IFAD

# Republic of the Sudan Economic and Policy Enabling Environment

JengaLab   TechChange   DEVELOPMENT GATEWAY An IREX Venture

# CASE STUDY: REPUBLIC OF THE SUDAN ECONOMIC AND POLICY ENABLING ENVIRONMENT

**JULY 2023**

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# ABBREVIATIONS

**CRM**        Customer Relationship Management

**DAS**        Digital Advisory Support Services Programme

**IAMDP**      Integrated Agricultural and Marketing Development Project

**ICT**        Information Communication Technology

**ICT4D**      Information and Communication Technology for Development

**IEC**        Information, Education, and Communication

**IFAD**       International Fund For Agricultural Development

**MoU**       Memorandum of Understanding

**MFI**        Microfinance Institution

# EXECUTIVE SUMMARY

## BACKGROUND

The Digital Advisory Support Services for Accelerated Rural Transformation (DAS) Programme is a demand-based facility funded through a grant from International Fund for Agricultural Development (IFAD). The programme aims to provide technical advisory support for information and communication technology for development (ICT4D) activities within IFAD-financed programmes across Africa, the Middle East, and Central Asia.

The DAS programme has two main objectives. Firstly, the programme seeks to increase access to information and inclusive financial services by smallholder farmers. Secondly, it aims to improve targeting, monitoring, and impact measurement for agricultur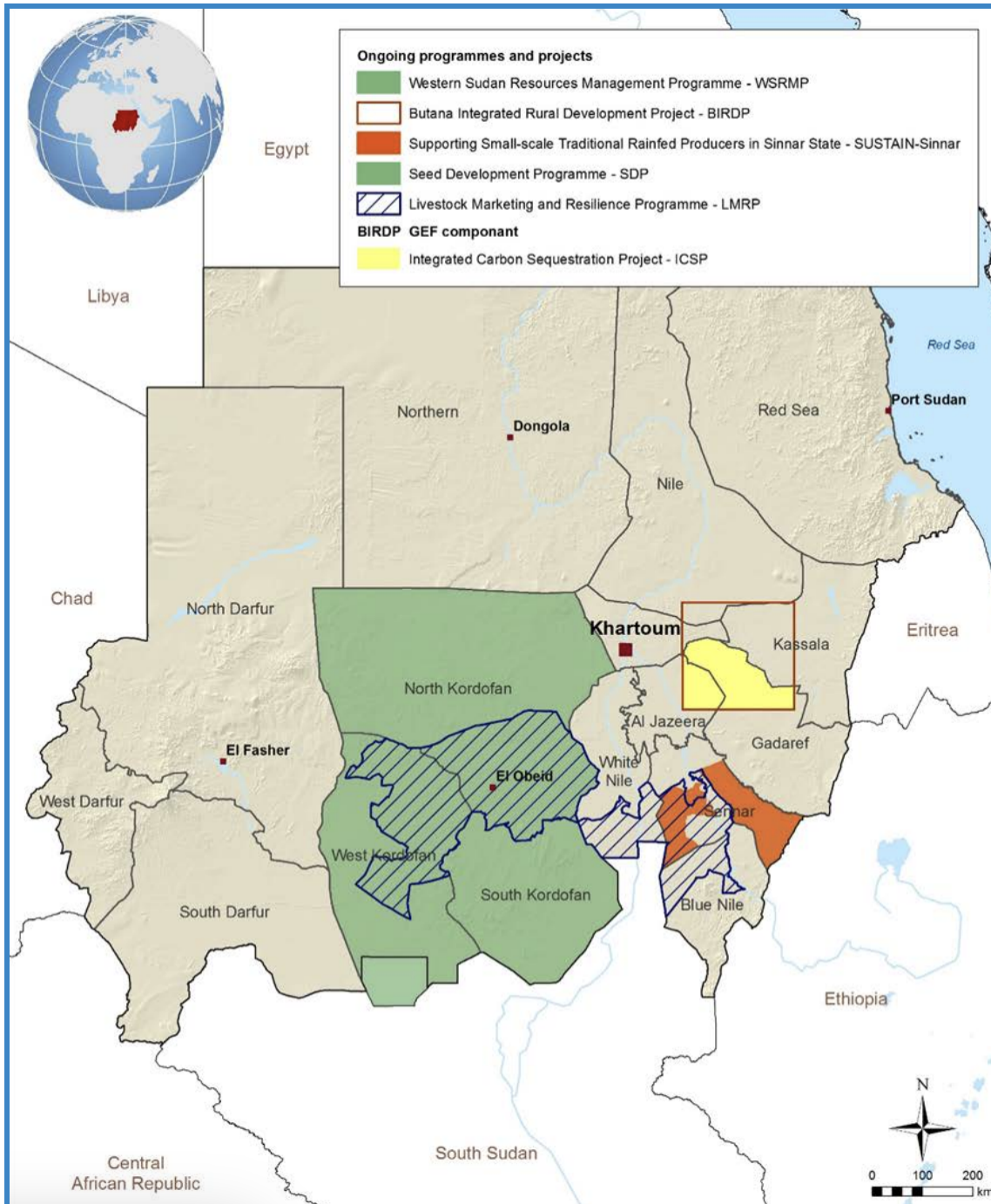al development through the enhanced use of ICT4D solutions. Development Gateway: An IREX Venture (DG) has partnered with experts in digital development and agriculture from Jengalab and TechChange to provide advisory services, including virtual training sessions and knowledge dissemination activities. Under the DAS programme, the DG team conducted an assessment to help the Integrated Agriculture and Marketing Development Project (IAMDP) identify the opportunities and barriers to digital adoption. The assessment gauged the ICT capacity of the IAMDP call centre and recommended digital technologies for scaling the reach and impact of the project.

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## OVERVIEW OF THE IAMDP

The IAMDP aims to enhance the incomes of smallholder farmers in rural areas of the Sinnar, North Kordofan, South Kordofan, and West Kordofan states of Sudan. Specifically by improving access to agricultural inputs, climate-resilient technologies, services, rural finance opportunities, and marketing outlets. The programme targets all rural farmers, but has a particular focus on women and youth.

The IAMDP has 52 extension officers that provide technical support at the community level, including 16 officers seconded by the state governments. The secondment of state officers to the IAMDP is intended to enhance their capacity and support the programmes's sustainability.

# Map of Programme Area[1]



**Ongoing programmes and projects**

Western Sudan Resources Management Programme - WSRMP

Butana Integrated Rural Development Project - BIRDP

Supporting Small-scale Traditional Rainfed Producers in Sinnar State - SUSTAIN-Sinnar

Seed Development Programme - SDP

Livestock Marketing and Resilience Programme - LMRP

**BIRDP GEF componant**

Integrated Carbon Sequestration Project - ICSP

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[1] IFAD. Integrated Agricultural and Marketing Development Project (IAMDP) Final Project Design Report. "Map of the Project Area." Page 10. https://www.ifad.org/en/-/sudan-iamdp-pdr-final-design

## Study Assessment

A total of 31 stakeholders were interviewed through eight focus group discussions and four key informant interviews. The interviews included nineteen stakeholders from the private and public sectors and twelve farmers from the four target states. The goals of the assessment were to:

1. Identify ways to increase digital adoption among farmers.
2. Provide technical advisory support to scale IAMDP and increase farmer usage of the programme's digital call centre. This included reviewing the technologies in place and proposing functionality changes and integrations designed to improve farmer adoption and access.
3. Identify opportunities to collaboratively improve mobile network and internet coverage with the private sector and government agencies.
4. Identify approaches to address cultural barriers that discourage women from accessing mobile phones and technology.
5. Identify digital literacy gaps among farmers and propose approaches for bridging those gaps among women and youth.
6. Identify barriers to the sustainability and ownership of the digital call centre beyond the programme.
7. Provide recommendations for building the capacity of government staff and community focal points.

# CORE ASSESSMENT AREAS

## The Digital Centre

The IAMDP digital centre sends short messaging service (SMS) texts to an estimated 3,000 farmers twice a week. Two bulk SMS platforms are installed at the centre (one supports the Sudani network while the other supports the Zain network). Approximately 2,500 SMSs are sent from the Sudani SMS platform and 500 sent from the Zain platform each week. The 3,000 farmers reached through the centre constitute 12.5% of the estimated 24,000 farmers living within the 98 project localities in the four target states.

The digital call centre ultimately aims to reach 24,000 farmers within the region by sending the aforementioned text messages, conducting radio talk shows, and distributing information, education, and communication (IEC) messages via WhatsApp.

The text messages provide information about seed and farm inputs, crop protection and harvest management techniques, market access and price negotiations, and agricultural financing opportunities. Presently, farmer contact information is being collected at community focal points to facilitate the establishment of WhatsApp groups.

**Opportunities for Digitization:** There are opportunities to save time, increase the quality and volume of messaging, and improve targeting by automating call centre functionalities and integrating analytics and feedback capabilities.

# Market Access

**Status:** In 2022, the programme was initiated through the four states and focused on farmers who are involved in the production of seeds, grains, and the relevant value-chains of the crops. Currently, farmers in these communities either market and sell their produce individually or use brokers within the value chain. The programme is working to establish groups that consolidate farmers' produce and facilitate price negotiations. Furthermore, the programme is working with local governments to construct grain storage facilities at the community level (to reduce post-harvest losses amongst farmers).

**Target:** The programme aims to reach 14 communities by 2023 and encourage additional farmers to adopt digital technologies for improved productivity, management of price fluctuations, and price negotiation for agricultural produce.

**Planned Investments:** The project plans to build the systems and processes needed for the collection and dissemination of produce pricing information. Training sessions to increase the capacity of communities to negotiate prices will be conducted through established producer groups.

**Opportunities for Digitization:** The need for timely data on pricing presents an opportunity to develop a marketing information system that systematically collects, analyses, interprets, stores, and disseminates accurate pricing information to farmers. Such a system could be integrated within the IAMDP call centre for dissemination and feedback management.

# Agricultural Financing

**Status:** The programme has signed a memorandum of understanding (MoU) with three microfinance institutions (MFIs) across the four states to recruit and provide farmers with funds for agricultural production. The programme coverage area has a base of 8,000 farmers and is aggressively ramping up recruitment to reach its target of 11,000 farmers by year-end 2023. Reaching this target and scaling up further requires increased collaboration with MFIs and extension officers.

**Table 6: MFI Footprint**

| Name of MFI | Footprint/Geographical Area of Focus |
|---|---|
| Ebdaa | West Kordofan and Sinnar (all localities), South Kordofan (1 locality), North Kordofan (2 localities) |
| Absumi | Sinnar (2 localities) and North Kordofan( 3 localities) |
| Baraa | Barsia, Barat, Tadamud and Brashad, Rashad, and Tadamon |

**Target:** To reach its target of 11,000 farmers by the end of 2023, the programme will create digital content and use extension workers to disseminate season and crop appropriate information on accessing and use of MFI loan and credit facilities. The information is disseminated as an SMS to farmers to alert them on the timelines for applying for loans through the MFIs.

**Challenges to Agricultural Financing:** The main challenge farmers face is the untimely release of funds, which in turn leads to suboptimal agricultural outcomes. There is a need to synchronise the release of the funds with crop-cycle milestones, (land preparation, seed purchasing, planting, flowering, and harvesting).

**Opportunities for digitization:** There is an opportunity to deploy digital tools in the form of online platforms for application and disbursement of loans to farmers across all MFIs. Digital platforms can further provide crop insurance and financial management training to farmers and extension workers. This would additionally address disbursement delays in MFI loan payments which was identified as a key challenge among farmers.

# Gender and Digital Access

**Status:** Cultural barriers that prevent women from accessing digital tools did not emerge as a key issue in the focus group discussions (except in certain communities in South Kordofan state and some semi-nomadic communities in Sinnar state). However, there was a significant digital gender gap between men and women in accessibility to smart phones. The assessment identified a lower rate of use of smartphones among women compared to men. This difference was attributed to poverty among women, which is exacerbated by the lack of land rights for women. It was further noted that among the six women invited for the interviews, only three (50%) women were able to attend compared to 80% for men.

**Target:** The IAMDP team is currently working on mainstreaming gender issues into programme activities. The programme will conduct awareness campaigns in the localities where restrictions are placed on women owning mobile phones.

**Challenges:** Despite having no widespread official or cultural restrictions on women's access to technology (except in a few localities in Sinnar and South Kordofan), there appears to be a disparity in technology use among women, which is attributed to cost.

**Opportunities for Digitization:** The development of an intelligent credit system[2] will help farmers, especially women and the youth, finance the purchase of smartphones, thereby reducing the smartphone gender gaps across rural communities in Sudan. An example of a smart credit system that enhances access to smartphones is the Safaricom-Google Lipa Mdogo Mdogo facility in Kenya. Through this facility, users receive smartphones and make daily payments of at least 20 U.S. cents.

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[2] An intelligent credit score is a credit scoring system that uses advanced algorithms and machine learning techniques to evaluate a borrower's creditworthiness. It takes into account not only the traditional factors that affect credit scores, such as payment history, credit utilisation, and length of credit history; but also incorporates non-traditional data points, such as social media activity, online purchase history, and other data that can help predict credit risk.

The establishment of an intelligent credit system in Sudan requires a regulatory framework for institutional and policy oversight.

# POLICY AND INSTITUTIONAL FRAMEWORK

## Federal Ministry of Agriculture and Natural Resources

The Federal Ministry of Agriculture and Natural Resources, through the Department of Seed Certification, has the mandate to provide farmers with information on seed varieties and best practices in crop protection to improve farm productivity. The General Directorate for Knowledge Transfer and Extension Services provides policy direction to state governments on the provision of Extension Services.

## State Ministries of Agriculture and Natural Resources

This assessment included interviews with representatives of the Ministries of Agriculture in the four focus states of North Kordofan, South Kordofan, East Kordofan, and Sinnar. The ministries have the mandate to provide extension services to farmers.

## Digital Frameworks and Impact of International Sanctions

The trade restrictions and embargoes placed on the Republic of the Sudan in 1997 were finally rescinded in 2017. Despite these trade restrictions and embargoes, Sudan made impressive strides in promoting the adoption of digital technologies. However, the restrictions significantly slowed the transfer of critical digital technologies and tools while restricting funding for the development of local solutions. The combined finance and fintech sector (which includes mobile money service providers) was chiefly affected by the restrictions. Moreover, the restrictions further slowed down the development and maturity of policies and institutions that support digital technology. The lifting of the embargoes in 2017 thus offered Sudan an opportunity to leapfrog into a 21st century digital and data-led economy.

The Sudan E-Agriculture Strategy and Action Plan 2018-2022 provides a vision for the adoption of digital technologies in agriculture. It recognizes the need for the accelerated establishment of a robust policy framework that supports investments in digital capacity and infrastructure as well as data protection, and financing for digital technology.

# MAIN ASSESSMENT FINDINGS

The following are the main findings of the assessment.

1. **Access to Information**: IAMDP sends twice weekly SMS messages to 3,000 households in 98 localities across four states. This is approximately 12.5% of all targeted farming households within the localities. The main challenges faced by farmers include lack of access to infrastructure (electricity grids, mobile and internet connectivity, etc.), lack of financing for off-grid solutions, and low literacy levels.

2. **Access to Smartphones (Digital Technologies)**: There are significant differences in access to smartphones between men and women. These differences are due to poverty and the cost of mobile phones. Poverty among women within target communities exacerbates the digital gender divide.

3. **Access to Finance:** The programme has entered into a MoU with three MFIs to provide agricultural finance to 11,000 targeted farmers within the four target states. In 2022, the programme reaches approximately 8,000 farmers (representing 73% of the targeted 11,000 farmers). However, the MFIs make limited use of digital tools in the provision of financial services. Thus, there is an opportunity for investments in digital tools that enhance the accessibility and reach of financial services among farmers.

4. **Access to Markets:** The assessment identified a lack of accurate and timely produce pricing information to facilitate competitive pricing among the farmers. The programme has consequently collaborated with the state governments to organise farmers into producer groups. It is hoped that these groups will increase farmers' bargaining power against buyers and brokers. Investments in digital market information collation and dissemination tools are key in closing market information asymmetry between farmers and buyers.

5. **Extension Services and Community Focal Points:** The assessment determined that farmers without access to mobile phones could be supported and/or reached via community focal point. The programme has deployed 54 extension officers to provide farmers with technical support in crop protection and market/finance information. These focal points can disseminate information via media (such as video) and recruit new farmers that need basic digital skills and data literacy support.

6. **Gender Norms:** The assessment identified poverty and the high costs of smartphones as main factors behind the low adoption and use of digital technologies among women. However, there were minimal cultural norms hindering women and youth from accessing digital technologies. Interventions that support women's control of production assets, especially land, will increase adoption of digital technologies for agriculture.

# MAIN CHALLENGES

1. **Farmers' limited access to electricity** – Farmers are unable to charge mobile phones due to inadequate electrical infrastructure. The national grid does not extend to regions where significant numbers of targeted farmers reside. This limitation highlights a need for alternative solutions such as solar energy.

2. **Farmers' limited mobile network and internet connectivity** – Sudani and Zain are the two providers of mobile and internet connectivity in Sudan. Connectivity strength varies significantly across the country, with reports that people residing on the plains experience worse connectivity than those on the mountains. Some areas such as North Kordofan have no access to either of the two network providers. Overcoming the challenge of poor mobile network and internet connectivity will be crucial to expanding the programme's reach.

3. **Farmers' low literacy levels** – The target population of farmers includes a proportion that has limited reading skills. These individuals need the support of a literate family member to engage with digital messages.

4. **Farmers' limited access to mobile phones** – Access to mobile phones, particularly smartphones, is limited, especially among youth and women. Farmers attribute their limited access to the high cost of smartphones and challenges with electricity. Opportunities exist to utilise the existing network of extension workers as infomediaries to the farmers.

5. **System's lack of analytic capabilities** – The digital call centre has a series of highly manual processes backed by two bulk SMS systems that disseminate messages twice a week. The systems cannot receive and analyse farmers' feedback and do not have analytics and reporting capabilities to support data use and learning by the call centre staff.

# SUMMARY OF RECOMMENDATIONS

1. **To reduce duplication of efforts, increase efficiency, and apply key messages**, the study recommends greater collaboration between all stakeholders and governments in the development and rollout of digital tools. Partnerships aimed at adopting and adapting existing digital tools – rather than developing new tools – should be fostered between IAMDP, IFAD Sudan, and Mercy Corps.

2. **To increase the technical capacity of programme staff and extension officers**, the study recommends integrated capacity-building programmes on the use of the call centre software, data analytics, and reporting tools. The capacity building programmes should encourage staff and officers to learn how to use data systems on their own. For example, self-directed training modules (learning materials and guides) should be provided to the digital centre team and state

government officers. Widespread and continuous learning efforts among state and programme outreach staff and community leaders will ensure the long-term sustainability of any agricultural programme.

3. **To increase the reach and coverage of the digital centre**, the study recommends an upgrade of the existing SMS and call centre platform to a customer relationship management (CRM) system with integrated SMS/MMS and social media features. In fact, the findings of the study have already been used to incorporate existing market-driven tools into the call centre platform (this integration, which has scaled the reach and impact of the call centre, was funded through the Mercy Corps [AgriFin](#) project). The study also highlighted the possibility to adopt the [CiviCRM](#) open-source software.

4. **To improve farmer access to information from the digital centre and address broader information accessibility challenges**, the study recommends the forming of strategic partnerships. Some of the proposed partners include: i) telecommunication service providers (network and internet connectivity providers); ii) solar product vendors (innovative off-grid solution vendors) and; iii) academia (incubators of innovative research).

5. **To increase access to and use of market pricing information among farmers**, the study recommends the adoption of a digital system that collects and disseminates accurate and timely information about retail prices of products across different markets. The assessment findings have already led to the adoption of the e-digitak market platform (funded by Mercy Corps). The platform collates and publishes market prices from the [Sudan Agricultural Information System](#) run by the Sudan [Ministry of Agriculture and Natural Resources](#). The platform also provides information on other agricultural service providers (i.e., transport and logistics, seeds, agrochemical, and fertiliser providers).

6. **To encourage more women to adopt new crop production methods**, the study recommends increased engagement of young women (20-35 years old) hired as community outreach/extension officers, community focal points, and model farmers.

7. **To mainstream youth involvement within the IAMDP and encourage more youth to engage in agriculture as a source of livelihood,** the study proposes a new outreach programme designed to showcase farming as a "cool and acceptable" form of livelihood and employment. The Consortium of International Agricultural Research Centers (CGIAR) identifies the following approaches to making agriculture attractive to the youth:
     - Introducing agribusiness to children at a young age (basic education),
     - Encouraging a shift from subsistence to agribusiness (as youth are interested in exploring careers and creating wealth)
     - Deploying technology and social media in support of agriculture
     - Championing the adoption of technology in agriculture to increase productivity, learning, and networking.