



CASE STUDY



LERSHA

ETHIOPIA

Digitising Agriculture and Unlocking Finance in Ethiopia

The GSMA Innovation Fund for Climate Resilience and Adaptation

The GSMA Innovation Fund grant enabled Lersha to scale its platform in Ethiopia. This one-stop digital platform supports smallholder farmers by providing access to farm inputs, mechanisation services, real-time climate advisory, credit and insurance. These services are delivered through an in-house call centre, mobile app and Lersha agents.

Country: Ethiopia

Sector: Agriculture

Business model: B2C, B2B

Resilience capacity: Anticipating, adapting, absorbing

Digital channels: SMS, call centre, mobile app

Problem addressed: Helping to build the climate resilience of smallholder farmers with advisory content on climate-smart agriculture solutions, weather information, and access to agri-credit and agri-insurance

Stakeholders: Smallholder farmers, government, banks, insurance providers, mobile network operators, cooperatives, farmer-based organisations and universities

Find out more: lersha.com


LERSHA PROJECT OUTCOMES
NOVEMBER 2022 TO APRIL 2024

 **+1.9M** people reached

 **474k** farmers supported to anticipate, adapt to, or absorb climate shocks and stressors, including 160k women farmers

 **76k** users accessed loans

 **\$8,8m** loan value issued through the Lersha platform

 During the GSMA grant period, Lersha unlocked an **additional US \$550,000 in investment** from other sources.

About Lersha

The Lersha platform was created to help smallholder farmers, either directly or through agents, address their farming needs. The platform combines a mobile app, call centre and Lersha agents to facilitate transactions with farmers. It helps smallholder farmers to access inputs, hire mechanisation services and request dynamic agri-climate advisory and financial services.

Lersha is the Amharic equivalent of the phrase 'for agriculture' and represents the desire to fulfil the agricultural needs of smallholder farmers in Ethiopia through innovation. By recognising the challenges faced by Ethiopia's agricultural sector, including supply disruptions, rising food prices and increased costs of agricultural production, Lersha seeks to establish a sustainable agriculture value chain by offering a range of services that make farming accessible for everyone.



Introduction

Impacts of climate change on smallholder farmers in Ethiopia

In Ethiopia, the agriculture sector, which contributes 40% of GDP and employs 75% of the labour force, is highly susceptible to climate change.¹ Smallholder farmers, accounting for 95% of production, often manage multiple farm enterprises under variable climatic and socio-economic conditions.² Farmers face numerous constraints, such as a lack of resources and increasing soil degradation, which can hinder sustainable crop production and food security. The effects of climate change, including frequent extreme weather events, exacerbate these challenges. To build resilience and maximise farm incomes, farmers need integrated weather information and advisory services, recommended farm inputs, mechanisation to optimise planting windows, expected market prices for produce and access to financial services.

Ethiopia has developed a Long-Term Low Emission and Climate Resilient Development Strategy (LT-LEDS) for 2020-2050 that outlines strategies to decarbonise seven priority sectors of its economy by 2050, including agriculture.³ The government has also formulated a Climate Resilient Green Economy (CRGE) strategy, with the goal of achieving middle-income status by 2025.⁴ This strategy focuses on fostering economic growth that is resilient to climate change and leads to net zero greenhouse gas emissions.

About the GSMA Innovation Fund project

Lersha is one of the start-ups supported by the GSMA Innovation Fund for Climate Resilience and Adaptation, which was launched in 2022. This initiative is funded by the UK Foreign, Commonwealth and Development Office (FCDO) and the Swedish International Development Cooperation Agency (Sida) and is supported by the GSMA and its members.

The Lersha project spanned 18 months from November 2022 to April 2024. The GSMA Innovation Fund support was used to:

- Enhance the Lersha platform by offering more tailored support with increased involvement from service providers and regular agri-climate advice.
- Scale up the use of the Lersha platform among smallholder farmers and improve access to agricultural finance and climate-risk insurance.
- Onboarding over 1,000 Lersha agents (digitally savvy agriculture graduates in rural areas) to support awareness and financial education.



“We seek to simplify agriculture for everyone, strengthening farmers’ resilience and productivity by leveraging Lersha’s ‘phy-gital’ approach.”

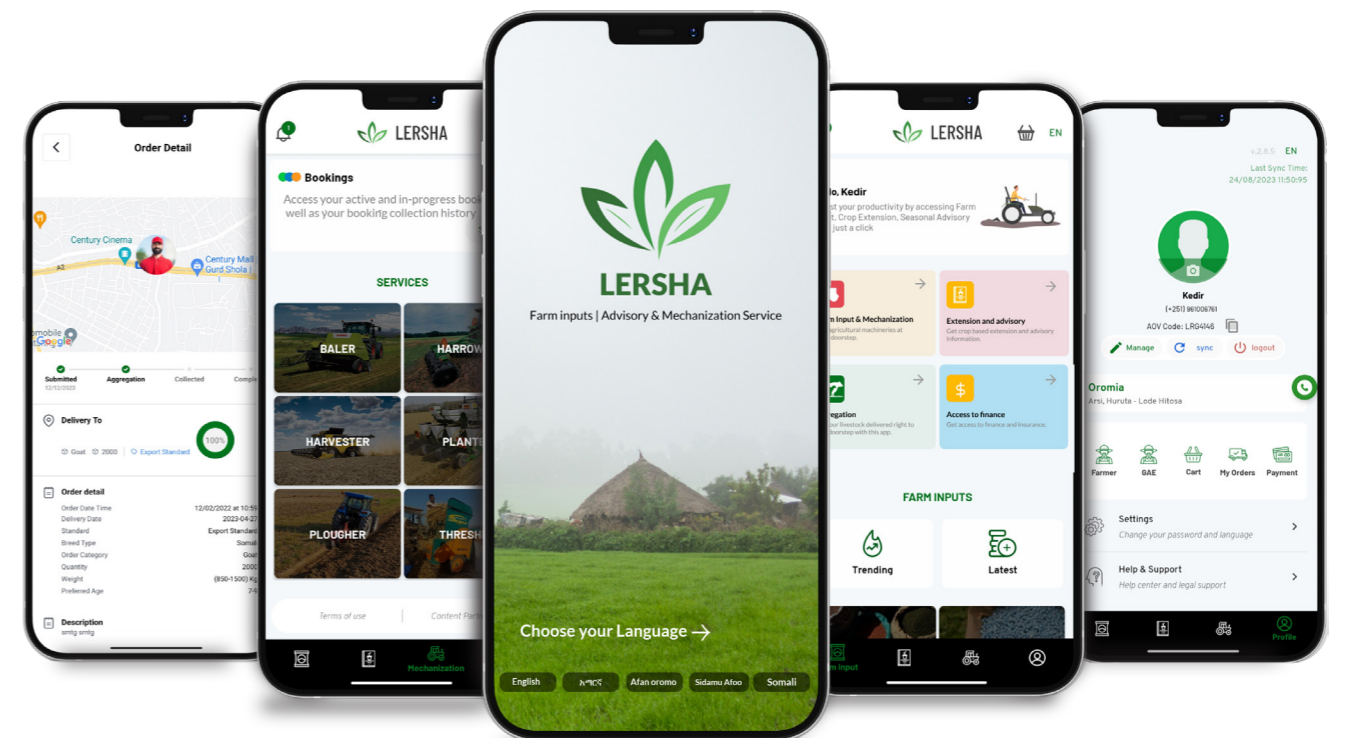
Abrhame Endrias,
Founder

How does the solution work?

Lersha is a mobile-enabled solution that focuses on supporting farmers with weather, agriculture and climate advisory, as well as credit for farming activities bundled with climate insurance.

The service is available through the Lersha mobile app, the Lersha call centre, as well as through Lersha agents.

Figure 1
User interface of Lersha mobile app for farmers



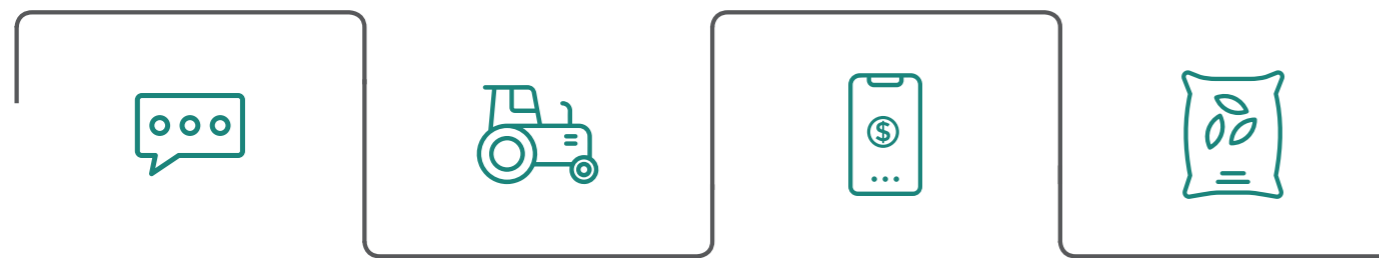
1. USAID (2024). *Agriculture and food security in Ethiopia*.
 2. Gebre-Selassie, A. and Bekele, T. (2011). *A review of Ethiopian agriculture: Roles, policy and small-scale farming systems*.
 3. UNFCCC. (2023). *Ethiopia's long-term low emission and climate resilient development strategy (2020-2050)*.
 4. UN Sustainable Development Knowledge Platform. (2024). *Ethiopia's climate resilient green economy*.

Lersha offers key features through its platform, aiming to strengthen smallholder farmers' climate resilience in Ethiopia by providing access to:

1. Agro-climate advisory and fertiliser recommendations
2. Farm inputs and mechanisation services
3. Bundled financial services
4. Market linkages

Farmer registration and onboarding is handled by Lersha youth agents. The registration process collects over 24 variables about smallholder farmers, ranging from their demographics to agronomy and farming practices, enabling the platform to offer personalised services. The farmer's profile is linked to the Know Your Customer (KYC) process for accessing financial services, allowing them to setup a mobile wallet from multiple banks working in partnership with Lersha. Lersha agents create digital farmer profiles that include farm locations to provide location-specific recommendations via SMS, voice blasts and follow-up calls from their call centre.

Figure 2
Lersha's key features



Agriculture and climate advisory

Users can access weather, agriculture and climate information through their mobile phone via SMS and voice blasts, the Lersha app, or through a Lersha agent.

A wide range of advice is provided. This includes weather forecasts and alerts, advice related to pests and diseases, information on improving yield or pricing, and much more. The content is provided or verified by the Ministry of Agriculture and other key partners.

Lersha extracts agri-advisory recommendations via API and then translates the advisory into four local languages and disseminates it to Lersha agents via its mobile app.

Farm input and mechanisation

The Lersha platform consolidates strategies for inputs, mechanisation and livestock. By aggregating inputs, farmers gain access to resources at competitive rates, enhanced by real-time data. This approach seeks to optimise operations and improve market access for smallholder farmers.

Bundled financial services

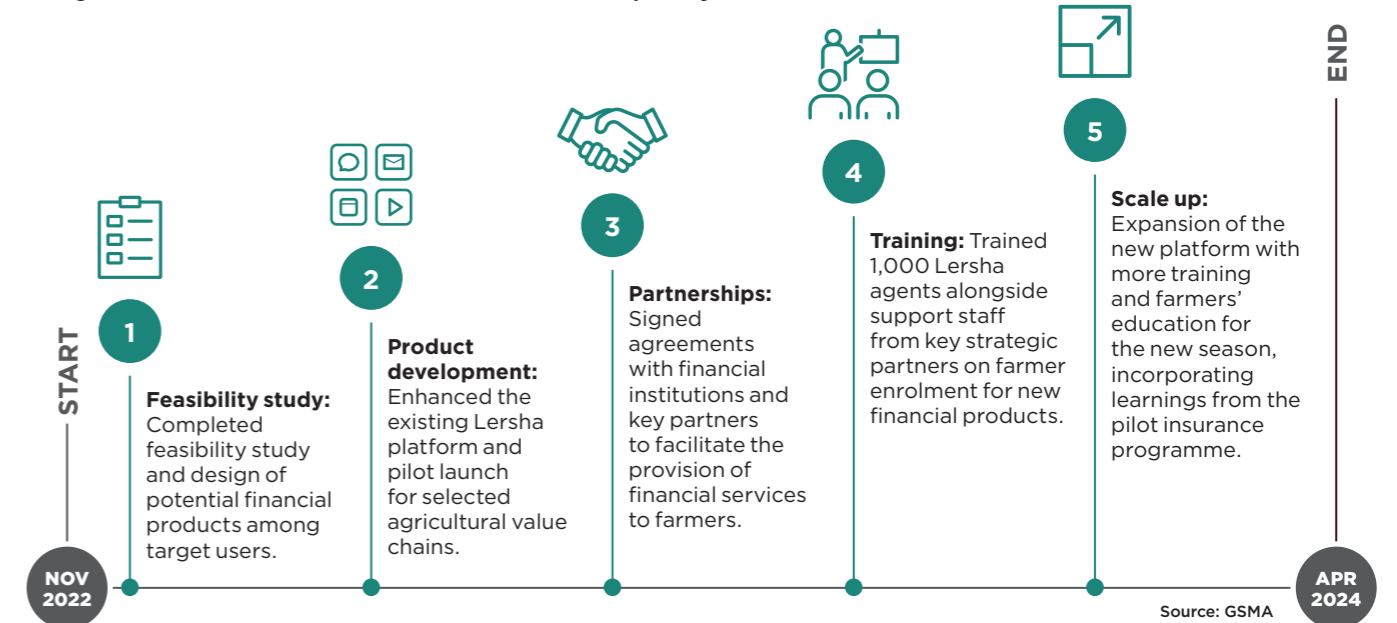
Users can apply for input or farm credit, bundled with climate risk insurance, leveraging climate-smart credit scoring supported by Lersha agents on the ground. This system is designed to help farmers better manage climate risks.

Market Linkages

By aggregating the output from smallholder farmers who have accessed loans and credit, Lersha provides market linkages with off-takers across various value chains, including wheat, maize, malt barley, soya bean, and goat (livestock) aggregation.

Key project activities

Figure 3
Key milestones of the Lersha project



Leveraging partnerships for customer acquisition and engagement

The project involved securing service level agreements (SLAs) with three banks, two insurance companies and two mobile network operators (MNOs). This collaboration enabled the development of bundled insurance and credit facilities, benefiting farmers with crop insurance and credit for farm inputs. Key partnerships with NGOs further supported the initiative by creating digital profiles for 1.05 million smallholder farmers.

Throughout the grant period, Lersha enhanced its capacity to educate farmers about potential climate shocks in collaboration with the International Maize and Wheat Improvement Center (CIMMYT) and the International Center for Tropical Agriculture (CIAT). Additionally, a strong partnership was established with 14 public universities in Ethiopia to train farmers, Lersha agents and agriculture experts, improving the adoption and use of technology.

Finally, a collaboration with the Agriculture Transformation Institute (ATI) helped to create digital profiles of farmers and leverage farmer communities. The project highlighted the importance of partnerships with key institutions in enhancing Lersha's offerings, credibility and scalability.

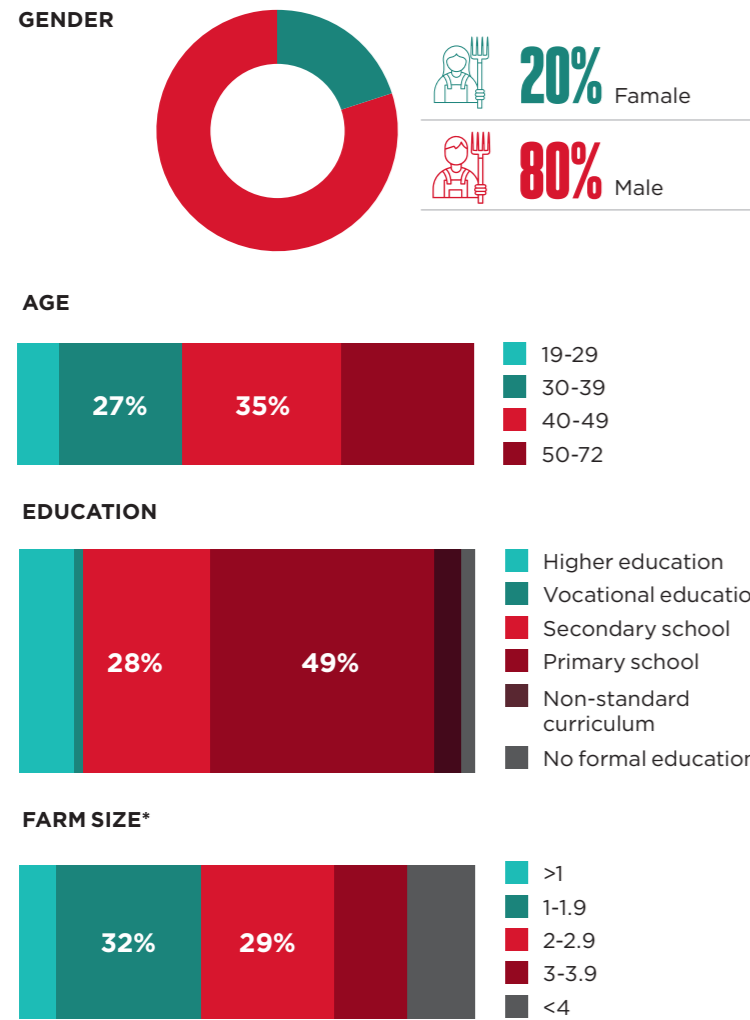
Partnership with mobile network operators

Lersha secured partnerships with the two main MNOs in Ethiopia: Ethio Telecom, which has more than 92% connection coverage across Ethiopia, and Safaricom Ethiopia, a newer entrant to the market. This marks a significant achievement during the course of the grant.

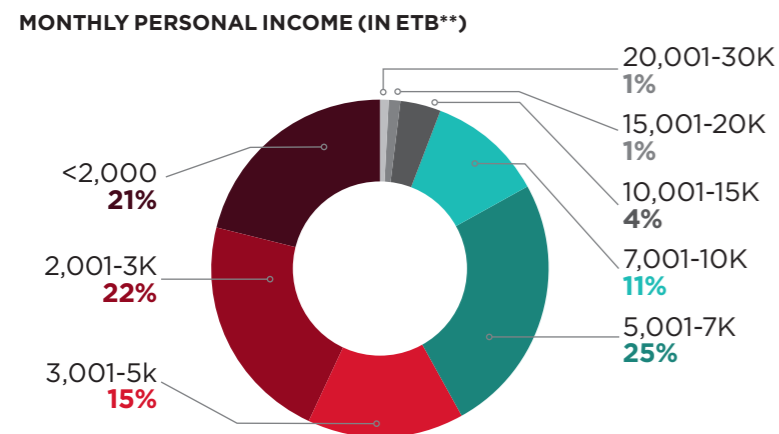
Ethio Telecom, through its mobile money department Telebirr, partnered with Lersha to offer mobile money services to farmers. This partnership included API integration of both systems, allowing farmers registered on the Lersha platform to automatically register for the Telebirr mobile wallet. This integration eliminated duplication and facilitated the sharing of KYC information on the farmers. Additionally, Lersha agents were recruited to offer mobile money agency services.

Lersha signed a service level agreement with Safaricom and Sumitomo to promote inclusive digital financial services for smallholder farmers. This partnership focused on integrating Lersha's insurance and credit products within the M-PESA platform. In November 2023, Lersha became a Safaricom Telecommunication Enterprise partner.

Figure 4
Lersha user statistics



* An average farmer in Ethiopia has a farm of 1.4 hectares which is generally in line with the surveyed farmers. As with the income, there is still a significant number of surveyed farmers who have farms bigger than the country's average



**Farmers in Ethiopia typically make between 1,400 to 3,900 ETB monthly. Based on this data, there are a significant number of surveyed farmers earning more than the average / Note: (1) Conversion rates come from Oanda, May 21st 2024: 1,000 ETB = 17.38 USD; (2) World Salaries, Average Farmer Salary in Ethiopia for 2024, 2024; (3) FAO, Family Farming Knowledge Platform, 2012

Building climate resilience

Overall impact

The Lersha project positively impacted smallholder farmers' ability to adapt and absorb the impacts of climate stressors in Ethiopia, onboarding 474,000 users during the grant period. It provided information and capacity building to improve community-level understanding of climate challenges, advisory to help farmers better manage climate risks, and improved access to financial services. To understand the impact of Lersha's features, interviews were conducted among the start-up's staff, as well as Lersha users and agents in Oromia to gather further insights and feedback.

Lersha user profile

A typical farmer from the project's endline research was male, approximately 44 years old, with primary school education, cultivating on a farm under two hectares and earning less than 7,000 ETB monthly (approximately \$122).

Outcome 1: Lersha's advisory helped farmers anticipate climate shocks and stressors, and adapt their farming practices to a changing climate

Ethiopia has faced several extreme weather events driven by climate change in recent years. Farmers reported increasingly erratic weather patterns, including rising temperatures and fluctuating rainfall.

Although 60% of farmers have received some form of state assistance, nearly a third (29%) of those interviewed had not received any support to help them adapt to these changing conditions, highlighting a need for tailored information and advice to navigate these challenges.

GSMA research found that weather and climate-smart advisory provided through Lersha channels have enhanced climate-smart agricultural practices and community-level mitigation strategies. The platform attracted **221,600 active users seeking weather information, hazard alerts, and agri-advisory services**, demonstrating a strong demand for predictive weather data.

Users expressed high satisfaction with the relevance and clarity of the information provided by Lersha and trust in the content they received. **Almost all (97%) of users report gaining valuable knowledge from Lersha's agriculture and climate advisory features.** This includes learning new techniques for crop protection, how to optimise fertiliser use, a better understanding of weather patterns, and adopting new practices like crop rotation.

Figure 5
Change in capacity to gain valuable knowledge



Lesson 1 SMS and call centers are best placed to equip farmers with vital information

Lersha found that effective communication with farmers requires a nuanced approach that accommodates varying literacy levels. Lersha's data shows that 83% of users access weather updates and agricultural advice via SMS, while 37% turn to call centres for further support. Many farmers with limited literacy rely on their children to interpret SMS messages, underscoring the need for diverse communication methods. Offering multiple communication channels, including call centres, allows users to seek clarification and ensures that critical information is fully understood and actionable without having to rely on family members.

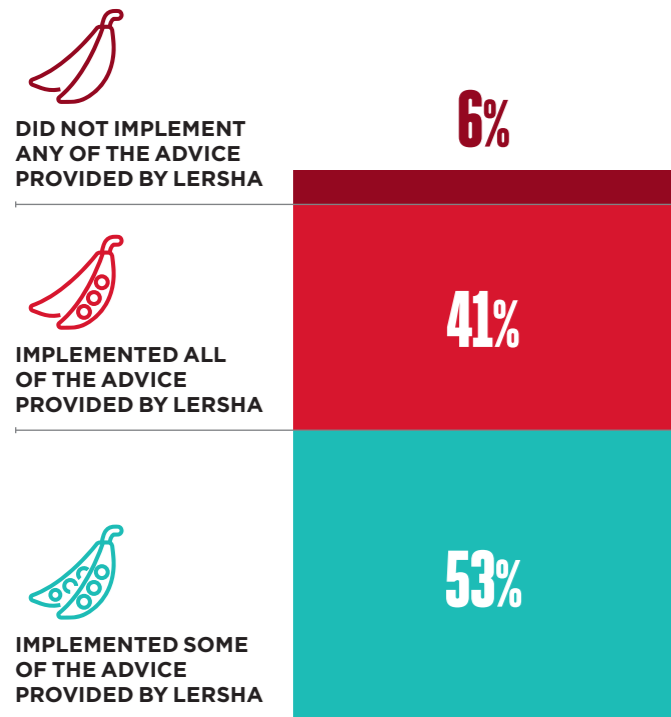


"I trust the SMS texts sent by Lersha, and I've applied them before. I don't hesitate to inform other people about them because I trust their reliability."
Female farmer, 29 years.

"I'm very satisfied with Lersha's advisory service. They have helped me a lot over the last two years with their weather forecasts to plan and collect my harvest. Their information is always helpful, and I have benefited from it."
Female farmer, 32 years.

Figure 6

Change in capacity to improve crops



A similarly high proportion of users (94%) have taken action to implement Lersha's advice. The research showed a particularly strong demand for tailored, crop-specific advisory to aid farmers in their planning, with 60% of Lersha's agri-advisory users reporting increased yields after changing their crops, highlighting the success of this content. Moving forward, Lersha will intensify its efforts to offer diversified, crop-specific advisory for various value chains to better meet this demand.

Through the Lersha platform, farmers have benefited from improved access to certified seeds, fertilisers and other farm inputs which have helped to improve their overall output. In doing so, 57% of agri-advisory users report increased incomes.



I've implemented all of Lersha's advice on my farm, and I find it clear and understandable. If the call centre staff can't explain something, they connect us with the agricultural experts.

Male farmer, 30 years.

However, some farmers pointed to financial constraints, adverse weather conditions, and the need for additional equipment as obstacles to fully realise the recommendations provided by the Lersha platform.

Through its expansive training programme, Lersha also strengthened the capacity of farmer-based organisations, including unions and government agriculture bureaus, to respond to climate shocks and implement effective mitigation and adaptation strategies through project-supported training.

Outcome 2: Lersha helped farmers absorb the impacts of a changing climate through improved access to financial services

Access to finance can empower smallholder farmers to invest in climate-resilient technologies and practices, strengthening their ability to withstand and adapt to climate stressors. In Ethiopia, the primary finance available for smallholder farmers is for fertiliser, accessed through micro finance institutions and rural savings cooperatives. Only a handful of companies currently provide climate-related insurance to farmers in the country. This leaves millions of farming households without the critical funds they need to increase their farm's productivity and improve their livelihoods.

During the grant, Lersha developed a solution to improve access to financial services to farmers. Lersha piloted insurance enrolment in Oromia and Amhara across four value chains. It successfully established a credit scoring platform to connect banks, primarily located in urban areas, with unbanked farmers in rural regions via its agent network. This data-driven credit scoring platform was designed to equip Lersha agents to onboard farmers instantly into the insurance programme. The pilot led to the enrolment of 19,620 farmers with improved access to insurance bundled with finance. The total insurance premium paid was approximately \$880,000 for coverage over approximately 22,100 hectares of land.

The bundled service has proven to be particularly effective. With the revamped Lersha platform, farmers now have the option of securing crop insurance cover and access to micro credit, supporting farmers to absorb and adapt to changing climate conditions.

Lesson 2 Lersha's data-driven modelling helps overcome financial institutions' concerns about engaging with farmers

The pilot phase and subsequent scaling efforts offered valuable insights into engaging financial institutions and insurers, as well as understanding farmer adoption of new products. Eight B2B clients were onboarded, and microloans of approximately \$430 each were tested. Despite their modest size, these loans had a positive impact, and farmers expressed appreciation for them.

The pilot revealed that there is low appetite among financial institutions to cater to smallholder farmers due to the perceived high risk of agriculture. This insight led Lersha to develop farmer profiles and a credit scoring model to increase financial institutions' confidence. By refining data collection and analysis methods, the project team created more robust models to better engage with these institutions and build trust.

As a Lersha agent, their bundled service unlocks smallholder farmers' appetite to consume credit with agri-insurance. Most of the farmers in my village used the service for the first time which resulted in better yield. Some who encountered a failed season were covered by the areas yield index insurance provided by Lersha.

Lersha agent, Oromia

The bundling of credit with insurance benefited women farmers in Digeluna Tijo woreda and I onboarded more than 42 women farmers last farming season where they produced wheat and malt barley. This is a more inclusive approach.

Lersha agent, Oromia

Lesson 3 Farmers' religious beliefs influence adoption of Lersha's credit services

Farmers' initial reluctance to use Lersha's credit services was mainly due to low awareness and conflicts with Islamic principles. Qualitative interviews revealed that many farmers avoid credit because of religious prohibitions against paying interest, although all of them use insurance. Farmers suggested offering insurance separately from credit to better align with their needs and beliefs. Despite initial scepticism about the new bundled credit solution, support from agents, partners and the government has helped generate interest in the product.

Lesson 4 Security issues and macro-economic conditions affect farmer onboarding and the distribution of Lersha's bundled services

Navigating a challenging socio-political context during the project's implementation presented significant obstacles. The war in certain regions of Ethiopia hindered Lersha's ability to train farmers and sell insurance, while foreign currency shortages caused delays and increased the cost of transactions related to the project. Financial conditions, particularly affecting payments in US dollars and British pound sterling to downstream partners, also posed a major challenge. Meanwhile, the tripling of fertiliser prices over the past two years rendered Lersha's loan product outdated, necessitating revisions and additional funding. These challenges underscore the complexity of executing projects in volatile socio-political and economic environments.

What's next for Lersha?

Strengthening commercial viability

The platform aims to achieve commercial sustainability by bundling offerings for farmers, including financial services, and offering top-up services to retain agents on the platform. A new agent management strategy has established a robust network of Lersha agents who will train new staff, thereby reducing recruitment and training costs. Following the completion of the GSMA project, Lersha introduced a bundled product combining insurance and microloans on the platform, which is expected to generate additional revenue.

Scaling up

During the grant period, Lersha expanded to the Kenyan market with an initial focus on the bean value chain. Post-grant, Lersha aims to increase its reach across Ethiopia, targeting a total addressable market of eight million farmers with its full suite of bundled products.

Longer term, Lersha is seeking to secure further funding to scale its operations, including both debt and equity. These funds are being sought to improve the capacity of the Lersha system, train more farmers, enhance call centre infrastructure, establish a Lersha hub to promote rural farming excellence and support further geographic expansion. To this end, Lersha is now focusing on investment preparedness and scaling to overseas markets. As part of the technical assistance programme offered by the GSMA, Lersha partnered with a consulting firm that helps growing small businesses access catalytic funding for growth. This has helped Lersha bolster their fundraising efforts, build a strategic grant pipeline and enhance investment readiness.

Looking ahead

Lersha hopes to further strengthen farmer engagement through existing partnerships with Telebirr and M-PESA, focusing on increasing access to bundled loans across the farming calendar and refining their offerings. This will build on the insights gained from the engagements and pilot project to date.

Lersha is also working to support farmers in the malt barley and soya bean value chains. This will enable the platform to secure pre-financing arrangements and onboard potential off-takers. The engagement of off-takers is designed to strengthen the sustainability of Lersha's business model, minimising the risk to financial institutions and encouraging the issuance of more loans, which is particularly important when there is a stringent liquidity issue in the country.

The planned expansion includes more commercially feasible value chains, accommodating more farmers and farmer organisations, and strengthening the involvement of partners interested in executing climate-smart projects. Additionally, the platform will be enhanced with curated content, farmer-friendly messages, and an increased capacity for awareness creation.

Finally, the GSMA is also engaging with Lersha to support them in exploring how virtual reality devices could be used to encourage behaviour change with smallholder farmers.





Conclusion

With the support of the **GSMA Innovation Fund for Climate Resilience and Adaptation**, Lersha has successfully addressed the pressing climate-related challenges faced by smallholder farmers in Ethiopia. Through their one-stop digital agriculture platform and Lersha agent network, the service has provided vital support to smallholder farmers. By offering tailored climate-smart agricultural advisory services and unlocking access to finance, Lersha has enabled farmers to adapt to climate change and improve their agricultural practices. While navigating significant geo-political challenges during the course of the grant, Lersha demonstrated the strong potential of a sustainable and scalable digital solution to build climate resilience and have a positive long-term impact on Ethiopia's agriculture sector.

This initiative has been funded by the UK Foreign Commonwealth and Development Office (FCDO) and Swedish International Development Cooperation Agency (Sida) and is supported by the GSMA and its members.



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