

PROJECT EXEMPLAR

Gender-Responsive DCAS in Ethiopia



GLOBAL
CENTER ON
ADAPTATION

KEY PROJECT INFORMATION

Country / Region

Ethiopia, East Africa

Sector

Food Security and Agriculture

Investment Value

TBC

Implementation Period

Under AAAP, launched 2021, ongoing

Key Partners

CGIAR (Alliance of Diversity International and CIAT), African Development Bank, Government of Ethiopia, Ethio Telecom

Beneficiaries

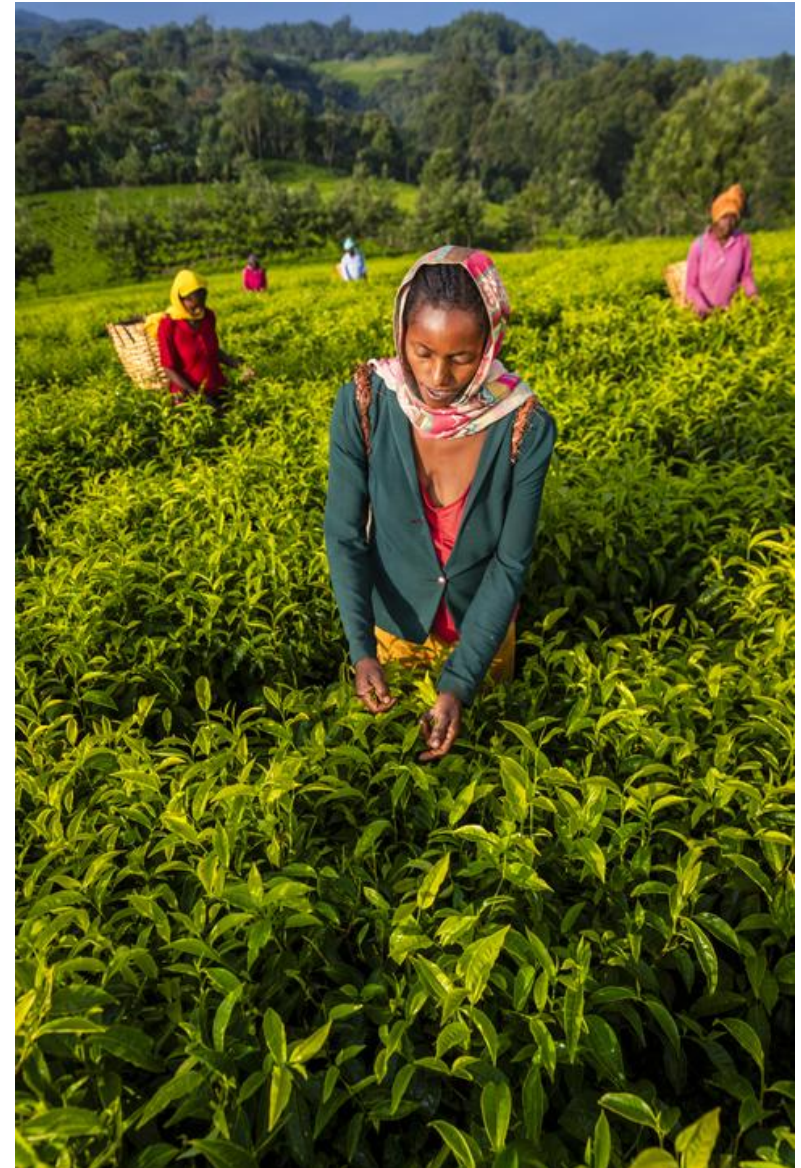
Smallholder farmers, with a focus on women farmers

THE ADAPTATION STORY

Advancing Gender-Responsive Digital Climate Advisory Services in Ethiopia

Ethiopia's rainfed agriculture faces rising climate variability, erratic rainfall, delayed onset of rains, and recurrent droughts and floods, threatening smallholder livelihoods and national food security as the population approaches 129 million by 2030. Digital Climate Advisory Services (DCAS) offer a practical response, delivering climate information and actionable agronomic guidance that shifts farmers from reactive coping to anticipatory decision-making. Integrated into the national extension system and delivered through SMS, USSD, voice, community radio and development agents, DCAS can reduce production risk and increase yields by 23 to 50 percent under climate-informed management.

Evidence from focus group discussions in districts including Hitosa and Iteya in Arsi Zone, a household survey and a review of the national agrometeorology value chain shows strong demand for localized, timely advisories. Access remains uneven, particularly for women, whose lower phone ownership, literacy barriers and time poverty limit engagement with text-based platforms. Without targeted inclusion strategies, digital climate services risk reinforcing gender disparities rather than reducing them.



What was GCA's Role?

This case study was developed under the Africa Adaptation Acceleration Program (AAAP), launched by GCA and the African Development Bank in 2021 and endorsed by the African Union. In partnership with CGIAR through the Alliance of Bioversity International and CIAT, GCA acted as a solutions broker, commissioning the evidence base and translating findings into practical guidance for designing, financing and scaling gender-responsive DCAS, with overall technical guidance from GCA's Food Security team.

Results and Impact

Multi-channel delivery using USSD, SMS, radio and development agents reached diverse user groups across literacy and technology levels. Engagement improved further where participatory workshops targeted women-headed households and where climate data was bundled with agronomic advisories and early warning. Farmers using climate-informed management recorded yield gains of 23 to 50 percent, and women demonstrated strong returns once barriers such as limited phone access and inconvenient broadcast times were addressed.

The assessment also identified clear constraints to scale. Network and device gaps restricted reach, institutional fragmentation produced overlapping services that eroded trust, and content was often too complex to act on. High fixed costs for SMS and IVR delivery, localized content and extension training deter private investment, while project dependency, power reliability and foreign exchange volatility shape perceived risk. Addressing usability and financing together is what converts pilot success into sustained impact.

Climate hazards, impacts and prioritized adaptation measures

KEY CLIMATE HAZARDS	IMPACTS ON INFRASTRUCTURE, SERVICES AND USERS	PRIORITISED ADAPTATION MEASURES
Erratic rainfall and delayed onset	Infrastructure: Pressure on weather observation networks to deliver reliable localized forecasts. Services: Generic seasonal guidance loses relevance for planting decisions. Communities: Failed plantings, wasted inputs and rising uncertainty for rainfed smallholders.	Localized planting-window and crop-selection advisories via SMS, USSD, voice, radio and development agents.
Recurrent droughts and dry spells	Infrastructure: Stress on water and irrigation infrastructure in affected zones. Services: Extension services overstretched during shocks, with overlapping advice. Communities: Crop and livestock losses and food insecurity, hitting women farmers hardest.	Drought early warning in DCAS, drought-tolerant crop advice, bundling with insurance and credit.
Flooding	Infrastructure: Damage to roads, power and network coverage disrupting digital channels. Services: Interrupted advisory delivery when services are needed most. Communities: Asset losses and displacement in flood-prone districts.	Flood early warning within DCAS and anticipatory guidance enabling protective action.
Rising temperatures and heat stress	Infrastructure: Reduced power reliability affecting platforms and device charging. Services: Shifting crop calendars demand hyper-localized content. Communities: Declining yields and heavier workloads, with time poverty limiting women's access.	Heat-adapted varieties and localized guidance, supported by trained extension agents.

KEY LESSONS

What we have learnt

Multi-channel delivery combined with deliberate inclusion strategies works: diverse channels maximize reach, and participatory approaches for women-headed households measurably improve engagement. Content matters as much as coverage. Advisories must be simple, localized and actionable, since vague guidance hits a usability wall, and trusted extension agents remain essential to overcome digital literacy gaps. Fragmented, overlapping services waste resources and erode farmer trust. Above all, gender-blind delivery excludes a high-impact demographic: women face real device, literacy and time barriers, yet deliver some of the strongest returns when enabled, so designing around their realities raises the return on the whole system.

Replicability

A government-led hybrid model emerges as the most viable, if institutionally demanding, pathway for replication. Public institutions provide open, interoperable climate data, regulatory frameworks and low-cost dissemination channels, while private actors deliver bundled last-mile services linked to inputs, finance and market access. Institutionalized public-private partnerships allow high-cost telecom infrastructure and high-trust extension networks to be shared, with bundling enabling cross-subsidization of services farmers cannot yet pay for. The model is replicable in countries with strong public extension systems and growing digital ecosystems, provided gender-responsive delivery, localized content and formalized revenue sharing are built in from the start.

Actionable insights for MDBs

THEME	PRIORITISED ADAPTATION MEASURES
Multi-channel delivery	Finance blended SMS, IVR, radio and extension delivery with targeted inclusion strategies. Diverse channels maximize reach across literacy and technology levels and secure the adoption needed for impact at scale.
Gender and inclusion	Require gender-responsive design in DCAS investments. Women face device, literacy and time barriers yet deliver strong returns when enabled, so gender-blind delivery directly lowers the return on investment.
Content and usability	Fund localization and hyper-customization of advisories alongside continued extension-agent support. Complex or vague content hits a usability wall that undermines adoption and farmer trust.
Revenue models	Support segmented models that keep core advisories free as public goods while enabling revenue sharing on premium services. Reliance on finite donor funding creates uncertainty that stifles private investment.
De-risking investment	Back clear regulatory frameworks and formalized revenue-sharing models to incentivize private participation, offsetting risks from foreign exchange volatility, power reliability and capital constraints.
Bundling and partnerships	Anchor financing in government-led public-private partnerships that share high-cost infrastructure and high-trust networks, bundling advisories with insurance, credit and market access to cross-subsidize delivery.

