

PROJECT EXEMPLAR

Gender-Responsive DCAS in Malawi



GLOBAL
CENTER ON
ADAPTATION

KEY PROJECT INFORMATION

Country / Region

Malawi, Southern Africa

Sector

Food Security and Agriculture

Investment Value

TBC

Implementation Period

Under AAAP, launched 2021, ongoing

Key Partners

CGIAR (Alliance Bioversity-CIAT), AfDB, Government of Malawi, telecoms, radio stations, farmer organizations

Beneficiaries

Smallholder farmers, with a focus on women farmers

THE ADAPTATION STORY

Advancing Gender-Responsive Digital Climate Advisory Services in Malawi

Malawi's smallholder farmers face increasing climate risks, including erratic rainfall, dry spells, floods and strong winds, which affect agricultural productivity, food security and livelihoods. These risks carry gendered implications, as women farmers often have fewer resources and less decision-making power to respond. Digital Climate Advisory Services (DCAS) support adaptation by helping farmers anticipate risks and make decisions on planting and crop choice, delivered through a public-sector-led, multi-channel system combining SMS, USSD/321 services, call centres, radio, app-based tools and extension.

Evidence for this case was gathered through focus group discussions in Mulanje, Salima and Zomba districts, complemented by stakeholder engagement and a targeted literature review. It shows that the main barriers limiting women's access to DCAS include traditional gender norms and roles, gadget ownership and access, literacy, digital proficiency, unstable radio frequencies and network connectivity problems.



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 focus group discussions, stakeholder consultations and literature review 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

Blended delivery combining SMS, radio, extension, call centres, social media and even megaphones, alongside group-based dissemination and trusted intermediaries, improves both reach and usefulness for women farmers. Integrated messaging spanning weather, early warning and farming extension supports uptake, and the study recorded improved joint decision-making and increased women's participation, with women making up 57 percent of study participants.

Constraints remain significant. The extension-to-farmer ratio stands at 1:3000 against a recommended 1:700, and in single-phone households the device is mostly owned and controlled by men. One-way digital messaging, poor localization and timing, gadget-dependent tools and language barriers limited usefulness and trust. Delivery remains predominantly donor-funded and free to users, with limited willingness or ability to pay, and high fixed costs for SMS, platforms, content development and extension training deter private investment without subsidies.

Climate hazards, impacts and prioritized adaptation measures

KEY CLIMATE HAZARDS	IMPACTS ON INFRASTRUCTURE, SERVICES AND USERS	PRIORITISED ADAPTATION MEASURES
Erratic rainfall	Infrastructure: Pressure on weather observation networks to deliver reliable localized forecasts. Services: Generic seasonal guidance loses relevance for planting and crop-choice decisions. Communities: Failed plantings and wasted inputs for rainfed smallholders.	Localized planting and crop-choice advisories through SMS, USSD/321, radio and extension.
Dry spells	Infrastructure: Stress on water systems during critical crop growth stages. Services: Overstretched extension, at 1:3000 farmers against a recommended 1:700. Communities: Crop losses and food insecurity, hitting women farmers hardest.	In-season advisories on moisture management, reinforced by group-based dissemination.
Floods	Infrastructure: Damage to roads, power and network connectivity disrupting digital channels. Services: Interrupted advisory delivery when early warning matters most. Communities: Asset losses and displacement in flood-prone districts.	Flood early warning integrated with DCAS and clear anticipatory guidance.
Strong winds	Infrastructure: Damage to homes, storage and unstable radio transmission infrastructure. Services: Unstable radio frequencies undermine a key channel for women. Communities: Crop and property damage adding to household risk burdens.	Integrated early warning across channels, with fixed, well-publicized broadcast times.

KEY LESSONS

What we have learnt

Multi-channel DCAS are essential in Malawi: digital tools improve timeliness, while radio and extension services remain critical for trust, interpretation and feedback, particularly for women farmers. Access is uneven and gendered, shaped by connectivity, literacy, device ownership and control, and social norms that limit women's direct access to information and influence over decisions. One-way messaging, poor localization and gadget-dependent tools reduce adoption and return on investment. And while donor-funded, project-based delivery has expanded access, weak sustainability and limited gender-responsive design risk reinforcing existing inequalities unless DCAS are embedded within public systems, with institutional frameworks reviewed and updated to keep pace.

Replicability

Public-sector anchoring combined with partnerships offers the most viable scaling pathway. DCAS should complement trusted public extension rather than operate as stand-alone channels, which requires expanding the extension workforce, building district-level DCAS ecosystems and institutionalizing funded two-way feedback loops. Treating DCAS as a public good implies early, sustained financing for weather observation networks, institutional capacity and recurrent costs, alongside licensing and quality assurance of providers. Government leadership combined with well-structured partnerships involving donors, telecoms and ICT firms can mobilize resources while safeguarding affordability and inclusion. The model is replicable in similar public-extension contexts if gender-responsive design and phased, tested pilots are built in from the start.

Actionable insights for MDBs

THEME	PRIORITISED ADAPTATION MEASURES
Delivery models	Finance blended delivery combining SMS, radio, extension, call centres and group-based dissemination through trusted intermediaries. Multi-channel models improve reach and usefulness and build in feedback on effectiveness.
Inclusion and access	Require gender-responsive design addressing gadget ownership and control, literacy, digital proficiency and norms. In single-phone households devices are mostly male-controlled, so gender-blind models exclude women and lower uptake.
Institutionalization	Support policy review and updates to align frameworks with evolving DCAS, plus licensing, quality assurance and monitoring of providers. Institutional backing enables faster, more inclusive scaling.
Extension capacity	Invest in expanding and capacitating the extension workforce and district-level DCAS ecosystems, with funded two-way feedback loops between farmers, extension agents and service providers.
Revenue models	Treat core DCAS as a public good requiring early, sustained financing. Services are predominantly donor-funded and free, and weak cost recovery limits private-sector interest without public anchoring.
De-risking investment	Back public-private partnerships with donors, telecoms and ICT firms, and fund impact evidence to address donor dependence, unclear demand and high operating costs that constrain blended finance.

