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END OF PROGRAM EVALUATION REPORT

MERCY CORPS | AGRIFIN

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1.0 Executive summary

Background

The GIZ Digital Africa Initiative was designed to support the development and adoption of digital solutions for smallholder farmers by building the capacity of fintech and agtech innovators and by facilitating partnerships between these innovators and larger digital platforms. The project sought to promote digital transformation for smallholder farmers to improving access to information, providing training and facilitating improved market access. To achieve this, three partners were brought together to deliver the program. Food Security for Peace and Nutrition (FSPN) played a key role in mobilizing, supporting, and training farmer groups and CoAmana created a digital marketplace to connect smallholder farmers to markets. Mercy Corps AgriFin (MCA) supported and enhanced overall project implementation and led in the development of the Sprout/OCAP solutions for both partners.

This evaluation used a mixed-method approach to assess the program's overall performance and achievements. The evaluation focused on assessing progress made towards achieving positive change for smallholder farmers, including increased productivity, income, and resilience to climate shocks. It also looked at the project's contribution to demonstrating and establishing a new delivery model for smallholder farmers through experimenting and learning across various digital platforms.

Findings

The overall effectiveness of the implementation strategy employed for the DAA project was very effective. It was well aligned with the market system development methodology, building on MCA expertise, and supported the achievement of program objectives. The program was based on realistic, tried and tested methods and long-term experience of implementing and leveraging digital solutions. For example, the project successfully engaged core partners with complementary expertise. This collaboration allowed for the effective development and implementation of a range of services, including agricultural advisory services, inclusive finance, and smart farming solutions. In addition, the project built strong partnerships with external organizations. This allowed the project to leverage the expertise and resources of other organizations, which helped to amplify its impact. The strategy was also well-aligned with market system development methodology. This meant that the project took a holistic approach to addressing the challenges faced by smallholder farmers, recognizing that they operate within a complex ecosystem of actors and institutions.

As a result, partners successfully implemented targeted digital solutions to improve farmers' access to markets, reduce food waste, and allow them to negotiate fairer pricing. This was achieved through access to information and advisory services as well as the scaling of market management and farmer input purchasing, digitization of market transactions, and partnerships with various entities. Sprout proved to be critical in this regard, as CoAmana and FSPN were able to curate information from the platform to leverage their own advisory services, train farmers and set up market linkages. CoAmana also improved farmers' access to storage and market buying by establishing fully stocked stores and implementing a "buy now pay later" approach. Key strengths identified were the program's partnerships, the lead farmer approach used by FSPN, and the provision of a comprehensive service platform employed by both CoAmana and FSPN. However, challenges included existing market solutions providing more standalone information on specific value chains which were not always integrated and the need for a more efficient system for purchasing inputs and selling products.

The program took a strategic approach to addressing climate change, integrating climate-related elements into its projects and operations. This included initiatives such as CoAmana developing

a Climate Resilience and Impact Framework to guide farmers on preparing for and recovering from climate shocks and FSPN training beneficiaries on climate-smart agricultural practices, such as vertical farms. Sprout also developed Digital Weather Advisory Services (DWAS) which provided hyper-local weather forecasts, which were initially piloted by CoAmana and FSPN, empowering farmers to make informed decisions. As a result of these initiatives, the program equipped farmers with education and skills to be more climate resilient. Digital technologies played a crucial role in enabling and supporting the program's climate-resilient initiatives, providing farmers with access to information, tailored advice, and market linkages. However, challenges remain in terms of digital literacy and access to technology, particularly for smallholder farmers. FSPN and CoAmana have been taking active steps to address this, by utilizing a multi-pronged approach to build digital literacy through training farmers on digital technologies, and by curating content to ensure it is easily digestible.

Gender equality, women's empowerment and youth empowerment were central tenants of the DAA program, and these elements were integrated from the outset by each of the partners. For example, CoAmana employed a quota system on all input, equipment, and tools sold within this project to ensure gender equality, ensuring that women and young farmers had equal access to the resources and opportunities. Meanwhile, FSPN embraced a gender-responsive approach, integrating gender transformative indicators into the project from the beginning. They also prioritized young people in terms of access to agricultural support services. In addition, Sprout, worked to ensure their content addressed women's specific needs by ensuring information was readily available on different value chains more utilized by women and by addressing challenges which are more likely to affect women. As a result, the program was able report improvements in terms of women and young people's influence in farming decisions as well as improved farming methods. Gains were not as pronounced in terms of women's access to financial services however, and this in an area which should be explored further moving forward. While there were initially issues challenges around the lack of involvement of men in the program, which caused a negative impact on household dynamics, over time these issues were ironed out due to increased engagement with target communities.

Overall, the program had a number of positive impacts, including increased market access and pricing, improved adoption of climate-smart agricultural practices, empowerment of women and youth, and enhanced decision-making. It also had some positive unintended impacts, such as increased adoption of new crops through peer-to-peer learning. This has had a positive impact on the achievement of project outcomes, for example farmers interviewed for the evaluation reported improved access to better markets and prices through digital platforms like the Shamba Connector run by FSPN and the Amana market run by CoAmana. In addition, significant improvements were made in terms of climate resilience. Farmers have adopted practices like conservation agriculture and pest management, making them more resilient to climate events. Notably, 98% of farmers surveyed for the evaluation in Kenya and 88% in Nigeria felt better equipped to handle climate challenges due to the program. However, there have also been some barriers to the program's effectiveness, such as digital literacy gaps, lack of access to technology, fragmented services, and a dependency on lead farmers. However, efforts have been made to overcome this, for example FSPN who employs the lead farmer model has developed a strategy moving forward to gradually shift to more digital services while maintaining the benefits of face-to-face engagement which the lead farmer approach provides.

The Sprout Platform has had a remarkable impact on the agriculture sector by empowering farmers with access to high-quality information and training. The platform garnered praise for its user-friendly interface, wide reach across multiple countries, and multilingual content catering to diverse audiences. Its open-access nature and strong partnerships have enriched its offerings, reaching hundreds of thousands of farmers and engaging them with millions of messages. One of the platform's key strengths lies in its simplified information access, ensuring that even farmers without smartphones can benefit from curated content delivered through SMS messages. The

platform's diverse content, spanning various agricultural and adjacent value chains, has proven invaluable to farmers seeking guidance on diverse topics, ranging from crop management to financial literacy. Sprout's collaborative approach has fostered partnerships with organizations like KALRO, resulting in the development of crop and livestock value chains and seasonal crop calendars. This has expanded the platform's reach and enriched the content available to farmers. While the Sprout Platform has demonstrated its transformative potential, there are areas for further improvement. One critical aspect is navigation, which should be streamlined to enhance user accessibility. Efforts have been made to address this, and the website which hosts the content has recently be revamped. Additionally, localization of content is crucial to cater to a wider range of farmers, ensuring that the information is tailored to their specific contexts and needs. This should be a demand driven approach, and to enable this, Sprout has asked that farmer facing organisations that curate their content for local contexts should share it back with sprout to further enrichen the platform.

All three project partners, CoAmana, Sprout, and FSPN, have taken various steps to ensure the sustainability of their respective projects. These include building strong partnerships, investing in innovation, and adapting to changing market dynamics. CoAmana has focused on developing a robust technology solution, investing in comprehensive training for farmers and traders, and proactively promoting the platform's benefits. Sprout has focused on fostering stronger collaboration with public and private sector entities, establishing a scalable revenue model, and driving continuous innovation. FSPN has focused on ensuring that smallholder farmers have access to market opportunities, continuing to scale up the lead farmer approach, and utilizing digital platforms to disseminate agronomic information.

As a result of these efforts, all three projects have made important steps towards generating the buy in and credibility needed for sustained impact with end users. In addition, sprout and CoAmana in particular have made positive steps towards commercial sustainability. Nevertheless, there are specific actions that each partner can take to improve sustainability. For example, CoAmana can scale up strategic partnerships, make further efforts to obtain user feedback, and promote localization. Sprout can pro-actively identify and mitigate potential risks and engage with policymakers to advocate for supportive policies. Finally, FSPN can further promote linkages to markets, and strengthen partnerships with other organizations.

Conclusion

Overall, the evaluation found that the program was able to reach its target to achieve positive change for smallholder farmers, including contribution towards gains in improved farming practices, productivity, and resilience to climate shocks. The program has been successful in demonstrating and establishing a new delivery model for smallholder farmers through experimenting and learning across various digital platforms in both Kenya and Nigeria. The project's established by the different partners remain relevant to helping to overcome the challenges faced by smallholder farmers in these markets, and it is important that investments continue to be made in digital solutions moving forward. It is recommended that the program should be continued and scaled up in future, to ensure continued access to the benefits of technology for smallholder farmers moving forward.

2.0 Introduction

2.1 Overview

Smallholder farmers in Africa face a variety of complex challenges, including limited access to markets, infrastructure, and finance. Digital solutions have the potential to provide affordable and scalable solutions to these challenges. Mercy Corps AgriFin is working to support the development and adoption of digital solutions for smallholder farmers by building the capacity of fintech and agtech innovators and by facilitating partnerships between these innovators and larger digital platforms. Mercy Corps AgriFin was engaged by GIZ to work with selected organizations to develop digital solutions for smallholder farmers in Kenya and Nigeria. Mercy Corps AgriFin selected two agencies to implement this project, CoAmana and FSPN Africa.

This report presents an evaluation of the GIZ Digital Agriculture Africa initiative which worked with a cohort of partners in Kenya and Nigeria to develop digital solutions to address challenges in the agriculture sector brought about by the Covid 19 pandemic.

2.2 Program activities

The Digital Agriculture Africa (DAA) program was initially launched at the end of December 2020, as DAA Phase 1, and the second phase of the DAA project extended from July 1, 2021, to November 30, 2023. The core objectives of this project were to:

- Build the joint partnership between the two young technology providers, FSPN and CoAmana, and Mercy Corps.
- Provide training for smallholder farmers on good agricultural practices (GAPs).
- Implement a **farm-to-fork solution for food security** tackling key issues around availability, accessibility, quality control and stable supply, led by our Nigerian partners.
- Scale **Sprout: The Open Content for Agriculture Platform** facility to support farmers, field force and the organizations serving them with content.
- Direct mobilization and support to **women and youth smallholder farmer groups**
- **Expand a digital marketplace partner** to link smallholder farmers to markets providing fresh food in urban populations by CoAmana.
- **Expansion of the project into new geographies** including Tanzania and Uganda.
- **Project monitoring, reporting, and learning**, led by MCA.

The roles and responsibilities of the three partners were: -

Food Security for Peace and Nutrition – Africa (FSPN)

FSPN played a key role in mobilizing, supporting, and training farmer groups. They also prepared women and youth farmers to adopt best-practice agriculture methods and utilize new products, services, technologies, and partners introduced by the program. In the project's first phase, FSPN expanded its reach to include more groups and connected them with off takers and buyers with the assistance of Mercy Corps AgriFin and its Kenyan agribusiness partners. A team of agricultural experts was deployed by the partner to manage the solution by:

- Using GIS to map out the regions to align food production with market demand.
- Identifying, registering, and tracking the produce of smallholder farmer groups.

- Providing Good Agricultural Practice training to registered smallholder farmers to support the successful adoption of new products and technologies, leveraging Sprout.
- Collaborating with MCA to expand digital marketplace services across Kenya and Tanzania, incorporating Sprout learning solutions.
- Monitoring and evaluating the solution's economic and social impact, as well as its contribution to food and nutrition security.

CoAmana

CoAmana is a technology for social development company that has created a digital marketplace to connect smallholder farmers to markets and provide fresh food to urban populations. The marketplace is designed specifically for farmers and small businesses, with a strong focus on women, and is accessible through web and SMS. Through group leaders and agents, farmers and small businesses are linked to an ecosystem of suppliers, buyers, and financial services. CoAmana operates primarily in Nigeria but is currently piloting its digital marketplace in Kenya.

In Phase 2, key activities included end to end digitization plan and prototype, piloting, platform build out and scale up.

Mercy Corps AgriFin supported and enhanced overall project implementation by leveraging the full experience and network of the program across the agriculture ecosystem, banking and technology partners which are now reaching farmers. The major MCA activity under this project was to develop and launch "Sprout – the Open Content for Agriculture Platform" (Sprout) environment to meet the needs of each organization and provide a bridge for organizational collaboration for greater Pan-African scale and impact.

Key MCA activities in Phase 2 included:

- Supporting partnership development and linkages with financial institutions, technology providers and agribusinesses to enhance their outreach, product offering and scale potential.
- Supporting the use of data for the creation of digital credit scores for farmers to improve access to financial services, including data strategy support for both partners to lead their future expansion.
- Leading the Scale-up and continued evolution/development of the Sprout platform content/services and modelfor both partners in Kenya and Nigeria (and other organizations)Leading the development of new learning content and serviceson Sprout based on DAA partner needs
- Supporting the development of pilot and go-to-market strategies.

3.0 The evaluation purpose, objectives, and methodology

To gather data for the evaluation, a combination of qualitative and quantitative methods were used.

WHAT IS SPROUT?

Sprout is a Digital Agricultural Platform, managed by Mercy Corps Agrifin, that aims to promote the supply and access of relevant and high-quality content as a public good, launched in September 2021. Sprout provides a range of agricultural content across 5 countries and a variety of dissemination channels such as SMS and social media. It provides affordable and relevant information to farmer facing organizations, such as Digicow and DigiFarm who disseminate onwards to farmers.

A wide range of organizations, such as AGRA, KALRO and CABI, provide information to the platform.

The platform reduces the cost per user.

Quantitative methods included a survey with farmers who have used partner services, while qualitative methods included in depth interviews with key informants involved in the implementation of the program. This mixed-method approach provided a comprehensive understanding of the program's impacts and outcomes.

3.1 Evaluation purpose and objectives

The purpose of the GIZ Digital Agriculture Africa-End of Project Evaluation was to assess the project's overall performance and achievements, identify the project's strengths and weaknesses, document lessons learned, and provide recommendations for future projects. It specifically focused on progress made towards achieving positive change for small holder farmers (SHFs) and the extent the project enabled them to be more productive, earn more income and build resilience to climate shocks. It also looked at the contribution made in demonstrating and establishing a new delivery model for SHFs, through experimenting and learning across various digital platform. Thus, the purpose of the evaluation was to:

- Determine the extent to which the outcomes of the project have been achieved.
- Document the achievements, lessons learnt and best practices in design, management and implementation of the project.
- Provide recommendations for future programming based on the results of the current project.

3.2 Methodology

The evaluation used a mix of evidence to gather information about the program, collected from project documents, a small-scale telephone survey of farmers engaged with CoAmana and FSPN, and key informant interviews (KIIs) with key stakeholders involved in the implementation of the project.

3.2.1 Document review

Internal documents of the three partners were reviewed by the evaluation team, which involved a comprehensive examination of their content, structure, and relevance. The objective of this process was to assess the available evidence to answer the evaluation questions, and identify areas requiring further exploration.

3.2.2 Quantitative Data Collection

The quantitative interview process targeted farmers in Kenya and Nigeria, with a focus on representing diverse genders and ages. The farmers interviewed were part of the FSPN and CoAmana network in Kenya and Nigeria with the aim of collecting insights about the program.

Questionnaire: Ipsos, in collaboration with Mercy Corps, developed a quantitative questionnaire with farmers which focused on understanding the services they had received, the benefits of these services, any challenges as well as the impact on farming outputs.

Sample: The research study targeted farmers participating in the GIZ Digital Agriculture Africa program, selected from lists of users provided by CoAmana and FSPN. Respondents were randomly selected from these lists, ensuring a representative sample. This method aimed to capture a diverse group of farmers actively involved in digital agriculture practices. 100 farmers were interviewed in each country, and 65% of those interviewed were women.

Data collection: The data collection was conducted using Computer Assisted Telephone Interviewing (CATI).

3.2.3 Qualitative Data Collection

To obtain a full view of the program, key informant interviews were conducted with key stakeholders as shown in the table below. The aim of the qualitative data collection was to gather insights and perspectives from various individuals and organizations involved in the program.

Below is the sample breakdown of the KIIs conducted.

Table 1 Key informant sample

	Sample profile	Number of Interviews Kenya	Number of Interviews Nigeria
Key Informant Interviews (KIIs)	FSPN	1	
	CoAmana	1	
	Sprout	1	
	Sprout Content Contributors- (KALRO, CGIAR)	1	1
	Sprout Content users	2	3
	Farmer Group/Market Leaders CoAmana and FSPN	4	4
Total sample		**10**	**7**

3.2.4 Adjustments to the evaluation design

During the implementation of the process, several limitations were encountered. These limitations included the lack of baseline data and a control group, which means that attributing change to the GIZ DAA program is based on plausible claims and available evidence. Additionally, there were issues with the quantitative survey sample, such as some contacts being unreachable or switched off during the data collection period, some respondents not being aware of the FSPN or CoAmana program, and incorrect or disconnected numbers on the sample list. Furthermore, in some cases, it took longer than expected to schedule appointments for the key informant interviews.

4.0 The implementation strategy

4.1 The effectiveness of the implementation strategy

Through its partnership arrangements, institutional strengthening and beneficiary participation, the program aimed to stimulate greater innovation and scaling of critical services including agricultural advisory services, inclusive finance and smart farming solutions (such as climate insights, precision farming tools, and food security maps).

4.1.1 Overall effectiveness

The project demonstrates that the overall the project implementation strategy employed has been very effective. It is well aligned with the market system development methodology, building on MCA expertise, and supports the achievement of the program

The success and effectiveness of the implementation strategy was enhanced through strong partnerships between organizations with complementary areas of expertise, a focus on understanding the needs of key stakeholders, a collaborative approach to information sharing and stakeholder engagement as well as an emphasis on continuous learning.

One key factor which contributed to the effectiveness of the program was the recruitment of core partners with complementary areas of expertise, which enabled successful implementation as it stimulated innovation and allowed the scaling of key services. For example, CoAmana had extensive experience in working with small businesses and the development of digital marketplaces, which led to considerable success in disseminating digital agricultural advisories visory, onboarding markets, traders, and farmers to digital platforms to provide advisory services (CoAmana, Milestone 7 Report, 2023). Meanwhile, FSPN has extensive experience in food security programming and providing meaningful engagement with communities (FSPN, FSPN Partners Against Hunger, 2023). As a result, the FSPN implementation strategy allowed the program to effectively reach smallholder farmers. This was enabled by a farmer led approach, which made content more accessible to farmers. For example, through a farmer led approach, FSPN were able to curate information for farmers in a “one stop shop” where they could access relevant information (FSPN M. D., 2023). Lastly, Sprout was able to leverage the full experience and network of the program across Mercy Corp’s agriculture, banking and technology partners to provide relevant and high-quality content from a wide range of specialized partners in the agricultural space including the Alliance for a Green Revolution in Africa (AGRA) the Kenya Agricultural and Livestock Research Organization (KALRO) and CGIAR and it’s scale initiative Excellence in Agronomy. Through the Sprout platform, a variety of stakeholders, including over 100 Farmer Facing Organizations, were engaged to disseminate curated agricultural content in digital formats. As a result, achievements under the DAA project include successful publication of more than 121 digital ready content pieces covering 95 value chains (DAA, 2023). Sprout has also introduced digital weather advisory services filling a significant gap for Farmer facing Organizations. With feedback-driven flexibility and continuous improvement, the project has reached over 2.4 million farmers (Sprout, 2023).

Another key element which contributed towards the effectiveness of the program was an emphasis on continuous learning. As a short-term program, there were relatively limited M&E systems in place as per the documents reviewed for this evaluation. However, despite this, core partners illustrated that they were able to learn from challenges to improve implementation as the program progressed. For example, FSPN found that due to a lack of digital literacy among individual farmers, it was necessary to adapt to work with lead farmers who could understand and communicate the digital content effectively with others in their communities. In addition, they continually worked with communities to understand the needs of farmers and adapted their content accordingly. (KII – Kalvince, FSPN) Different partners also adapted their approach to be more gender inclusive, such as CoAmana who employing more female staff in call centres as they found that this improved their effectiveness in reaching women (CoAmana, Communications Lead, 2023). As a result, the program was able to be more effective over time.

Finally, the project's collaborative approach to information sharing and stakeholder engagement has been significant in ensuring the effectiveness of the project. For example, Sprout was a key source of the latest expert agricultural information for both CoAmana and FSPN, and has made it much easier for partners as well as farmers to access and share information. This included content across a wide range of topics from several different partners which is relevant for and can be adapted to different contexts throughout the region. This made the project effective, as it made it easier for partners to adapt existing content to local contexts (CoAmana, Communications Lead, 2023).

Overall, the key learnings, considerations and critical success factors which enabled effective implementation included:-

- **The importance of inclusive engagement:** Throughout the program, there was an emphasis on inclusive engagement and the importance of working with women and young people (MCA, Desk Research Information Matrix, 2023). This included a recognition of the importance of improving digital engagement within communities as well as understanding community preferences and needs. For example, the establishment of local seed banks due to farmers preference for local seeds (FSPN, Lead Farmer Approach Report, 2023). However, this could be improved further through expanded engagement of local communities into project planning and design. This could help tailor the project's interventions according to the unique challenges faced by these communities. For example, CoAmana highlighted the importance of improving localization of content to encourage uptake by farmers in future (CoAmana, Communications Lead, 2023).
- **Capacity-building**: Capacity building for farmer groups has been a very effective element of program design and further investment would pay dividends in helping farmers, traders and other players to fully utilize the digital platforms. For example, interviews with CoAmana highlighted the need to have a “short, medium and long-term capacity building strategy” to allow time for farmers to build knowledge of and trust in the digital platforms (CoAmana, Communications Lead, 2023).
- **Awareness raising:** The project has been able to quickly respond and take advantage of communications opportunities and have been proactive in setting these up. Further investment in a broader societal launch of the services could assist in the volume and equity of uptake.
- **Monitoring and evaluation:** A robust monitoring and evaluation system would help track progress, identify challenges early on, and adjust the strategy as needed. While partners have displayed the capacity for continuous learning a more robust, joint M&E system which encompasses all of the partners would help to embed this and provide impetus for positive change.

Key Learning for each partner is highlighted in the table below:

Partner	Key Learning
CoAmana	***Cross border collaboration**:* The project should conduct more comprehensive assessments of cross-border market links to existing markets. This could be done by collaborating with organizations in these markets to share knowledge and best practice (CoAmana, Cross Border Report, 2023). ***Technological development**:* The project should invest more in research and development to improve its digital platforms. This would make the platforms more user-friendly and accessible, which could attract more users (DAA, 2023). ***User verification*:** The project should work to improve the percentage of verified active farmers and traders on the platform. This would enhance trust in the platform and potentially attract more users (DAA, 2023). ***Risk Analysis and Mitigation*:** A comprehensive risk analysis and mitigation strategy, outlining potential challenges and plans to overcome them, would be beneficial (MCA, Desk Research Information Matrix, 2023).
FSPN	***Comprehensive Needs Assessments:*** There is a need for a more comprehensive needs assessments that have a wider focus on farmer needs which go beyond farming, to incorporate other key issues which impact the engagement of end users, such as health issues and other challenges in the community which impact farmers' ability to implement their learning (FSPN M. D., 2023). ***Post-Harvest Management:*** Providing more training on post-harvest techniques and assisting farmers in accessing essential infrastructure. ***Demonstration Farms:*** The establishment of demonstration farms could enhance practical learning. Key informants reported that this would be a successful way to showcase different products and techniques, while allowing farmers to ask questions and improve trust in the program (FSPN M. D., 2023). ***Expansion of Content:*** Key informants reported that there is a high demand for content in other value chains which should be considered which takes into account the fact that farmers often practice mixed cropping (FSPN M. D., 2023).
Sprout	***Better Engagement with Women Farmers***: The project aimed to engage with women farmers extensively and although progress was made the targets were not fully met. Strategies for engaging women farmers need to be revised or enhanced to ensure inclusivity (MCA, Desk Research Information Matrix, 2023). ***Timeliness and Accuracy of Information:*** Delays in communication and inaccuracies in information can erode farmers' confidence and trust. Processes need to be optimized to ensure timeliness and accuracy (MCA, Desk Research Information Matrix, 2023). ***Risk Management:*** The project has faced challenges with the adoption of digital technologies and reaching the targeted number of transactions. A stronger focus on risk management could help anticipate and mitigate such issues in the future (DAA, 2023). ***Expansion into More Geographies:*** Expanding Sprout into other geographies could help scale the project's impact and serve more smallholder farmers. For this to be a success, more would need to be done to promote the localization of content, such as translation into additional languages (Leader, 2023). ***Partnerships:*** Increasing collaboration with more organizations in the public and private sectors could provide more resources, extend reach, and enhance the relevance of content (MCA, Desk Research Information Matrix, 2023). ***Better engagement with women farmers***: The project aimed to engage with women farmers extensively and although significant progress was made, the targets were not fully met as of the end of June 2023 (DAA, 2023). Strategies for engaging women farmers should continue to be employed. For example, sprout are engaging with women to understand what content would interest them, and are working with implementers to ensure women's voices are heard (KII, Sprout Implementing partner, 2023)

4.1.2 Partnership arrangements, institutional strengthening and beneficiary participation

The core implementation approach that Mercy Corps Agrifin used for the Phase 2 DAA project emphasizes the formation of partnerships as well as institutional strengthening for key implementing partners. This included direct collaboration between core partners, the facilitation partnerships between core and value-added partners ("VAS partners") to inject innovation and provide access to a more diverse range of services and finally, the facilitation of partnerships between farmer-to-farmer organisations including a significant emphasis on the participation of end users.

There are various examples within the project of how these different types of partnerships led to successful outcomes.

Key examples of direct collaboration between core partners include the following:

- The pre-existing connections and network that MCA and core partners had with VAS partners enabled relationship building across the program. For example, MCA worked with a wide range of partners across a number of geographies to obtain information and content through the Sprout Platform to fulfil the vision and implementation of the "Farm to Fork" model in Kenya, Nigeria, and Ethiopia. As a result, MCA supported FSPN to connect with strategic partners and leverage resources to support their respective smallholder farmers and has supported Coamana to connect with partners to obtain information for the project.
- FSPN was able to collaborate with Sprout, which improved their content creation as an organization, as it has allowed them to learn how to successfully curate content based on the needs of the farmers they work with:

  > *"Sprout has changed how we do content is the fact that their content is curated and of course, they do not have all the content, because there are emerging things, that is inevitable. But looking at how they've done their content, it serves as a basis and gives you a picture on how to put together your content package."*
  > ***Key Informant Interview - FSPN***

Key examples of external partnerships include:

- Sprout was able to build partnerships with 59 content/distribution partners, surpassing their initial target of 35. The fact that these organizations were willing to partner with the Sprout project indicates a level of trust and credibility in the work which was done. (MCA, Desk Research Information Matrix, 2023)
- Flexibility was built within the program to identify and build external partnerships and use opportunities to publicize and build partnerships. For example, presentations at the Sankalp Africa Summit 2023 assisted partners to generate leads (DAA, 2023).
- Multiple and diverse partnership arrangements in place with external partners across the value chain include partnerships with various organizations and entities such as Stanbic Bank, Equity Bank, Musoni, Sterling Bank, NMB, CRDB, Pula, ACRE Africa, KALRO, Arifu, CGIAR, iShamba, the Agricultural Transformation Agency of Ethiopia, Shamba Shape Up, iProcure, WeFarm, Sidai, Hello Tractor, Turn IO, Ignitia, aWhere, Flour Mills of Nigeria, AgroMall, DigiFarm, TruTrade, Copia, and AGRA. These partnerships cover areas such as financing, insurance, content and helplines, input distribution, mechanization support, precision weather, agribusinesses, and offtakers (DAA, 2023).

Each of the three partners also placed a strong emphasis on beneficiary participation within the implementation of their project. For example:

- In phase 2 of the DAA project, CoAmana aimed to digitize 40 market hubs and achieve 100,000 transactions by June 2023. This involved active participation of the farmers who were the primary users of the platform. The platform was designed to be inclusive, with the objective of having 50% youth and female representation by June 2023.
- The Sprout content has reached more than 1.7 million farmers, including more than 468,000 women farmers. This engagement has been enhanced further due to the implementation of the lead farmer approach, which allowed the curation of sprout content to local contexts (FSPN, Lead Farmer Approach Report, 2023)
- FSPN includes farmers in the design and development of their services, such as the upscaled Digital System, which promotes adoption and use of services at scale. They have also integrated “Feedback-Response Mechanisms” which establish two-way communication channels to ensure that market partners can communicate their expectations to smallholder farmers while also providing a platform for farmers to negotiate prices (FSPN, FSPN Partners Against Hunger, 2023).

Institutional strengthening was also an essential element of the program, and the MCA team worked closely with young technology innovators, FSPN and CoAmana, to build their capacity in areas such as organizational structure, operations, processes, ability to innovate and deliver solutions to farmers and technology adoption. Key examples of this include:

- CoAmana has developed a digital agri-marketplace, Amana Market, reaching over 170,000 farmers. This has strengthened CoAmana's institutional capacity and provides an innovative platform for farmers to sell their produce directly to buyers (MCA, Phase 2 Deliverable - Project Inception Report, 2023).
- FSPN implemented institutional strengthening through the formalization of farmer groups, leading to better bargaining power for farmers, improved market linkages, and increased adoption of innovative farming solutions (MCA, Phase 2 Deliverable - Project Inception Report, 2023).
- Both organisations have also cascaded institutional strengthening to build the capacity of partners they are working with on the ground. For example, FSPN has worked to formalize and strengthen farmer groups, to enable them to enhance their bargaining power and improve market linkages (FSPN, Lead Farmer Approach Report, 2023).

Overall, the focus on partnership building and institutional strengthening as a central part of the program enabled improved scalability as well as the capacity to bring in diverse ideas and innovations to positively impact farmers and improve outcomes.

4.2 Optimization of digital supply chain management and market access solutions

4.2.1 Scaling of market management, support for payment and storage and facilitation of market buying from farm clusters

One of the most significant strengths of the program was the targeted use of digital solutions to improve farmers’ access to markets and reducing food waste, while allowing farmers to negotiate for fairer pricing.

Considerable steps have been achieved in the area of integration of farmers into market networks to sell produce and access inputs and services. In summary, the scaling of market management and farmer input purchasing via networks has improved farmers' access to markets and created an efficient system for purchasing inputs and selling products. Through partnerships and effective strategies, better prices and terms have been negotiated. The digitization of these processes, as seen with platforms like Amana Market, has further enhanced efficiency and accessibility. Collectively, these strategies have streamlined the agricultural value chain, boosting farmer productivity and profitability.

Each of the partners has contributed towards improving digital supply chain solutions within their programming, which has included efforts to support digital payments as well as the facilitation of market buying from farm clusters. For instance, CoAmana developed Amana Market, a digital platform that empowers existing agricultural markets by providing a comprehensive suite of tools and embedded finance services tailored for smallholder farmers, traders, and market hubs. CoAmana digitizes market transactions, streamlines payments, and offers embedded financial solutions, such as trade finance, digital wallets, and insurance products. (Solve, 2023) Through Amana market, over 170,000 famers have been able to sell their farm produce directly to buyers or local traders. By the end of 2023, CoAmana plans to digitize 40 markets in Nigeria and Kenya (CoAmana, CoAmana Digital Culture Africa Phase 2, 2023). Sprout has also successfully curated content which has contributed towards enabling farmer facing organizations to scale market management across various clusters and facilitate farmer input purchasing and sales via market networks. They achieved this by establishing over 121 agricultural value chains, which allowed the dissemination of more than 8.5M messages to nearly 963,000 farmers. Moreover, CoAmana'splatform has onboarded 42 markets onto the Amana Market in Nigeria and Kenya, offering these markets a trade financing wallet and a community trust wallet for financial protection. Finally, FSPN has upgraded to include a wide variety of market value chains, approximating farm inputs needed, and yield expected based on the size of land. Their shamba calendar platform offers digitized marketplaces and learning sections where farmers can access market information. They have also facilitated more secure payments through their digital supply chain management system. This has reduced risks associated with cash transactions by allowing payments to be made through checks and bank accounts.

These efforts have been successful in improving information on as well as access to markets for beneficiaries of the program. Quantitative research findings revealed that 48% of respondents in Nigeria and 35% of respondents in Kenya had been linked to markets as a consequence of their interaction with the service (Ipsos, 2023). Benefits of this were highlighted in key informant interviews with farmers who had benefitted from the program:

> *"It has helped a lot, because [previously] we were dealing with brokers. You find here we pack in sacks, others we call cutter 4, cutter 2, so brokers come and tell us this cutter 2 we will take at this price. But now with Shamba Connector we are dealing with them and the buyer. So the buyer at least we sell at a better price than when we were selling to brokers.* (Leader, 2023)*"*

In addition to this, digital solutions improved access to storage for farmers. CoAmana established 40 fully stocked stores by June 2023, which facilitated storage in markets and served as points of payment. A "buy now pay later" approach was also implemented to reduce the barrier to entry for farmers, providing further support for payments alongside the digital wallet. (CoAmana, CoAmana Digital Culture Africa Phase 2, 2023)

The Lead Farmer Approach utilized by FSPN has also aided market buying from farmer clusters by having lead farmers serve as local guides and role models, demonstrating optimal farming

practices as they act as local extension officers. This guidance has extended to fostering connections to support services and market opportunities and streamlining transactions by reducing the reliance on middlemen.

4.2.2 Farmer training on GAPs, financial literacy and GIS advice

Alongside improved access to markets, improving access to training on good agricultural practices, financial literacy and other key topics through the creation of digital tools was a critical element of the program. The overall aim of the farmer training was to enable farmers to adopt sustainable agricultural practices, make informed financial decisions, and leverage technology to enhance their productivity and profitability. This training was developed through various means, including through the communication of curated content to lead farmers by FSPN, as well as various content produced through the sprout platform.

Some key examples of training which was undertaken during the program includes:

- FSPN provided farmer training on Good Agricultural Practices (GAPs), financial literacy, and Geographic Information System (GIS) advice through a blend of digital and physical training methods. A total of 126,401 farmers have been registered with over 81, 960 farmers active as of Oct 2023 (FSPN, CoAmana, 2023). Digital training was conducted through platforms such as mobile apps, while physical training was held at designated locations. Farmers who did not have access to smart phones were still able to access information through lead farmers, who would communicate critical information and advice to their networks.
- CoAmana's training prioritizes teaching farmers and traders how to run a business and become resilient through economic downturns and climate change. They provide training on good agricultural practices (GAPs), financial literacy, and GIS advice. The project aimed to improve access, input, knowledge, and affordability, which may include such training. For example, over 184,436 farmers, traders, and market leaders received weather advisory services and best practices information, which was reported to have had a positive impact on beneficiary farmers,

Interviews with key informants as well as the quantitative survey illustrated that farmer training and information was the most widely accessed service offered by the program. This is illustrated by the fact that 98% of farmers surveyed in Kenya and 57% of those surveyed in Nigeria reported that they had received training on GAPs. Key informants interviewed for the evaluation also highlighted that training had helped them to diversify the crops they grow and improve yields, such as this key informant who attended training run by FSPN:

> *"Yes, training has helped us a lot, as I've told you it guides us. If it's potatoes it tells us how to plant those potatoes, pest control and guides us up to the harvesting stage. Even vegetables we now know how to go about it"* (Leader, 2023).

Overall, survey respondents and key informants interviewed as part of this evaluation were very positive about the information and training received as part of the program and reported that it had had a positive impact on their farming practices. This is evidenced by the fact that 50% of farmers surveyed felt that access to services had very much improved their farming methods, while 39% felt they had slightly improved (Ipsos, 2023).

4.3 The incorporation of climate-related information and support

The evaluation aimed to assess to what extent did the project include climate-related elements, and the impact and value derived from these initiatives. Our assessment of the program's inclusion of climate-related elements indicates a strategic implementation with significant impacts and value. The program integrated climate information into decision-making, promoting climate-smart agricultural practices such as conservation agriculture, intercropping, and pest and disease management. Notably, innovations like vertical farms were introduced, especially beneficial for women in land-limited areas, demonstrating the program's adaptability to local constraints.

Over 95% of African food production is rainfed, which leaves smallholder farmers (SHFs), who contribute to about 80% of food production for African consumption, vulnerable to changes in weather (Institute, 2023). Climate change in Africa is estimated to lead to about 25% decline in crop yield by 2025, a situation which will further be exacerbated by an increase in population growth, and long-term impact expected from the COVID-19 pandemic (MCA, Phase 2 Deliverable - Project Inception Report, 2023). Considering these challenges, and with the objective of achieving the broader program objectives, the Digital Agriculture Africa (DAA) program sought to link farmers to climate-smart solutions and approaches leveraging Mercy Corps' AgriFin (MCA) programs' partners (MCA, Phase 2 Deliverable - Project Inception Report, 2023).

Each of the program partners sought to incorporate climate related elements into their projects and operations. Key examples of this include:

CoAmana

- CoAmana has extensively incorporated climate-related elements into their projects and operations. They have developed a Climate Resilience and Impact Framework, which addresses climate-related challenges across multiple market hubs and provides guidance on preparing for and recovering from climate shocks. CoAmana has also integrated climate-related content into their platform, providing information on climate resilience and reducing post-harvest losses. In addition, they have specifically targeted regions vulnerable to climate change, such as Northern Nigeria, where they help farmers adapt to changing climatic conditions. By digitizing market systems, CoAmana strengthens supply chains and helps farmers and traders become more resilient to climate-related disruptions. Digitization has enabled farmers to have improved access to the latest market information, which allows them to better adapt to disruptions in good time, which is facilitating improved access with a wider range of traders. (CoAmana, Climate resilience and impact framework report, 2023).
- The impact and value of these initiatives are significant. Since 2018, CoAmana's Amana Market has reached over 184,436 farmers and is actively providing market access support to over 69,078 farmers as of Oct 2023. (FSPN, CoAmana, 2023). They have engaged active traders and farmers in their market, contributing to the building of a climate-resilient agricultural sector (CoAmana, Climate resilience and impact framework report, 2023). These efforts also contribute to broader goals of reducing poverty and increasing food security in Africa.

FSPN

FSPN implemented a comprehensive strategy to address the challenges posed by climate change and support smallholder farmers. Their Digital Agriculture Africa Project incorporated

several climate-resilient measures, empowering farmers to adapt to changing weather patterns and ensure sustainable food production. This has included:

- FSPN encouraged the adoption of climate-smart agricultural practices among smallholder farmers. This embodied a proactive approach to managing the risks associated with climate change, including unpredictable weather patterns, prolonged drought, and increased incidences of pests and diseases. The approach included practices that are specifically designed to increase productivity, enhance resilience (adaptation), reduce/remove greenhouse gases (mitigation), and enhance achievement of national food security and development goals.
- FSPN trained beneficiaries on techniques which were adapted to local conditions as well as to the needs of the beneficiaries of the program. For example, they ran training on vertical farms which was well received by communities, as it could be done in areas where land was limited and it did not require many resources to be successful:

  > *"So, in Kisii where land is limited, especially for women, the vertical farm went a long way in terms of innovation. But [it was] also [good as] an innovation for climate smart agriculture in other places… The resources are not much, you need very little water, the vegetables take like three to four months and they are ready to go* (KII FSPN, 2023)*".*
- Incorporating Disaster Mapping and Risk Management by leveraging Geographical Information System (GIS) technology, FSPN created disaster maps that identify areas prone to floods, landslides, and droughts. This information empowers farmers to prepare for and mitigate potential disasters, protecting their crops and livelihoods. (FSPN, Training Report, 2023)
- FSPN provides farmers with timely and accurate weather information, enabling them to make informed decisions about crop management. This information includes forecasts of rainfall, temperature, and potential weather hazards, helping farmers optimize their agricultural practices and minimize losses. (FSPN, Lead Farmer Approach Report, 2023)

As a result of these initiatives, SHFs involved in the program have benefitted from improved crop yields and reduced yield losses due to climate-smart practices and informed decision-making as well as reduced vulnerability to climate shocks, such as droughts and floods, through disaster preparedness and risk management strategies.

These findings were mirrored in the key informant interviews and surveys undertaken as part of this evaluation. Findings from the survey revealed that 98% of farmers interviewed in Kenya and 88% of those interviewed in Nigeria felt that their participation in the program had equipped them with education and skills to be more climate resilient (Ipsos, 2023).

4.4 Gender equality, women and youth empowerment

MCA and partners have strongly integrated women and youth empowerment throughout their strategy, and this has been well executed within program implementation. Although there is still some way to go to fully integrate women and youth and provide better access to information, markets and services, significant steps have been taken to make this a reality.

Throughout the implementation of the project, partners maintained a focus on inclusivity, with a specific focus on engaging women and young people in the program.

Efforts were made by all project partners to promote gender equality and women's empowerment. For example, coAmana sought to achieve a 50-50 gender representation among the farmers involved in their project. They implemented a quota system on all input, equipment, and tools sold within this project to ensure gender equality, ensuring that women farmers had equal access to the resources and opportunities, thereby promoting gender equality in the agricultural sector. They also made deliberate efforts to scale to women by creating opportunities for women to participate more in the innovative process and decision making and made efforts to significantly enhance their empowerment. In addition, FSPN embraced a gender-responsive approach by integrating gender transformative indicators into the project. This ensured that the project's interventions were gender-responsive, demonstrating a high commitment to gender equality. FSPN also launched the Women In Agriculture (WINA) initiative, providing a digital platform for women Agri-input providers. This initiative helped women access digital markets and supported their financial independence. The project also trained women in using digital technologies to promote digital literacy (FSPN, Lead Farmer Approach Report, 2023). Finally, sprout have continued to make efforts to ensure the engagement of women in their platform. While they had not yet made their targets for women they are on track to meet these targets. they have continued to make efforts to ensure women are reached and engaged:

> *"We have been working to target Farmer Facing Organizations that focus on women farmers and for them to design what they need so that they have that for their farmers. So, many Farmer Facing Organizations we work with have more than 50% women farmers and so in one country we worked in, we worked in a group that had a very high percentage of farmers and all the content we did was content for value chains that women were predominant in. We have been focused on acquiring Farmer Facing Organizations that are hardly women driven to encourage them to focus more on women farmers and we have also been doing all of our studies on what farmers need and how they need it. We have been making sure that women account for 50% of those voices while we do that so that we understand what they are looking for and capture what they are looking for in our content development"* (KII, Sprout Implementing Partner, 2023.)

As a result of these efforts, the following achievements were realized:

- The WINA initiative benefited more than 200 women Agri-input providers, enabling them to reach a vast market (FSPN, Lead Farmer Approach Report, 2023).
- The project successfully registered a large number of smallholder farmers, focusing on women and young people.
- FSPN's inclusive approach in selecting Lead Farmers has ensured gender inclusivity, which enriched the project with unique perspectives and innovative approaches. Women and youth, who served as Lead Farmers, were empowered with knowledge, skills, and decision-making roles. This strategy resulted in increased community engagement, fostering sustainable improvements in agricultural practices and livelihoods (FSPN, Training Report, 2023).

Partners also worked towards empowering young people, and included strategies for youth engagement as part of their work. For example, CoAmana reached their target to recruit at least 50% of farmer and trader officers from the youth demographic. This strategy not only provided employment opportunities for the youth but also empowers them with a platform to contribute to the agricultural sector. Moreover, the project was set in areas with a high proportion of young people, implying high potential for youth employment and long-term digital convergence. Furthermore, FSPN prioritized youth in terms of access to agricultural support services and encouraged youth engagement in digital agriculture to keep the sector vibrant and relevant. Young people were also engaged as lead farmers, to improve outreach to other young people within the target communities.

For both FSPN and CoAmana, key informants interviewed for the evaluation confirmed that in the implementation of the Digital Agriculture Africa (DAA) program, the engagement of women and young people was an essential element of program design and that they were involved in various aspects of the program:

- Women were integrated into the program alongside their families, ensuring benefits for entire households.
- Women and young people were involved in adopting climate-smart agricultural practices and were given access to markets and inputs.
- Lead farmers, including women with smartphones, helped disseminate digital content and services, which helped bridge the digital divide.
- Young women benefited from innovative agricultural techniques like vertical farming, which was especially advantageous for those with limited land access.
- Youth, including young women, were engaged in value addition and market linkages, emphasizing business-oriented agricultural practices.
- The program's design ensured that women and youth were active contributors to the agricultural sector's growth and sustainability, not just as beneficiaries.

These achievements were visible in the results of the quantitative survey, which found that female farmers reported the following benefits of the program:

While positive benefits can be seen in terms of improved influence over decision making and climate resilience, only 39% of women said that the program had increased their access to financial services compared to 55% of men (Ipsos, 2023). This highlights that there are still elements where more needs to be done to empower women and the need to understand wider gender dynamics. In addition, it was reported that a lack of involvement of men in the initial stages of the program led to household conflicts. As a result, key informant interviews highlighted the need for awareness around household dynamics when designing programs, and the importance of engaging men alongside women:

> *"Then when you're doing mobilisation, don't isolate this woman because you might empower her, give her all this information, but she's going back to these same men and the men are their partners in the household. So, you make it very complicated for anything to be adopted. The way to involve women is also to involve their spouses and cascade the benefit to her, to him and to the household. You will have an easy time… But when you work in isolation, it becomes a challenge.* (FSPN M. D., 2023)*"*

To overcome this challenges, efforts were made to engage men in programming to improve buy in and reduce conflict.

4.5 Achievement of outcomes

Overall, the DAA program has made significant strides toward its outcomes of enhancing agricultural productivity, market access, and climate resilience. However, to fully realize its potential, there must be continued efforts to address the digital literacy gaps, improve access to technology, and streamline the delivery of digital agricultural services.

This evaluation Below is a summary of the impacts, both positive and negative, as well as intended and unintended:

4.5.1 Positive intended impacts

Key positive impacts of the project are highlighted below:-

- The program **reached over 100,000 farmers** with digital access, advisory, and training (GIZ, 2023).
- **Improved market access and pricing**: The program has significantly improved market access for smallholder farmers through digital platforms like Shamba Connector, leading to reduced reliance on middlemen and better pricing for farmers.

> *"We have gotten so much help on that side (Marketing), also farming vegetables. Last week we had 100 sacks, and we went to Shamba Connector, and they helped us to find a market." (Farmer-KII)*

- Due to increased access to market the program has **contributed to reduced food wastage** by connecting farmers directly to buyers.
- **Climate-smart agricultural practices**: Farmers have adopted climate-smart practices such as conservation agriculture, intercropping, and pest management, which have enhanced their resilience to climatic events like El Niño. For example, 98% of farmers interviewed in Kenya and 88% of those interviewed in Nigeria felt that their participation in the program had equipped them with education and skills to be more climate resilient.

Climate smart

- 98% of Kenyan farmers said they are more climate resilient
- 88% of Nigerian farmers said they are more climate resilient

Empowerment of women and young people

- 82% of women said their influence in farming decisions had improved significantly (45%) or slightly (37%)
- 90% of those aged between 19 and 24 felt their influence in farming decisions had improved
- 78% of those aged 25 - 30 felt their influence in farming decisions had improved

- **Empowerment of women and youth.** By integrating gender-responsive value chains and involving both women and their spouses, the program has effectively made positive steps towards empowering women and engaging young people in agriculture. For example, 82% of women interviewed felt that their influence in farming decisions had improved significantly (45%) or slightly (37%) as a result of their engagement with the program (Ipsos, 2023) In addition, 90% of those aged between 19 and 24 felt their influence in farming decisions had improved, along with 78% of those aged between 25 and 30 (Ipsos, 2023).
- **Innovative farming techniques*:*** Innovations like vertical farming have addressed local constraints such as land limitation, especially benefiting women.

- **Tailored weather forecasts:** The provision of location-specific weather forecasts has enabled farmers to plan and adjust their farming activities in response to climate variability.
- **Enhanced decision-making**: The program's efforts in providing curated agricultural content and digital tools have resulted in more informed decision-making and increased productivity. Farmers confirmed to have increased productivity by adopting modern farming practices disseminated through digital programs.

"Let us say I came to know about this Shamba Calendar in May, but since then I have planted potatoes and I was guided by the Shamba Calendar and now. I harvested 15 sacks, but last week I harvested about 25. So, you can see I've added my harvest through that program. (Leader, 2023)*"*

- This finding it echoed in the quantitative results, which showed that 50% of farmers felt that their way of farming had very much improved and 39% felt it had slightly improved as a result of the program.
- Lead farmers have been empowered for knowledge dissemination and have been encouraged to work within their communities to maximize the impact of the knowledge they have gained.
- The impact of the project was maximized through the coordination of partner efforts and a collaborative approach to information sharing and stakeholder engagement.
- Sprout program provided curated, easily accessible information that was simple to disseminate to farmers. This made it significantly easier for partners to aggregate and disseminate information, when previously a similar task would have been very time consuming:
  "It kind of also helped us to package information in terms of the agronomy and then disseminate it, because now for us, we wanted step by step… When we started, we had training manuals, you know, like we had our agricultural team sit down and work on these modules and mark using lots of different manuals and sources of information. Now the information is easy to access in one place (FSPN M. D., 2023)*."*

4.5.2 Positive unintended Impacts

A positive impact that was noted, that was unintended, was that activities influenced farmers to adopt other crops through their group members. It was noted that the information dissemination is going beyond the content delivered by the program to include peer-to-peer learning from farmers experience.

4.5.3 Negative impacts and barriers

The following were the more negative impacts noted, or barriers to better implementation, some of which have been noted earlier in the report:

- **Digital literacy gaps:** A significant barrier to the program's effectiveness has been the low levels of digital literacy among farmers, which has hindered the full utilization of digital agricultural services.
- **Access to technology**: The lack of access to appropriate technology, such as smartphones, has limited the reach and impact of the program among certain farmer populations.
- **Fragmented services:** Before the program's integrated approach was implemented, other market players' fragmented services led to inefficient resource use and confusion among farmers.
- **Overwhelming Information***:* The abundance of content on platforms run by the farmer facing organizations t may have overwhelmed some farmers, leading to the need for simplification and curation of information.

- **Dependency on lead farmers:** The reliance on lead farmers or Shamba Connectors for technology and information dissemination may have inadvertently created a dependency that could be challenging to scale or sustain without them.

5.0 The project and development process

5.1 Impact of the digital global public good on the marketplace for agricultural advisory services

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A part of efforts to establish digital global public good, the DAA program spearheaded efforts to develop a transparent, secure, and robust marketplace for agricultural advisory services. Sprout has made substantial contributions to the agricultural advisory services marketplace in the countries in which it operates.

As part of this program, MCA led a user-led initiative to create a sustainable e-learning platform for DAA partners and technology innovators in Africa. The sprout platform addressed the gap between digital content providers and farmer-facing organizations by providing a shared resource and fostering collaboration. MCA worked with partners to develop the platform, incorporating content on COVID-19, pests and diseases, digital literacy, and financial literacy. The platform was designed as a global public good and directly collaborated with the GIZ learning platform, atingi. (GIZ, 2023)

The Sprout platform, a brainchild of the DAA program, has emerged as a digital global public resource, designed to serve as a user-facing platform for delivering digital services and content primarily tailored to farmer-facing organizations (FFOs) and smallholder farmers. Its mission has encompassed a range of services, including Digital Weather Advisory Services (DWAS) providing hyper-local weather forecasts, which were initially piloted in Kenya and slated for expansion in Nigeria, empowering farmers to make informed decisions. In addition, the platform has offered financial literacy content, enlightening farmers on fundamental concepts like savings, loans, insurance, and investments. Sprout ensured content availability across 95 agricultural and adjacent value chains, presented in multiple languages, encompassing English, Kiswahili, Amharic, and French. Partnerships with organizations like AGRA, AICCRA-CGIAR, EIA-CGIAR, CIAT, CYMMIT, and others have provided meticulously curated content, with examples like KALRO's content being disseminated over 4.7 million times, engaging more than 200,000 farmers. (GIZ, 2023)

With a noteworthy reach, the platform has delivered approximately 8.5 million messages to 963,000 farmers as of July 2023, highlighting its profound impact (GIZ, 2023). Ongoing endeavors to enhance user features, including user profiling, infrastructure stability improvement, Single sign-on (SSO), and content approval workflow, exemplified the platform's dedication to usability and expanded reach. In essence, the Sprout platform stands as a valuable digital global public resource, bridging critical gaps in the agricultural sector by providing high-quality resources and services to smallholder farmers and FFOs across diverse nations (Sprout, 2023).

Streamlined Access to Quality Information for Farmers

The evaluation found that the Sprout Platform has revolutionized the way agricultural information is accessed and disseminated, particularly for farmers in rural areas without smartphones. Through innovative technologies and partnerships, the platform has overcome challenges and

made complex content actionable and understandable for farmers, improving their agricultural practices and boosting productivity.

The evaluation noted the following key strengths of the sprout platform in meeting DAA project objectives:

- **Open Access:** Offered free access to high-quality agricultural and financial content and empowered organizations to enhance farmers' agricultural practices.
- **Wide Reach**: Engaged with partners across Ethiopia, Kenya, Nigeria, Ivory Coast, Tanzania, and Zimbabwe and ensures content is relevant to diverse contexts and agricultural practices.
- **Diverse Content:** Provided content in multiple languages, including English, Kiswahili, Amharic, and French and caters to a wide audience with varying needs.
- **Partnerships:** Onboarded new content and has expanded offerings over time through strategic partnerships. For example, sprout partnered with KALRO to develop crop and livestock value chains and seasonal crop calendars.
- **User Engagement**: Facilitated the dissemination of millions of messages, engaging hundreds of thousands of farmers. This demonstrates the platform's effectiveness in reaching its target audience.
- **Training and Capacity Building:** Helped provide information to train farmers in modern farming methods and the use of digital platforms. This will contribute towards improving farming practices and boosts productivity.
- **Streamlined Information Access:** Information is curated to provide simplified access to quality agricultural information for farmers, which is accessible and easy to understand. This has been enhanced by improved dissemination methods, particularly through SMS for farmers without smartphones.
- **Enhanced Collaboration:** The open access nature of the tool reduces effort duplication among partners and provides comprehensive farmer support across a wide range of topics
- **Technological Advancements:** Over the project lifecycle, the sprout team overcame challenges like managing large farmer databases and mass communication.
- **Feedback-Driven Improvement:** There are processes in place to improve platform navigation based on user feedback, which should improve accessibility

These findings were mirrored in the positive feedback on sprout which was conducted with key informants, in particular the way in which the curated content provides a useful guide for farmer facing organizations who are conducting programs with farmers, and even farmers themselves:

> *“Sprout content has all the information that will guide a farmer facing organization, or even the farmer themselves on the steps that they need to take so that they can improve their production* (User, 2023)*.”*

> *“Honestly, it helps and sometimes farmers can be on training and the lead farmer says, we need content on this by next week. You know, we have another training session. Sometimes they meet like twice or thrice a month, but then if there's a pressing need, they'll tell you the needs, there's an aspect they need and it is now right there because of sprout”* (FSPN M. D., 2023)*.*

In addition, it was reported that the sprout platform has allowed those working in farmer facing organiations who do not have specific expertise in certain areas of agriculture to access the information they need. This is particularly critical, given that there are currently insufficient extension officers to meet the needs of farmers in a number of contexts:

> *“This is good for the public. And it is something that I fully support because it helps me as a person who did not know much about agriculture. Where would I get this information*

about poultry if it were not sprout? All the places we've gone to, when I open this webpage, to share with them during the training, everyone feels good, that is something that we didn't have because usually, you rely on ward agricultural officers to support you. But the ward agricultural officers may not be enough in number to support all of us. So this is one page that I usually share with everyone. (User, 2023)*"*

Nevertheless, despite the benefits highlighted by sprout content users and developers are part of the evaluation, there were two key issues highlighted by key informants which it was felt need to be addressed as the platform continues to expand. These include:

- **Platform navigation –** Some users have faced issues with navigation on the platform, particularly when trying to find information on certain topics or is only available in certain contexts (User, 2023). Sprout should continue to utilize feedback driven improvement to address these issues.
- **Localization of content –** In order to further an inclusive agenda, there is a need to further ensure that content is available in a wider range of languages so that is accessible to more people. In addition, there is a need for more localized content which can be adapted to different contexts:

  "it might be tedious, but I would really emphasize, if really the end goal is for this smallholder farmer to consume this information, we need to be open to really localizing this content in the simplest language they can understand because then the uptake becomes easy" (FSPN M. D., 2023).
- **Increase the availability of audio-visual content –** partners highlighted that audio video content was particularly impactful for their training sessions, and that this type of content would complement the sprout platform (User, 2023). Sprout could explore ways of including this in their offering if feasible.

In conclusion, the Sprout Platform has played a pivotal role in transforming agricultural information access and dissemination, empowering farmers to improve their practices and livelihoods. Its open access, wide reach, diverse content, strong partnerships, high user engagement, and focus on training and capacity building have made it an invaluable resource for the agricultural sector. As digital literacy continues to grow, the Sprout Platform is well-positioned to further expand its impact and revolutionize the way farmers access and utilize information.

6.0 Commercial sustainability of sprout and farmer facing organizations

6.1 The sustainability of project activities by the private sector

Each organization engaged in the project made efforts to ensure ongoing sustainability by the private sector. For each partner, there are various factors which are likely to contribute towards sustainability as well as challenges which will make this less likely. These include:

CoAmana

Key contributions towards sustainability include:

- **Technological Advancements:** The project has successfully incorporated a substantial number of farmers into the Amana Market platform. The platform's user-friendly design and the training provided to farmers have fostered the adoption of technology. As

technology becomes more deeply integrated into agriculture, this trend is anticipated to persist.

- **Market Establishment:** The project has established a digital marketplace that connects farmers, traders, and market leaders. This marketplace, which streamlines transactions and enhances transparency, will endure and be utilized even after the project concludes.
- **Infrastructure Expansion:** The project has established physical stores in various markets, providing a tangible infrastructure that will continue to be utilized beyond the project's duration.
- **Skills Enhancement:** The project has provided comprehensive training to farmers, traders, and market leaders. These skills, particularly in utilizing the Amana Market platform, will continue to be advantageous beyond the project's duration.
- **Climate Adaptation:** The project's emphasis on climate resilience and mitigation, along with the adoption of climate-conscious agricultural practices, constitutes a long-term investment that will continue to yield benefits in the future.
- **Financial Stability**: The project's model of trade financing and community trust funding ensures a degree of financial sustainability. As transactions continue to occur on the platform, funds will continue to be generated for community trust, supporting ongoing resilience. To enhance this further, coAmana should explore further revenue models to ensure its financial sustainability. This could include subscription fees, transaction fees, or partnerships with other organizations.

Meanwhile, navigating the ever-evolving landscape of project sustainability demands a proactive approach that acknowledges and prepares for potential challenges. Rapid technological advancements, shifting market dynamics, unpredictable policy shifts, and unforeseen environmental factors could significantly impact the project's trajectory. Therefore, continuous monitoring, regular evaluation, and timely adjustments are indispensable to safeguard the project's long-term viability.

Sprout

According to reports reviewed for this evaluation, sprout’s beneficial effects are likely to be maintained by the private sector after the project's conclusion, due to several factors (GIZ, 2023):

- **Strong Partnerships:** Throughout the project's implementation, the DAA has successfully cultivated strong partnerships with technology innovators, farmer-centric organizations, and other critical stakeholders. These partnerships are essential for the continued and expanded development of the program's initiatives.
- **Robust Business Models:** Key partners like CoAmana operate as a social enterprise with a solid revenue model anchored in market aggregation, which can contribute to Sprout’s sustainability. Additionally, the Sprout Platform has been designed with a flexible business model that enables revenue generation through the introduction of new features and applications. For example, Sprout launched the Digital Weather Advisory Services (DWAS), hyper-local 7-day weather advisory as a “free” offer for FFOs that is pegged to become a subscription service once Sprout is able to navigate how to charge for the service within Mercy Corps. Mercy Corps HG approved Sprout’s ability to collect subscription and revenue and tax and legal issues are being navigated to make this a reality. Their goal is to offer different tiers of service, the first tier is planned at $99 USD/month for 5,000 farmer locations, which is the equivalent of $.25/farmer/year. As of July 25, FFOs had signed up (GIZ, 2023).
- **Ongoing Demand for Services:** The services provided by the DAA, such as digital content and training for farmers, access to high-quality inputs, and market linkages, are anticipated to remain highly sought-after in the African agricultural sector. This persistent demand is likely to encourage private sector partners to continue supporting these services.
- **Expansion Potential:** The DAA project has demonstrated the potential to expand into

new geographical regions and sectors, attracting additional private sector investment and support.

It is crucial to note, however, that certain aspects of the project, particularly those led by NGOs like FSPN, may require continued grant-based funding or other forms of public or philanthropic support. For example, initiatives like farmer aggregation and training may not be readily monetizable but are critical to the project's overall impact. In such cases, the sustainability of project benefits may hinge on securing ongoing funding and support (GIZ, 2023).

FSPN

FSPN stands to deliver lasting benefits to smallholder farmers even after the completion of the DAA project. Several factors are likely to contribute to this sustainability:

- **Market Linkages:** The project has established robust connections between farmers and buyers, including processors, supermarkets, and digital marketplaces. These enduring ties will provide farmers with ongoing access to lucrative markets.
- **Lead Farmer Approach:** This highly regarded approach fosters knowledge sharing and best practice adoption among farmers, fostering a sense of community. This network of peer-to-peer support will continue to empower farmers long after the project ends.
- **Capacity Building:** The DAA project's investments in farmer training, covering Good Agricultural Practices, financial literacy, and group leadership, are expected to have a long-term positive impact. These skills will enhance farmers' productivity, financial management, and collective action, ensuring their continued success.
- **Digital Integration:** The project's adoption of digital tools and platforms is poised to yield sustained benefits by improving efficiency, market access, and communication. These tools will remain valuable assets for farmers even after the project's conclusion.
- **Private Sector Engagement:** The project's engagement with private sector entities signals their continued commitment to supporting farmers beyond the project's lifespan. This ongoing private sector involvement will bolster the project's sustainability.

5.2 Improving the likelihood of sustainability

To improve the sustainability of the project outcomes and potential for replication, there are several key factors that are being considered by the program which will require continuous effort. These are explored in detail for each partner below:

CoAmana

The evaluation found that the Amana Market project is well-positioned for continuation and sustainability after its completion due to several factors. The project has successfully onboarded a significant number of users onto the platform, indicating that there is strong user demand for the services it provides. The project has also implemented measures to verify active users and provide support to farmers with large purchasing needs. These efforts have established a strong foundation of trust and credibility among end users, which is crucial for the project's sustained impact. Additionally, the project has developed a robust technology solution that is adaptable and can continue to serve the needs of the users in the long term. The project has also made significant strides in terms of impact, and the platform generates revenue through subscription fees and transaction commissions, ensuring its financial sustainability. Furthermore, the project is considering expanding into other countries, which will further enhance its sustainability by diversifying its user base and increasing its market reach. Finally, the project has developed a

climate resilience and mitigation framework that is likely to continue providing value to farmers and traders by helping them adapt to climate change and mitigate its impacts on their agricultural practices.

While there are challenges that the project team may need to address, such as user adoption, the Amana Market project has the potential to become a sustainable and valuable tool for farmers, traders, and market systems for years to come.

Sprout

Sprout is making significant progress towards its goal of improving agricultural practices and food security in Africa. To improve the likelihood of ongoing sustainability Sprout is developing a flexible financial business model and exploring new revenue avenues. One key element of ongoing sustainability is user buy in. The Sprout project has been successful in generating buy-in and credibility from its target audience of farmers and Farmer-Facing Organizations (FFOs). This is evidenced by high engagement levels, successful pilot projects and expansions, strong partnerships, a sustainable financial model, and positive feedback.

Despite these positive signs, the project teams will need to continue monitoring and adjusting strategies as needed to ensure long-term sustainability and that the benefits continue to be realized by the farmers and other stakeholders involved. The project's success in terms of sustainability will also depend on continued stakeholder engagement, ongoing funding, and the ability to adapt to changes in the agricultural and technological landscapes.

FSPN

FSPN has taken several steps to promote long-term sustainability. By adopting sustainable agricultural practices, empowering farmers, establishing market linkages, forging partnerships, embracing digital technologies, providing training and support services, and continuously monitoring and adapting, the project has laid a solid foundation for enduring success. For example, the project has partnered with government agencies, non-governmental organizations, and private sector companies. These partnerships have provided FSPN with the necessary support and resources to positively contribute towards sustainability. In addition, the project has taken an active role in monitoring and adapting their project to be more effective. The FSPN team are also planning to expand further geographically, to work in different regions which have different needs and requirements to expand their offering (FSPN M. D., 2023).

The FSPN project has also gained significant support from end users by demonstrating its relevance and responsiveness to their needs, providing user-friendly digital systems, offering effective training, implementing a successful Lead Farmer Approach, building strong partnerships, promoting gender and youth inclusion, and collecting positive feedback from users.

As a result, the project has ensured its ongoing relevance for SHF’s and has a strong offering to ensure ongoing sustainability. Nevertheless, there should be an ongoing focus on building partnerships in the sector to leverage funding, as of the three partners, they are the most reliant on grant-based funding.

Key Actions

The evaluation identified a number of key actions which can positively contribute towards continued project sustainability moving forward. These are both general and partner specific. General recommendations include:

General

- **Rapid Technological Advancements:** The pace of technological innovation is accelerating, rendering outdated solutions obsolete and introducing new opportunities. To remain competitive and relevant, partners must continuously assess the latest technological advancements and incorporate them as appropriate. This proactive stance ensures that the project remains at the forefront of its field, adapting to evolving user needs and market demands.
- **Shifting Market Dynamics:** Consumer and farmer preferences, economic trends, and industry regulations are constantly in flux. Partners must be agile enough to adapt to these shifts, ensuring that their products, services, and strategies align with evolving market dynamics. Regular market research, stakeholder engagement, and strategic planning are crucial to maintain a competitive edge and foster long-term sustainability.
- **Continuous Monitoring and Evaluation:** Effective monitoring and evaluation is the cornerstones of long-term project sustainability. Regularly assessing project performance against established metrics provides valuable insights into areas of strength and weakness.

Partner Specific:

CoAmana

- CoAmana should further Invest in comprehensive training and support for farmers and traders to effectively utilize the digital platform. This will foster adoption and long-term usage.
- CoAmana should proactively promote the platform's benefits to market participants, emphasizing its ability to enhance efficiency, provide valuable insights, and boost profits.
- Scale up strategic partnerships with local organizations, government agencies, and relevant stakeholders to expand project reach, leverage expertise, and achieve sustainability.
- CoAmana should make further efforts to obtain user feedback to implement a feedback mechanism to gather user input and continuously refine the platform to meet evolving needs and remain relevant.

Sprout

- Foster strong collaborations with public and private sector entities, including Farmer-Facing Organizations (FFOs), technology innovators, financial institutions, and relevant stakeholders to ensure long-term project success.
- Revenue Model Development: Establish a robust and scalable revenue model, such as subscription services for FFOs or market aggregation strategies, to support ongoing project operations and expansion.
- Sprout should drive continuous innovation by introducing new features, services, and technologies to enhance the platform's capabilities, improve information accuracy, and explore new ways to engage and support farmers.
- Sprout should support digital literacy training, good agricultural practices training, and support for utilizing digital platforms to enhance agricultural knowledge and practices.
- Explore opportunities to replicate the project's success in other countries with similar agricultural sectors and challenges, expanding revenue streams, partnerships, and impact.
- Prioritize support for women farmers, addressing barriers to accessing resources and services, providing tailored training and support, and advocating for gender equality within the agricultural sector.

- Proactively identify and mitigate potential risks, including financial, operational, and external environmental risks, to ensure project sustainability and resilience.
- Engage with policymakers and advocate for supportive policies related to digital technology, agriculture, and financial services to create an enabling environment for project success and sustainability.

FSPN

- Ensure that smallholder farmers have access to market opportunities through mutually beneficial partnerships with market stakeholders.
- Continue the lead farmer approach by providing ongoing training, support, and resources to group leaders.
- Utilize digital platforms to disseminate agronomic information, but also train farmers in digital literacy to effectively use these platforms.
- Consider gender dynamics in the selection of value chains and promote gender-sensitive approaches. This should include prioritizing the inclusion of women and youth in training programs and as lead farmers to address gender and age disparities.
- Regularly monitor and evaluate the project to refine interventions, measure impact, and identify challenges.
- Incorporate digital literacy components into training programs and develop applications that work offline or on feature phones to bridge the digital divide.
- Promote localisation by providing content in local vernacular languages to enhance understanding and adoption of new agricultural practices and tailoring solutions to the unique agricultural needs of different geographical locations and crops.
- Deliver continuous training and updates to keep up with the evolution of agricultural knowledge and technologies.
- Strengthen partnerships with other organizations to enhance the project's success.
- Facilitate linkages to markets to improve agricultural productivity and profitability.

In conclusion, the sustainability of the project moving forward is not a static state but an ongoing journey of adaptation and resilience. By anticipating potential challenges, continuously monitoring progress, evaluating outcomes, and making necessary adjustments, project partners can navigate the ever-changing landscape and secure their long-term viability.

7.0 Conclusion and recommendations

7.1 Conclusions

Overall, the evaluation found that the program was able to reach its targets to achieve positive change for smallholder farmers, including gains in terms of increased productivity, income, and resilience to climate shocks. The program has been successful in demonstrating and establishing a new delivery model for smallholder farmers through experimenting and learning across various digital platforms in both Kenya and Nigeria. The projects established by the different partners remain very relevant to helping to overcome the challenges faced by smallholder farmers in these markets, and it is important that investments continue to be made in digital solutions.

What Worked

- **Inclusive engagement:** Throughout the program, there was a strong emphasis on inclusive engagement and the importance of working with women and young people. This

included a recognition of the importance of improving digital engagement within communities as well as understanding community needs. For example, the establishment of local seed banks due to farmers preference for local seeds as well as training on vertical farming as a space efficient solution to benefit women and single headed households.

- **Strong Partnerships**: Throughout the project's implementation, the program has successfully cultivated strong partnerships both internally and externally with technology innovators, farmer-centric organizations, and other critical stakeholders.
- **Capacity-building:** Capacity building for farmer groups has been a very effective element of program design and has had a considerable impact on those who have benefitted from the program.
- **Awareness raising:** The project has been able to quickly respond and take advantage of communications opportunities and have been proactive in setting these up. Further investment in a broader societal launch of the services could assist in the volume and equity of uptake.
- **Continuous Learning:** All three partners documented key learning and were open to adapting their programming to improve outcomes.
- **Cohesive Programming:** Partners worked in a cohesive way to meet their targets and address gaps in programming
- **Market Linkages:** Project partners established robust connections between farmers and buyers, including processors, supermarkets, and digital marketplaces. These enduring ties will provide farmers with ongoing access to lucrative markets moving forward.
- **The Lead Farmer Approach:** This approach advanced knowledge sharing and best practice adoption among farmers, fostering a sense of community. This network of peer-to-peer support empowered farmers and allowed those who did not have access to a phone to still engage fully in the program.
- **Private sector engagement –** Has been an ongoing positive aspect of the program, particularly in regard to the multitude of partnerships formed with various private sector actors across the value chain, which has significantly enhanced the impact of the program.
- **Scaling of market management:** To improve the access to markets for farmers, it would be beneficial to scale up market management across different market clusters. This could involve creating more partnerships with local and international marketplaces.
- **Comprehensive Service Platform:** The program provided a comprehensive service platform for farmers, encompassing extension services, market linkages, and quality inputs. This integrated approach can be scaled up to benefit more farmers across various regions.

The evaluation also noted the following strengths of the sprout platform in contributing towards the public good:

- **Open access:** Sprout offered free access to high-quality agricultural and financial content and empowered organizations to enhance farmers' agricultural practices.
- **Wide reach**: It engaged with partners across Ethiopia, Kenya, Nigeria, Ivory Coast, Tanzania, and Zimbabwe and ensures content is relevant to diverse contexts and agricultural practices.
- **Diverse content:** It provides content in multiple languages, including English, Kiswahili, Amharic, and French and caters to a wide audience with varying needs.
- **Partnerships:** Onboarded new content and has expanded offerings over time through strategic partnerships. For example, sprout partnered with KALRO to develop crop and livestock value chains and seasonal crop calendars.
- **User engagement**: It facilitated the dissemination of millions of messages, engaging hundreds of thousands of farmers. This demonstrates the platform's effectiveness in reaching its target audience.

- **Training and capacity building:** It helped provide information to train farmers in modern farming methods and the use of digital platforms. This will contribute towards improving farming practices and boosts productivity.
- **Streamlined information access:** Information is curated to provide simplified access to quality agricultural information for farmers, which is accessible and easy to understand. This has been enhanced by improved dissemination methods, particularly through SMS for farmers without smartphones.
- **Enhanced collaboration:** The open access nature of the tool reduces effort duplication among partners and provides comprehensive farmer support across a wide range of topics.
- **Technological advancements:** Over the project lifecycle, the sprout team overcame challenges like managing large farmer databases and mass communication.
- **Feedback-driven improvement:** Processes were put in place to improve platform navigation based on user feedback, which should improve accessibility.

What needed improvement

- **Monitoring and evaluation:** A more robust monitoring and evaluation system would help track progress, identify challenges early on, and adjust the strategy as needed. While partners have displayed the capacity for continuous learning a more extensive M&E system which encompasses all of the partners would help to embed this and provide impetus for positive change.
- **Engagement with communities** could be made more inclusive through expanded engagement of local communities into project planning and design. This could help further tailor the project's interventions. At times, levels of trust in the program were diminished (due to challenges such as new crop varieties not germinating) so further enhancement in community engagement would help to bridge this gap.
- **Gender Dynamics –** initially the project faced some difficulties, as the lack of engagement of men at the beginning of the project led to potential household conflicts as women were trained and brought back new thinking and methods, but men within their households were not made aware of the benefits of this leading to disagreements.(KII, FSPN Program Manager, 2023) This has been rectified and steps have been taken to improve the engagement of men in programming, which maintained high levels of participation from women. More should be done to improve women's access to markets.
- **Digital Literacy –** was an ongoing challenge throughout the project, and there has been a recognition of the need for significant development in this area moving forward. A short, medium and long-term plan focused on the needs of target groups and communities would help to consolidate this and help to overcome this barrier.
- **Physical Demonstrations for farmers –** While digital tools have been very effective in reaching a considerable number of farmers, to enhance this impact further measures such as the development of demonstration farms could help to entrench this through enabling the showcasing of new technologies, which would build trust from SHFs and allow them to better understand key techniques and messaging.
- **Limited reach:** Depending on the scale of the project and the digital divide, the training may not reach all farmers, particularly those in remote or under-resourced areas, and women, who have less widespread access to higher level technology and data bundles. This was highlighted by the quantitative survey, which found the most common challenge reported by farmers was that they had insufficient bundles to access the information they needed (Ipsos, 2023). As such, additional efforts to reach out through lead farmers are beneficial in addition to reaching out to local community leaders who can assist with encouraging people to adopt new technologies (FSPN M. D., 2023).

7.2 Recommendations

To improve program effectiveness:

- In future projects, a robust monitoring and evaluation system should be established upon the project inception which encompasses all of the partners and would help to embed a culture of continuous learning and provide impetus for positive change.
- Further investments in capacity building, including in digital literacy, in would pay dividends in helping farmers, traders and other players to fully utilize the digital platforms.
- The complementary skills and backgrounds of project partners should be further exploited, to continue to expand partnerships and enhance the impact of the project.

To improve digital supply chain management:

- Existing market solutions often provide isolated services, posing challenges for comprehensive support. Additionally, issues with partners, especially those offering agricultural insurance and credit, led to farmers preferring local solutions due to a lack of trust. There is a need to further build trust with farmers to overcome these issues.
- Further scaling of farmer input purchasing and sales: There is a need for a more efficient system for farmers to purchase inputs and sell their products. This can be achieved through the creation and further strengthening of more farmer cooperatives or associations that can negotiate better prices and terms for their members. Additionally, digitizing these processes through platforms such as Amana Market can also enhance such efficiency.

To improve inclusivity, gender responsiveness and the engagement of young people:

- Expanded engagement of local communities into project planning and design would improve inclusivity. This could help tailor the project's interventions according to the unique challenges faced by these communities.
- Continued mobilization of women and young people as lead farmers pays dividends in ensuring that the program is more inclusive, and that key information and services are disseminated to these groups at community level. Digital services should be designed to be gender-responsive and inclusive, empowering women and youth in the community. Services can be more effective if they are integrated into a wider ecosystem of support for farmers, including access to credit, inputs, and markets.
- Efforts should be made to ensure that men residing in target communities are also aware and engaged in the program to ensure buy in, and to promote the adoption of good farming practices. To enable the inclusion of groups who have been left behind, a further strategy should be developed to promote digital engagement with groups who may be left behind, such as the elderly.

To improve climate responsive programming:

- CoAmana should integrate climate-resilient strategies into the project to help farmers and traders adapt to climate change's impacts, such as providing information on climate-smart agricultural practices and promoting resilient crop varieties.
- There is a remaining gap in digital literacy and access to technology, which is a barrier to further integration of climate information into farming decisions. Investments should be made in climate smart technology and capacity building for populations who lack access to these tools.

To improve the ability of sprout to meet the needs of key stakeholders:

- Sprout should continue to utilize feedback driven improvement to address these issues with platform navigation.
- To further an inclusive agenda, there is a need to further ensure that content is available in a wider range of languages so that is accessible to more people. In addition, there is a need for more localized content which can be adapted to different contexts.
- Sprout could explore ways of including this in their offering audiovisual content if feasible.

To improve the likelihood of sustainability:

- Maintain awareness of shifting farmer preferences and market dynamics through regular market research, stakeholder engagement, and strategic planning
- Keep up with technological advancements by proactively assessing and incorporating the latest technologies where possible.
- Regularly assess project performance against established metrics provides valuable insights into areas of strength and weakness.
- FSPN should:
    - Continue the lead farmer approach by providing ongoing training, support, and resources to group leaders
    - Utilize digital platforms to disseminate agronomic information, but also train farmers in digital literacy to effectively use these platforms.
    - Continue to consider gender dynamics in the selection of value chains and promote gender-sensitive approaches. This should include prioritizing the inclusion of women and youth in training programs and as lead farmers to address gender and age disparities.
    - Regularly monitor and evaluate the project to refine interventions, measure impact, and identify challenges.
    - Incorporate digital literacy components into training programs and develop applications that work offline or on feature phones to bridge the digital divide.
    - Promote localisation by providing content in local vernacular languages to enhance understanding and adoption of new agricultural practices and tailoring solutions to the unique agricultural needs of different geographical locations and crops.
    - Deliver continuous training and updates to keep up with the evolution of agricultural knowledge and technologies.
    - Strengthen partnerships with other organizations to enhance the project's success.
    - Facilitate linkages to markets to improve agricultural productivity and profitability.
- Sprout should:
    - Continue to foster strong collaboration with public and private sector entities, including Farmer-Facing Organizations (FFOs), technology innovators, financial institutions, and relevant stakeholders to ensure long-term project success.
    - Continue to work toward the establishment of a robust and scalable revenue model, such as subscription services for FFOs or market aggregation strategies, would support ongoing project operations and expansion.
    - Drive continuous innovation by introducing new features, services, and technologies to enhance the platform's capabilities, improve information accuracy, and explore new ways to engage and support farmers.
    - Support digital literacy training, good agricultural practices training, and support for utilizing digital platforms to enhance agricultural knowledge and practices.
    - Explore opportunities to replicate the project's success in other countries with similar agricultural sectors and challenges, expanding revenue streams, partnerships, and impact.
    - Continue to prioritize support for women farmers, addressing barriers to accessing resources and services, providing tailored training and support, and advocating for

gender equality within the agricultural sector.
    - Proactively identify and mitigate potential risks, including financial, operational, and external environmental risks, to ensure project sustainability and resilience.
    - Engage with policymakers and advocate for supportive policies related to digital technology, agriculture, and financial services to create an enabling environment for project success and sustainability.
- CoAmana should:
    - explore further revenue models to ensure its financial sustainability. This could include subscription fees, transaction fees, or partnerships with other organizations.
    - Invest in comprehensive training and support for farmers and traders to effectively utilize the digital platform.
    - Proactively promote the platform's benefits to market participants, emphasizing its ability to enhance efficiency, provide valuable insights, and boost profits.
    - Scale up strategic partnerships with local organizations, government agencies, and relevant stakeholders to expand project reach, leverage expertise, and achieve sustainability.
    - CoAnama should make further efforts to obtain user feedback to implement a feedback mechanism to gather user input and continuously refine the platform to meet evolving needs and remain relevant.