

TERMS OF REFERENCE

ASSESSMENT OF DIGITALISATION IN THE AGRICULTURAL SYSTEMS OF THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC) REGION

A. BACKGROUND

The important role of science and technology in agricultural development is extensively acknowledged in a number of regional and continental policy frameworks namely; the 2003 Dar-es-Salaam Declaration on Agriculture and Food Security, the revised SADC's Regional Indicative Strategic Development Plan (RISDP) 2015 – 2020, the Comprehensive Africa Agriculture Development Programme (CAADP) of the New Partnership for Africa's Development (NEPAD), the Science Agenda for African Agriculture (S3A) the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods and others. The SADC Regional Agricultural Policy (SADC-RAP) has assigned research-related responsibilities to the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) and some other key players.

The Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA), is a Sub Regional Organisation (SRO) which was approved in 2010 by the Council of Ministers of the Southern African Development Community (SADC) and launched in 2011 to coordinate and facilitate agricultural research and development in the SADC region. CCARDESA's mission is to promote innovative research, technology generation and adoption for sustainable agricultural development through effective partnership and capacity building. Development of programmes that address the challenges of the region is a key mandate of CCARDESA. Among the Agricultural Research for Development (AR4D) programmes being coordinated by CCARDESA is the Agricultural Productivity Programme for Southern Africa (APPSA) - a regional project supported by the World Bank to promote regional collaboration and put in place mechanisms to encourage technology generation and dissemination across national borders of participating countries in the SADC region. APPSA has a World Bank - IDA grant component for CCARDESA. Through this grant, CCARDESA in collaboration with the Food, Agriculture, and Natural Resources (FANR) Directorate of the SADC Secretariat wishes to undertake a situation analysis of the status of digitalization in the agricultural systems of the SADC Region and assist CCARDESA/SADC to establish digital platforms for networking. As stipulated in the 2018-19 CTA Report "The Digitalisation of African Agriculture Report", Digitalisation for agriculture implies the use of digital technologies, innovations, and data to transform business models and practices across the agricultural value chain and address bottlenecks in, inter alia, productivity, postharvest handling, market access, finance, and supply chain management so as to achieve greater income for smallholder farmers, improve food and nutrition security, build climate resilience and expand inclusion of youth and women.

B. JUSTIFICATION

The agriculture sector is in dire need of innovative solutions to help tackle challenges of food security, hunger, inclusiveness and sustainability at national, regional and international levels. One identified approach is through digitalization. Although the agricultural systems have undergone changes that have increased efficiency and profitability, they are still lagging in terms of digitalization that could play an increasingly important role in achieving the global goal of improving food security and rural livelihoods. The importance that is attached to digitalization in agriculture is evidenced by the request made in 2019 during the Global Forum on Food and Agriculture (GFFA) by several Ministers of Agriculture to create an International Digital Council for Food and Agriculture with overall responsibility of enhancing international cooperation and the exchange of ideas and experiences across borders, creating synergies and avoiding duplication of efforts. Digitalization in agricultural systems is envisaged to have the potential to play an increasingly important role in achieving global food security and improving livelihoods, especially in rural areas.

CCARDESA has been active in the last 6 years undertaking AR4D activities with inadequate focus on the digitalization of agriculture. CCARDESA would therefore like to take the AR4D agenda forward by ensuring that Agricultural Transformation embraces digitalization because it has the potential to provide productivity and sustainability gains for the agricultural sector. Significant changes in agricultural systems are anticipated because of the convergence of new digital technologies which have the potential to change farming along whole value chains.

The demand for region-specific digital technologies for agricultural innovations, coupled with a conducive enabling environment calls for a systematic assessment of levels of availability of relevant digital systems and the extent to which such technologies are accessible in each of the SADC countries. There is little information on the level of availability of digital technologies in each of the SADC countries or the stage at which these technologies are accessible to farmers. To address this knowledge gap a systematic assessment is needed to better gauge the level of availability and potential for scalability of various agricultural digital technologies in the SADC countries. The assessment will not only develop an understanding of the current status of agricultural digitalisation in SADC but will also identify the opportunities and gaps that need to be addressed if SADC region is to take full advantage of the digital transformation.

C. PURPOSE OF THE ASSIGNMENT

The purpose of this consultancy is to undertake a stocktaking analysis of the status of digitalization in the agricultural systems of the SADC region paying special attention to agricultural research for development, agriculture education, agriculture extension and market linkages. Therefore, the consultant is required to assess the extent to which digitalization has been embraced in agriculture innovations, policies, and practices to facilitate integration, development, and acceleration of digital technologies in the agriculture innovation ecosystem. The situation analysis should focus on assessing the available digitalization technologies and skills in the public and private sectors including the agriculture innovation institutions. The analysis should include the numbers, scope, trends and characteristics of the digital technologies. The assessment will also determine the extent to which the member states are prioritizing digital technology solutions i.e. use of digital data in agricultural research, education, extension and markets in both public and private sectors. The consultant will also propose the appropriate means for establishing an attractive networking platform.

D. OBJECTIVES OF THE ASSIGNMENT:

The main objective of the assignment is to review and analyse the status of digitalization in the agriculture systems of the SADC Region and to propose appropriate means for establishing a networking platform for stakeholders in agricultural research and development, agriculture education and agriculture extension.

The specific objectives are to:

1. Assess the extent to which the national and regional policies and regulatory frameworks of the SADC countries provide a conducive environment (policy space) for agricultural digital innovations.
2. Provide a tool (digital or analog) to identify the policy opportunities and gaps that need to be addressed if the SADC region is to fully take advantage of the digital transformation. This tool should be tailored to help countries to compare and harmonise their policies to allow digital innovations and formation of networking platforms in agricultural systems.
3. Map the various agricultural digital innovations available in each country, and assess their availability, affordability and usability and potential for scalability by smallholder farmers.
4. Map the various agricultural digital players in each country and identify their roles in the digitalization value chain.
5. Evaluate the extent to which the current agricultural syllabi in agricultural Universities and colleges embrace digital agricultural skills, innovations and applications that encourage youths to become digital entrepreneurs.
6. Identify and propose opportunities for establishing an attractive networking platform for the SADC countries
7. Propose a structure of a Digitalized Agricultural Platform for the SADC member countries (Community of Practice or Tool) to be launched in the region.

E. SCOPE OF WORK

To better understand and deliver on the purpose and objectives of the assignment the consultancy firm will be expected to examine the seven objectives stated above and provide data/information and recommendations that will provide solutions to the barriers that exist in creating awareness, availability and upscaling of the technologies in the agriculture sector. The consultancy is expected to critically analyse issues relating to digitalization in the context of SADC regional agricultural policies and regulatory frameworks, institutions, public infrastructure and private sector initiatives. Specifically, the consultancy will be required to perform the following tasks:

- i) Develop an **inception report** with an appropriate and robust methodology referencing the digital agriculture diagnostic tool available in the digital space to carry out the assignment. It is expected that the detailed methodology will be included in the technical proposal which will form part of the bid.
- ii) Review the **available literature** on agriculture digitalization including national policies on agriculture in the SADC countries, to identify the **policy opportunities and gaps and propose**

specific steps needed to align national policies in order to facilitate SADC member states to fully take advantage of the digital transformation agenda.

- iii) Identify national and regional agricultural policies and investments that promote agricultural digital innovations in the SADC countries.
- iv) Develop data collection **tools that will mirror digital agriculture diagnostic tools available in the digital space** that will be used to carry out the digitalisation situation analysis. The tools should facilitate identification of the policy opportunities and gaps that need to be addressed if the SADC region is to fully take advantage of the digital transformation
- v) Develop an **inventory of existing agricultural digital innovations** available in each country, and assess their availability, affordability and usability and potential for scalability by smallholder farmers
- vi) Develop a **database of key actors in the** public and private sector space and identify their roles in the digitalization value chain.
- vii) Review the current agricultural syllabi in Universities and colleges, and Identify gaps that exist in digitalization space in the SADC region to facilitate capacity development in the public and private sector, including **developing pathways/strategies** that focus at youths to become digital entrepreneurs
- viii) Propose **solutions (public policies, public and private investments related to agriculture Research and Development, Agriculture education and agriculture extension)** which will **FastTrack promotion** of digital technologies that will resolve some of the challenges facing the agriculture sector in the region.
- ix) Identify stakeholder groups to whom the reports/findings will be shared before finalization and facilitate a **digital situation analysis validation meeting** for CCARDESA technical staff, public and private sector stakeholders to validate the findings of the survey prior to finalising the report.
- x) Finalise the **situation digital analysis report** taking into consideration all the comments and recommendations from the digital maturity assessment validation meeting
- xi) Draft a proposal for a strategy supporting digitalisation across the SADC region.
- xii) Develop a Digitalized Agricultural Platform (Community of Practice or Tool) for the SADC member countries which will house information on digitalization on agriculture Research and Development, agriculture education and agriculture extension

F. METHODOLOGY

The Consultancy firm is expected to propose a robust methodology for undertaking the assignment which should be articulated in the technical proposal. The proposed methodology, which should include sampling strategies, is expected to cover at least 13 countries in the SADC region. The consulting firm is expected to collect both qualitative and quantitative data from primary and secondary sources. Among others, the assignment will adopt a consultative and a participatory approach, engaging public or private research and /or training institutions, private sector, farmers' organisations, agribusiness (supply or service provision) organisations or NGOs dealing in the digitalization space in the SADC region The methodology should clearly show and justify the

inclusion and exclusion criteria of digital technologies within the agricultural sector. The consultancy firm is expected to assemble a team of qualified experts to undertake the assignment. The assignment requires the Consultancy firm to carry out a field visit to selected SADC member states

G. DELIVERABLES

The key deliverables and the proposed timelines of this assignment are:

Deliverables	Time Frame	Anticipated timing
1. An inception report spelling out the proposed technical approach, time scale, resources and validation plan for the delivery of the final report.	05	04 -08 January 2021
2. Digital innovations Inventory	15	18 Jan-05 Feb
3. Policy gap analysis report, which should include proposed specific steps needed to align the policies	15	15 Feb-05 Mar
4. Tool for policy gap and opportunity comparison among countries	5	15-19 Mar
5. Digital players database	10	29 Mar-09 Apr
6. Syllabus gap analysis report	5	19-23 Apr
7. Web/Mobile tool	15	03-21 May
8. Final Report	2	27-28 May

9. **Final digital situation analysis report that** clearly addresses all the assignment objectives. The report will document the digital technologies, gaps that exist in the digital space that will facilitate digitalization of the agriculture sector, **solutions** (public policies, public and private investments related to agriculture Research and Development, Agriculture education and agriculture extension) which will fast track promotion of digital technologies that will resolve some of the challenges facing the agriculture sector in the region. The report will also describe pathways that will facilitate youths to become digital entrepreneurs in the agriculture sector and catalogue key actors in the public and private sector at each stage of technological development etc. The report should include all appropriate appendices.

H. SUPPORT TO THE CONSULTANT

CCARDESA will support the Consultancy firm during the implementation of the assignment. Therefore, the Consultancy firm will work very closely with the contact persons at CCARDESA in the delivery of this assignment. The support will include the following:

- i) Introduction of the consultant to the focal or contact persons in the SADC member states.
- ii) Liaise with contact persons and come up with a list of key stakeholders who will participate in the survey.
- iii) Liaise with country contact/focal persons to ensure that response to the data collection tool is concluded in a timely manner.

I. QUALIFICATIONS AND WORK EXPERIENCE OF THE CONSULTANT FIRM

- a) The Firm is expected to demonstrate experience and expertise in the Digitalisation reforms including baseline surveys, organizational development/facilitating collaborations /web or mobile applications development and implementation of ICT/Digitization agenda and capacity building initiatives in the agriculture sector.

b) **Key Staff Qualifications and Experience.**

The consulting team should have experience and/or be qualified in the following areas: Business Information and communication technology, agricultural research, extension and education, agribusiness, GIS and modelling.

i. Scientist /Digital Expert – Team Leader

- At least a Master's degree in digital marketing, information technology, computer science, Agricultural extension / MBA/ Economics or equivalent qualification.
- At least Ten years' experience in evaluating developmental programs related ICT/digitalization in the agriculture sector.
- At least 15 years' experience in leading program/project evaluations (quantitative and qualitative) in digitalization in agriculture systems including 5 years leading research in Multiple countries.
- Ability to organize meetings, calls and documents that may require the input of multiple sources (public, private sector, Non-governmental Organisations and any other source relevant to the assignment)
- Proven ability and experience of leading digital evaluation teams, to work both independently and as part of a team,
- Experience on sample design and data collection methodologies including online data collection techniques as well as development of digital maturity assessment survey tools,
- Experience in gender and youth mainstreaming in the digitalization space will be an added advantage.
- Experience in project management with a digitalization bias in a development cooperation context (ideally Southern Africa) would be an asset
- Knowledge of French or Portuguese is an added advantage

ii. *Agricultural Education/Agricultural Research/Agricultural Extension/Agricultural Development Policy Expert– Team Member x 2*

- At least a masters or equivalent in Agriculture Based Degree or other relevant discipline e.g. ICT, Policy Development, Rural Development or related field.
- At least 10 years professional experience in agriculture and digitalization, especially in developing country contexts
- Minimum 5 years in using digital /electronic data collection tools and storage.
- Traceable experience in Agricultural Education, Research and Extension.

- Minimum of 5 years' experience in evaluation of tertiary school's syllabus.

- Minimum 10 years traceable experience in conducting multicounty research.
- Experience in training, and capacity building of digitalization platforms.
- Ability to communicate and write effectively in English.

iii. *Web Developer / Software Engineer – Team Member*

- At least a masters or equivalent in Website Development, Information Technology, Computer Science, or other relevant discipline.
- At least 05 years professional experience in mobile applications development.
- Traceable experience in software development in the agricultural sector
- Demonstratable experience in agricultural technological innovation.
- Experience in training, and capacity building of digitalization platforms.
- Ability to communicate and write effectively in English.
- Demonstrate experience in development of digital agricultural platforms for a wider community, e.g at national level or regional levels.

J. EXPENSES AND LOGISTICS

CCARDESA will facilitate and pay directly to service providers for all the indirect expenses / reimbursables related to the assignment.

K. DURATION

The assignment is expected to take a total of 72 input days spread across the period of eight Months.

L. REPORTING

The consultancy firm will report directly to the APPSA Coordinator at CCARDESA.

M. APPLICATION PROCESS

Interested Consulting Firms should submit their expressions of interest with comprehensive information that include experience of the firm, similar assignments conducted, comprehensive CVs of the proposed team members to the address below on or before 20th August 2020

Attn: The Procurement Officer
CCARDESA Secretariat
Ground Floor, Red Brick Building
Plot 4701 Station Exit Road, Private Bag 00357, Gaborone, Botswana

E-mail: procurement@ccardesa.org