential impact, the mitigation measures, residual risk and risk owner responsible for managing this risk. Table 6 depicts the types of risks likely to arise from CCARDESA achieving its outcomes, the potential impact, the mitigation measures and residual risk.

Table 5: Risk Matrix (Risk to CCARDESA attaining its objectives)

Category	Risk	Likelihood	Impact Description	Impact Level	Risk Response (to mitigate)	Residual Risk Level (after response)	Risk Owner
SADC Member States	Macro-economic challenges affect continuity of funding from Member States	Medium	Inability to fully implement the Strategic Plan and sustain critical administrative staff and services	High	Strong value proposition and continuous engagement at senior political levels.	Low	Chairperson of the Board of Directors
	Political instability in Member States	Medium	Non-participation of affected Member States in CCARDESA regional programmes	Medium	Promote multi-country AR4D programmes to spread risk and reduce impact.	Low	Executive Director
SADC Secretariat including the Council of Ministers	Competing Needs and lack of Funding to support Agric Research and Development Mandate	Medium	Inability to fully implement the Strategic Plan and sustain critical administrative staff and services	High	Strong value proposition and continuous engagement at senior political levels.	Low	Executive Director
Continental level including from Institutions such as African Union , FARA and sister Organisations	Convergence in work and areas of interest	Medium		Medium	Increased regional partnerships and engagement towards collaborative action	Low	Executive Director
	Increased Competition for funding from ICPs	Medium	inability to fully implement the Strategic Plan and sustain critical administrative staff and services	Medium	Increased regional partnerships and engagement towards collaborative action	Low	Executive Director
Development Partners and Donors	Uncertain financial support from	High	Inability to fully implement the Strategic Plan	High	Strong documentation and messaging on impacts achieved by CCARDESA.	Medium	Executive Director

Category	Risk	Likelihood	Impact Description	Impact Level	Risk Response (to mitigate)	Residual Risk Level (after response)	Risk Owner
	development partners						
AR4D Collaborative partnerships	Impact of agricultural AR4D under scrutiny	Medium	Inability to mobilise financial resources for research	Medium	Effective communication of AR4D value added to impact delivery.	Low	Executive Director
Technical level	New technologies and innovations proving more difficult or costly to develop than anticipated	Medium	Fewer technologies and innovations generated	Medium	Capacity development of researchers and research managers on how to improve value-for-money through better management of research programmes	Low	Managers of research institutions and programmes
Operational Level including resource mobilisation and value for money	High transaction costs of implementing regional collaboration projects	Medium	Inability to fully implement the Strategic Plan	Medium	Effective communication of value-added of regional approaches to achieve impact and agricultural transformation.	Low	Executive Director
	Limited bankable project proposal development capacity resulting in poor funding	High	Inability to mobilise financial resources for research	High	Increased Resource Mobilisation Efforts and Collaborations	Medium	Executive Director

Table 6: Risk Matrix (Risk from CCARDESA achieving its objectives)

Category	Risk	Likelihood	Impact Description	Impact Level	Risk Response (to mitigate)	Residual Risk Level (after response)	Risk Owner
Coordinated Agricultural research and development in the SADC.	Social and environmental externalities including impact on soil health, displacement of communities and environmental pollution	Medium	Externalities may harm natural and traditional norms of target communities including displacement, impact on natural environment, impact of fertilisers, mechanical equipment etc	Low	Engagement with Local communities, impact assessments, compensation and restoration	Low	Executive Director
	Erosion of culture through abandonment / extension of indigenous ways of doing things (e.g. OPVs, technology, fertilisers)		Loss of cultural ways of agriculture		Agroecology / promote both hybrids and OPVs		
	Technologies that continue to grow the divide between smallholder farmers and commercial farming						
Improved exchange of information and technology among SADC Member States.	Negative externalities on National ICT industries and innovations	Low	Impact of imported technologies on local ICT industry, technological advancements, innovations, employment, research and development agendas.	Low	Engagement, partnerships and Collaboration with local ICT industry to avoid skill importation and increase support capacity of imported technologies	Low	Project Coordinators
Enhanced partnerships in agricultural research and development.	National importation of research and development practices that may have negative impact	Low	Diluted and divergence in areas on MS research priorities and strategies	Low	Engagement, partnerships and Collaboration with NARES and MS stakeholders	Low	Executive Director

Category	Risk	Likelihood	Impact Description	Impact Level	Risk Response (to mitigate)	Residual Risk Level (after response)	Risk Owner
	on national values, agenda and priorities						
	Partnerships resulting in loss of funding / name – outcompeting CCARDESA to get funding, e.g. funding						
	Working with Focal Point persons stands to benefit but without benefiting them fairly						
Improved agricultural technology generation, dissemination and adoption.	National importation of TIMPS that may have negative impact on environmental and socio-economic wellbeing of communities	Medium	Risk of compromised health, social and environmental factors from externalities from adopted TIMPS that may arise post project implementation	High	Conduct Baseline studies and Continued Monitoring and impact assessments of projects post implementation period	Medium	Project Coordinators
	Increasing area planted as a result of improved production means taking away more land for agriculture				EP		
Enhanced resources for agricultural research and development mobilised.	Unintended importation of external parties' agendas through Research and development funding that may have unintended consequences on the social and moral fabric of target communities	High	Divergence in MS Research priorities, increased donor dependency and inheritance of external parties' agendas	High	Negotiated Financing Agreements that ensure that Research priorities and National Agendas are strengthened, and externalities of donor aid are minimised	Medium	Project Coordinators
	Loss of own agenda in preference to the source of funding – prioritisation of the agenda will be				Share priority and promote our value proposition , i,e, the value CCARDESA brings to the other party		

Category	Risk	Likelihood	Impact Description	Impact Level	Risk Response (to mitigate)	Residual Risk Level (after response)	Risk Owner
	screwed to funding agents						
	Strings attached to the agenda, e.g. inclusiveness that do not resonate with cultural norms – destroying the moral fabric						
	Resources from sources that want to promote compromised solutions e.g. GMO crops				Employ effectively international commitments on fairness and use of local resources, conservation of diversity.		

11. RESOURCE MOBILISATION

CCARDESA developed its Resource Mobilisation Strategy and Action Plan (RMS&AP) (2021-2025) to steer efforts to boost revenue generation both internally and externally. The main goal of this strategy is *to ensure adequate, sustainable, and predictable / reliable funding to cover the budget and other resources required to effectively and efficiently implement the MTOP.* Key among the challenges identified in the Final Draft Resource Mobilisation Overall Report validated in February 2023 that this resource mobilisation strategy needed to address included:

a. Inadequate skills and experience in resource mobilisation among most CCARDESA staff requiring therefore skilled and experienced staff members in resource mobilisation in addition to their technical skills;
b. Difficulties in translating thematic activities in the MTOP into projects as their presentation in the MTOP and LTSP did not make it easy to group or cluster the various activities into projects that can be formulated for which funding can be sought. It is partly this and the need to be standardised that the RBM approach has been emphasised in this revised LTSP to allow for clustering of outputs for which bankable projects can be realised. The risk noted in the pervious chapter to developing bankable projects that can attract funding makes reference to this challenge.
c. Considering that most funding partners would prefer project/programme based funding as opposed to institutional strategy funding, it is important that planned activities and outputs for each outcome be well articulated in a way that would briefly describe a project/programme intervention from which monitoring and impact indicators and ways to measure them could easily be implied and therefore the assurance of value for money to the resource provider.
d. Lack of tracking of project/programme impacts and/or outcomes was also considered a major challenge with the current CCARDESA's programmes with respect to resource mobilisation. "The importance of evidence of the impacts of donor funded activities on the targeted beneficiaries in marketing the organisation's ability to effectively and efficiently apply donated resources cannot be over-emphasised. Yet, there is limited record of these within CCARDESA documents. The Annual Report in which one would expect such information merely describes activities undertaken and sometimes outputs that were achieved and rarely articulates impacts and outcomes. These need to be well articulated on an annual basis and should reflect in the institutional profile which will almost always serve as an introductory section of any concept note and/or project proposal for seeking funding" (CCARDESA, 2023, Final Draft Resource Mobilisation Overall Report).
e. Competition from CGIAR and Other Institutions is also a threat to resource mobilisation efforts by CCARDESA. "The threat from competition from CGIAR centres and other continent based R4D organisations especially FARA, ASARECA and CORAF is real and innovative measures such as learning their development of their strategic plans, M&E systems that are able to monitor implementation of activities and beneficiary impacts, and taking an active role in seeking collaborative programmes rather than being the passive partner all the time will need to be done" (CCARDESA, 2023, Final Draft Resource Mobilisation Overall Report).
f. There is a perception of exaggerated level of funding and collaborating partnerships that CCARDESA poses, according the resource mobilisation report of 2023. "The CCARDESA website lists a myriad of funding and collaborating partnerships most of which it is not clear what kind of the partnerships exist between these institutions and CCARDESA. Of the ten listed funding partners, only five are involved in the five programmes that CCARDESA is currently running as listed on the website. Similarly, collaborating partnerships are only obvious, from review of documents and interviews with staff, with five out of 29 listed. It is understood some of these partnerships could have been active in the past but what does not help matters is that the briefs about each of these partners merely contain what they do

as may be found on their websites and does not stipulate the kind of existing partnerships with CCARDESA. The threat with this scenario, if most of these partnerships do not exist, is that it points a wrong picture for potential partners who may think CCARDESA is already saturated with partnerships" (CCARDESA, 2023, Final Draft Resource Mobilisation Overall Report).

g. Persistently Vacant Senior Positions in CCARDESA tend to lead to slow implementation of projects due to available staff being involved in many other activities which result in slow burn rates and premature project closures and loss of funding (CCARDESA, 2023, Final Draft Resource Mobilisation Overall Report).

The existing resource mobilisation strategy will be used to resource this revised long-term strategic (2020-2029).

ANNEXES

Annex 1: Glossary of Terms

Agricultural extension. Agricultural extension is the application of scientific research and new knowledge to agricultural practices through farmer education.

Agricultural innovation system (AIS): The AIS has been formally defined as a network of actors or organizations, and individuals, together with supporting institutions and policies in the agricultural and related sectors, that brings existing or new products, processes, and forms of organization into social and economic use

Agricultural research and development. Agricultural research and development (AR&D) is broadly defined to include research and development (R&D) on plants and animals used in agricultural production (including crops, livestock, aquaculture, and forestry), the natural resources that are used or affected by agriculture production; and production systems and their support. Agricultural research and development refers to the process of generating new knowledge and innovations in agriculture, as well as the application of this knowledge to improve agricultural practices, systems, and outcomes. The term R&D covers three types of activity:

- basic research: experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.
- applied research: original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective.
- experimental development: systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes (Galindo-Rueda, F. and V. López-Bassols (2022)

R&D efforts in agriculture often involve collaborations between researchers, government agencies, private sector entities, and other stakeholders to address challenges and capitalize on opportunities in the agricultural sector.

Agricultural research. Agricultural research involves systematic investigation, experimentation, and study aimed at improving various aspects of agriculture. This may include enhancing crop yield and quality, developing new agricultural technologies and practices, improving livestock and fisheries health and productivity, improved forestry practices and productivity, and addressing environmental sustainability in agricultural systems.

Agriculture. Agriculture is the science, art, and practice of cultivating plants and raising animals for food, fibre, fuel, and other products to sustain and enhance human life. It encompasses a wide range of activities including crop cultivation, livestock rearing, forestry[7], fisheries[8], and related activities.

Agricultural **Innovation** as defined by FAO is the process whereby individuals or organizations bring new or existing products, processes or ways of organization into use for the first time in a specific context in order to increase effectiveness, competitiveness, resilience to shocks or environmental sustainability and thereby contribute to food security and nutrition, economic development or sustainable natural resource management.

[7] Forestry will include apiculture

[8] Fisheries includes marine, inland fisheries and aquaculture, [3] Wikipedia

Agricultural research and innovation for development (AR4D). Agricultural research for development (AR4D) focuses specifically on research activities that contribute to the sustainable development of agriculture and rural communities. This approach emphasizes not only generating scientific knowledge but also ensuring that research findings are effectively applied to address the needs and priorities of farmers, communities, and broader development goals. AR4D initiatives often incorporate elements of participatory research, technology transfer, capacity building, and stakeholder engagement to achieve meaningful and lasting impacts in agricultural development.

Agricultural technology. Agricultural technology or agrotechnology is the use of technology in agriculture, horticulture, and aquaculture with the aim of improving yield, efficiency, and profitability in crops, livestock, fisheries, and forestry. Agricultural technology can be products, services or applications derived from agriculture that improve various input/output processes[3].

Climate change. Refers to the change of climate which is attributed directly to human activity that alter the composition of the global green housegreenhouse gas concentration in the atmosphere resulting in interference with climate system, as a result of global warming that raises the global average temperature.

Development. Development refers to the process of growth, advancement, or progress, often with the goal of improving living standards, well-being, and opportunities for individuals and communities. It encompasses economic, social, political, environmental, and cultural dimensions, and can involve various strategies and interventions aimed at achieving sustainable improvements in areas such as infrastructure, education, healthcare, governance, and environmental conservation. **Agricultural development** means development that is primarily aimed at production or an increase in production of agricultural goods. **Rural development** is oriented more toward benefiting primarily the poor. Thus, the fundamental distinction between pure agriculture development and rural development is the emphasis on capital development for the former and human capital development for the latter.

Digital platforms: Digital platforms are information and communication technology-enabled mechanisms that connect and integrate producers and users in online environments. They often form an ecosystem in which goods and services are requested, developed and sold, and data generated and exchanged (OECD/Eurostat (2018).

Digital-based innovations - Digital-based innovations include product or business process innovations that contain ICTs, as well as innovations that rely to a significant degree on information and communication technologies (ICTs) for their development or implementation (OECD/Eurostat (2018)

Digitalisation: Digitalisation is the application or increase in use of digital technologies by an organisation, industry, country, etc. It refers to how digitisation affects the economy or society (OECD/Eurostat (2018).

Dissemination of technology. Dissemination of technology is a process of transforming the knowledge, skills and attitudes of farmers with the aim to enhance their farm productivity, production and profitability. Dissemination of technological innovations is normally done through personal contact method, group contact method and mass contact method by using result and method demonstration methods.

Food and Nutrition Security. As defined by the United Nations System Standing Committee on Nutrition, “Food and nutrition security exists when all people at all times have physical, social and economic access to food, which is consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life”.

Food systems: These are defined as the entire range of activities involved in the production, processing, marketing, consumption and disposal of goods that originate from agriculture, forestry or fisheries, including the inputs needed and the outputs generated at each of these steps [and also involving] the people and institutions that initiate or inhibit change in the system as well as the sociopolitical, economic and technological environment in which these activities take place (FAO, 2013)

Information. Information refers to data that has been organized, processed, or presented in a meaningful context, typically with the purpose of conveying knowledge, facts, or instructions. Information can take various forms, including text, images, audio, and video, and is essential for communication, decision-making, problem-solving, and numerous other activities in both personal and professional contexts.

Knowledge management. Knowledge management is the co-ordination of all activities by an organisation to direct, control, capture, use, and share knowledge within and outside its boundaries (OECD/Eurostat (2018). It involves the systematic processes and strategies used to identify, capture, store, organize, package, share, and leverage knowledge assets within an organization or community. It encompasses activities such as knowledge creation, acquisition, dissemination, and utilization, with the goal of enhancing organizational learning, innovation, and performance. Knowledge management may involve the use of technology, tools, policies, and practices to facilitate the effective management and utilization of knowledge resources.

Knowledge products. Knowledge products are tangible or intangible outputs that result from the creation, synthesis, or dissemination of knowledge. These products can take various forms, including research reports, policy briefs, databases, software tools, training materials, publications, and multimedia resources. Knowledge products are designed to communicate contextualised information, insights, and expertise to specific audiences, with the aim of informing decision-making, fostering learning, and contributing to the advancement of knowledge and understanding in a particular field or domain.

National Agricultural Research Systems (NARES) primarily focus on agricultural research activities and typically include research institutions, agricultural universities, and other organizations conducting agricultural research within a country.

National Agricultural Research and Extension Systems (NARES) are broader in scope - they include both research and extension services. Extension services are the practical outreach component that helps transfer research findings and technologies to farmers and other end-users. NARES therefore encompass not just research institutions but also the extension workers and organizations that help disseminate and implement research findings at the farm level. So while NARES concentrates on research generation, NARES adds the crucial component of research dissemination and practical application through extension services.

Technology: Technology refers to the state of knowledge on how to convert resources into outputs. This includes the practical use and application to business processes or products of technical methods, systems, devices, skills and practices (OECD/Eurostat (2018).

Annex 2: Ranked Agricultural Research and Development Priorities of SADC

Table 7: Main research gaps and key research questions for the crops sector in SADC.

Ranking	Research Gap (area)	Key research questions or topics
1	Availability of quality and improved seeds (Breeding)	1. Breed crop varieties through market demand-led needs 2. Breeding for Biofortified and hybrid (millet) varieties with high yielding traits 3. Breeding programs for pest and disease resistant varieties 4. Breeding and multiplication of underutilized indigenous food plants 5. Breed varieties tolerant to drought and heat
2	Pests and diseases	1. Conduct studies to understand pest and disease dynamics in relation to climate change. 2. Determine Integrated Pest Management practices packages suitable for specific environmental conditions and specific plants to improve crop production
3	Soil fertility and water management	1. Identify and evaluate appropriate fertilizer (inorganic and organic) application rates. 2. Conduct studies on the best agro-ecology (agroforestry) systems 3. Identify water-use efficient systems
4	Impacts of Climate variation on crop production	1. Study the effect of climate variation on the production performance of specific crops. 2. Develop early warning systems to support farmers to deal with effect of climate variation
5	Market access	1. Determine barriers to market access and low regional trade in agricultural products. 2. Determine most effective models for increasing market access and regional trade in agricultural products
6	Limited farmers' knowledge (Capacity building)	1. Identify barriers to knowledge and technology transfer between researchers and farmers. 2. Identify farmers' capacity needs and gaps. 3. Identify effective mechanisms for knowledge dissemination and capacity building.
Source: CCARDESA Research and Development Priorities in Key Agricultural Commodities in Southern Africa. October 2023		

Table 8: Main research gaps and key research questions for the livestock sector in SADC.

Research Topic Rank	Research Area			
	Animal Breeding	Pests and Disease Control	Animal Feeding & Nutrition	Marketing
1	Characterization, evaluation, and selection of indigenous livestock breeds	Improvement of diagnostic tools for livestock diseases	Evaluation of nutritive values of feed resources available in the region (including agricultural by products)	Evaluation of low levels of inter-regional trade
2	Breeding of selected breeds (crossbreeding: both natural, Artificial Insemination (AI) or Embryo transfer)	Development of early warning systems & biological control methods for livestock pests	Formulation of feed for optimum production	
3	Monitoring & evaluation of production indices		Improvement of rangelands through introduction of leguminous & grass species	
4	Development & evaluation of composite/suitable breeds for the region			
Source: CCARDESA Research and Development Priorities in Key Agricultural Commodities in Southern Africa. October 2023				

Table 9: Main research gaps and key research questions for the fisheries sector in SADC.

Research Topic Rank	Research Area Rank 1	Research Area Rank 2	Research Area Rank 3	Research Area Rank 4	Research Area Rank 5
	Overfishing and overcapacity	**Multispecies nature of fisheries in SADC**	**Water pollution**	**Limited access to markets**	**Invasive species**
1	Stock assessment studies	Stock assessments	Marine / freshwater Spatial Planning (MSP) / zonation	Assessment for improved fish quality, marketing & distribution networks	Impacts of invasive species on biodiversity, economy & livelihoods
2	Alternative livelihoods e.g., water-based aquaculture	Organization of Fishing and trading in different fisheries	Water body Carrying capacity for fish and aquatic plants	Value addition of fish and fishery products	Alternative use of invasive species
3	Value addition of fish and fishery products	Catch Assessments	Environmental and social Impact assessments	Certification and eco-labelling of fish and fishery products	
Source: CCARDESA Research and Development Priorities in Key Agricultural Commodities in Southern Africa. October 2023					

Table 10: Main research gaps and key research questions for the aquaculture sector in SADC.

Research Topic Rank	Research Area Rank 1	Research Area Rank 2	Research Area Rank 3	Research Area Rank 4	Research Area Rank 5
	Feed and Nutrition	**Breeding and reproduction**	**Fish disease and biosecurity**	**Climate change**	**Introductions / translocation**
1	Alternative sources of protein in fish feed	Genetic improvement programmes – growth and nutrition indices	Studies on fish diseases and risk management	Impacts of climate change on aquatic biodiversity	Genetic Improvement Programme
2	Cost – benefit analysis of feeding regimes in different production systems	In situ conservation of the indigenous fish species (MPA) or in situ gene banks	Mapping / zonation	Resilience and adaptation studies	Mapping and impact assessment
3			Biosecurity studies on cultured fish species	New culturable aquatic species (temperature and pollution)	Alternative uses of invasive species
4			Genetic Improvement Programmes for disease resistance		
Source: CCARDESA Research and Development Priorities in Key Agricultural Commodities in Southern Africa. October 2023					

Table 11: Main research gaps and key research questions for the forestry sector in SADC.

Research Topic Rank	Research Area	Research Questions
1	Non-Timber Forest Products	1. What is the NTFPs resource base (resource surveys, mapping)? 2. What are the economic and the flow values of the products harvested? 3. What is the rate of extraction (and regeneration stock)? 4. What are the Threats of the NTFPs? 5. What are the opportunities for domestication? 6. What are available Methodologies and Protocols (Stock Mapping? 7. What are the Flowering and Fruiting Periods (PHENOLOGY) of the different Species and Subspecies?
2	Agroforestry	1. What are the existing appropriate agroforestry practices and technologies for smallholder farmers (traditional and contemporary technologies)? 2. What are the suitable fodder tree species and management practices/technologies for livestock production? 3. What are the relevant multipurpose tree species for apiculture and aquaculture? 4. What are the suitable tree species and management practices/technologies for soil restoration (fertility, etc.), and crop production? 5. What are the appropriate models that can be co-created/co-produced and implemented that integrate trees, crops, animals, aquaculture, and apiculture to enhance ecosystem sustainability and community livelihoods?
3	Plantation forests	1. What are the current management challenges and potential solutions to existing plantations? 2. What are current investment and potential capacities/levels in new plantations? 3. What is the status (quantity, value, etc.) of the existing plantation resources (government parastatal, private, and community)?
4	Sustainable Forest Management: Carbon Trading and Storage	1. What are the forest Carbon credit and market/ carbon trading protocols especially in the following: a. Research in quantification of Carbon sequestration and storage; allometric & growth models for different vegetation types or landscapes. b. Emission factors, negotiating agreements, Structuring benefit sharing mechanisms (skills, capacity, business growth, etc.)
Source: CCARDESA Research and Development Priorities in Key Agricultural Commodities in Southern Africa. October 2023		

Table 12: Priority areas of investment in research and development and learning in cross-cutting issues

#	Research Area	Research Questions
1	Knowledge, Technology, and Innovation Systems	1. How can SADC members sustainably increase public investment in research and development, technology, and extension? 2. What are the constraints to private sector investments in Research and Development, Technology and Extension? 3. How can we effectively utilize Indigenous Knowledge systems and technology in the region? 4. Develop an inventory and create a database of available technologies, innovations and best practices for adoption at scale.
2	Infrastructure Development	1. What are the critical infrastructure investments required in the region to sustainably operationalize the AfCFTA? 2. What are the policies and financing modalities required to support infrastructure development in the region to facilitate regional integration and trade under AfCFTA?
3	Marketing and Trade Development	1. What policy frameworks and regional cooperation mechanisms are necessary to promote the development of regional value chains based on countries' comparative advantages? 2. Conduct a mapping exercise of SADC countries' comparative advantage in various value chains to contribute to the domestication and operationalization of the AfCFTA in the region
4	Finance and Credit	1. What are the policies and investments required to sustainably harness and increase private sector financing in agriculture, forestry, and fisheries sectors in the region? 2. What are the best practices for financing regional initiatives and commitments?
5	Environment and Climate Change	1. How does the region enhance its capacity to develop a pipeline of bankable climate finance projects?

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#	Research Area	Research Questions
		2. What needs to be done to increase the adoption of climate-smart practices and investments in the region? 3. Make an inventory of coping strategies that are increasing household resilience to shocks and how these strategies can be supported and scaled up in the region. 4. What are the policies and strategies for boosting local investments in climate action?
Source: CCARDESA Research and Development Priorities in Key Agricultural Commodities in Southern Africa. October 2023		

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