



**Bundling CIS and CSA at the farm level,
the
Case of Taita Taveta and Makueni counties in Kenya**



Workshop REPORT



AICCRA
Accelerating Impacts of CGIAR
Climate Research for Africa



Alex Nduah, Reginah Karanja, Esther Nzuki, Liz Ogutu

December 2024

To cite this report

Nduah, A., Karanja, R., Nzuki, E., Ogutu, L. (December 2024). Bundling CIS and CSA at the farm level. Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA)

Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA)]

Acknowledgments

Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture. It is led by the Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank.

The authors would like to thank our partners in academic and research institutions, **such as Taita Taveta University, Murang'a University of Technology, Chuka University and Laikipia University and the Alliance, and local NGOs including Lewa Wildlife Conservancy, Africa Conservation Tillage Network and Kimatwa Women SACCO**, who have enabled the delivery of CSA training to farmers.

About AICCRA Reports

Titles in this series aim to disseminate interim research on the scaling of climate services and climate-smart agriculture in Africa, in order to stimulate feedback from the scientific community.



Cover photo: © AICCRA/Esther Nzuki

Disclaimer

This working paper has not been peer reviewed. Any opinions stated herein are those of the author(s) and do not necessarily reflect the policies or opinions of AICCRA, donors, or partners.

Licensed under a Creative Commons Attribution – Non-commercial 4.0 International License.

ABOUT AICCRA



Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture. It is led by the Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank. Explore our work at aiccra.cgiar.org

aiccra.cgiar.org  CGIARAfrica

ABSTRACT

This report explores the integration of Climate Information Services (CIS) with Climate-Smart Agriculture (CSA) practices to enhance resilience among small-scale farmers in Kenya's Taita Taveta and Makueni counties. Conducted under the AICCRA project, the initiative provided training to over 1000 participants, equipping them with skills to incorporate CIS into agricultural decision-making. The program emphasized localized and timely weather information, accessible through various channels, to guide activities such as planting and irrigation. By engaging stakeholders that included farmers, agricultural officers, and private sector players such as the agro-dealers, the initiative promoted community-level adaptation strategies informed by CIS, such as crop diversification and collaborative planning. Emphasis was placed on the localized, community-centric approaches and partnerships to enhance access, adoption, and sustainability of CIS and CSA practices. Lessons learned aim to inform future CSA programs, contributing to the long-term resilience of the farming communities. The outcomes highlight the potential of bundling CIS and CSA to address climate variability and enhance agricultural productivity, offering actionable insights for scaling these efforts in future agricultural resilience programs.

ABOUT THE AUTHORS

Alex Nduah Nderi is a Research Associate at the Alliance of Bioversity International and CIAT

Esther Nzuki is a Communication Analyst at the Alliance of Bioversity International and CIAT.

Liz Ogutu is a Policy Manager and Lead, the Eastern & Southern Africa Region for Climate Action at the Alliance of Bioversity International and CIAT



CONTENTS

Acknowledgment.....2

Abstract.....3

Contents.....4

Acronyms.....5

Overview.....6

Makueni and Taita Taveta Case Study.....6

Participants Training.....7

Key Message.....9

Reference.....14



ACRONYMS

ALLIANCE Alliance of Bioversity International and CIAT

AICCRA Accelerating Impacts of CGIAR Climate Research for Africa

CSA Climate-smart agriculture

CIS Climate Information Services

KMD Kenya Meteorological Department



Overview

The Alliance of Bioversity International and CIAT (Alliance) through the Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) project is managing some activities on coupling climate information services (CIS) with climate-smart agriculture (CSA) innovations and technologies, making them more accessible to small-scale farmers with a particular focus on the dryland regions of Kenya.

Anthropogenic-induced changes in seasonal climatic patterns are increasing the risks and climate hazards faced by traditional farming in Kenya whereby most small-scale farmers are inadequately prepared to tackle the climate change challenges. Climate change increases the risk exposure of the farmers which reduces the efficacy of existing farm productivity under challenging weather conditions (Nyang'au, 2021).

There is an array of information, practices and tools that can be used by farmers and other stakeholders in agriculture to respond to climate change. These can include climate forecasts and projections, best agricultural management practices and advanced horticultural approaches for both on and off-farm scenarios.

Whilst the information, tools and practices exist, they are not always contextualized or availed in ways that facilitate decision-making and action, especially for the people most impacted by climate change. To ensure that climate and weather information services are useful and accessible to end-users, they need to understand the different and desired types, accessibility, and ways of integration, timing, and use of the information in agriculture and other related sectors. One size doesn't fit all and therefore is important to take into account social differences, local physical factors, and the different needs of end-users in the population. Therefore, it is important to ensure that different end-users and intermediaries can access the CIS which is timely and tailored for their immediate local contexts. The CIS is coupled with the CSA training to enhance the farmers' resilience through the application of the knowledge and skills gained to improve their farming, services, operations or agricultural business productivity holistically.

Makueni and Taita Taveta Case Study

In 2024 and 2023 respectively in Makueni and Taita Taveta counties, the CIS training was incorporated in CSA capacity-building sessions organized and conducted by the Alliance aimed at providing the foundational and relevant knowledge on climate and climate change concepts, weather forecasts, and their application in decision making in agriculture. The foundational understanding and training of climate-related concepts provided the necessary background and context for the follow-up training sessions on the application of weather and climate information services to manage risks related to climate change impacts in agriculture. The session discussion builds the understanding of the stakeholders to address emerging concerns and queries about

weather and climate through the understanding of climate scenarios they are likely to encounter in their day-to-day activities and how to use CIS to manage emerging risks. The lessons drawn from the training will also be used to inform future training sessions in 2025 and beyond.

The bundled training on CSA and CIS equipped participants (800 cumulatively) with an understanding of the interactions between climate and farm decision-making and management under uncertainty. CIS can complement livestock and crop production activities by influencing farm decision-making and management for seasonal and long

time scales and therefore enhance small-scale farmers' resilience to climate change impacts. The training also builds an understanding of the different factors at play for different management



decisions under various climate conditions.

Participants Training

The intermediary participants included aggregators, ward agricultural officers, extension service providers, and agro-dealers enabling them to integrate climate information services into the services offered to farmers, including advisories for inputs and products. The participants included but not limited to:



Small-Scale Farmers

agricultural producers that cultivate small areas of land, generally less than 5 acres, using less energy and inputs than industrial farms.



Aggregators

role players and actors involved in different aspects of storing or transporting agricultural produce



Retailers

stakeholders who sell agricultural produce, including in local markets, informal trade, and retail stores



Financial Institutions

Kimatwa Women SACCO - provides financing for activities within the agri-food system



Private Sectors- agro-dealers

involved in production, distribution, marketing, sale or disposal of produce, provision of services and agricultural inputs



Self-Help Groups

Community-based organizations composed of individuals, often from similar socioeconomic backgrounds, who voluntarily come together to address shared challenges and goals

The sessions build on previous farmer training to provide information from foundational to more advanced, including the application of CIS in day-to-day agricultural and related activities. The sessions emphasized the need for climate-sensitive decision-making considering the different types of end-users, application of CIS, identification of other training and support needs, monitoring and feedback after assessment of the training objectives and sessions.

Key messages

- Importance of Climate Information for decision-making
 - Climate information is critical for planning agricultural activities, such as planting, harvesting, and pest control.
 - Access to timely and accurate weather forecasts and seasonal climate outlook helps reduce risks and losses associated with climate variability.
 - Practical example: Using rainfall forecasts to decide on the best time to plant drought-tolerant crop varieties.
- Accessing and utilizing Climate Information Services
 - Learn how to access CIS through available channels such as mobile apps, radio, farmer field schools, and extension officers.
 - Understand how to interpret climate information products (e.g., rainfall forecasts, drought warnings, and heat alerts) for practical application.
 - Promote community collaboration in sharing and validating climate information for localized relevance.
- Climate-resilient agricultural practices
 - Leverage climate information to adopt appropriate climate-smart practices, such as crop diversification, soil conservation, and efficient water use.
 - Enhance resilience by aligning farming activities with predicted climate conditions to minimize crop and livestock losses.
 - Case in point: Adjust irrigation schedules during prolonged dry spells as predicted by CIS.
- Strengthening community resilience through climate action
 - Encourage active participation in community-level decision-making to integrate CIS into local adaptation and development plans and activities such as Climate Smart Agriculture Investment Planning.
 - Advocate for collective actions like creating communal water storage system or early-warning mechanisms for extreme weather.
 - Foster partnerships with local authorities and organizations for sustained access to updated and actionable climate data.



Makindu Ward Lead Farmers

Boaz Waswa , Esther , Ivy Kinyua , Templer, ~agnes, ~Alfred, ~an...

Boaz Waswa #CIAT
→ Forwarded

MINISTRY OF ENVIRONMENT, CLIMATE CHANGE AND FORESTRY
STATE DEPARTMENT FOR ENVIRONMENT AND CLIMATE CHANGE
KENYA METEOROLOGICAL DEPARTMENT

Dagoretti Corner, Ngong Road,
P. O. Box 30259, 00100 GPO, Nairobi, Kenya.
Tel: 254 (0) 20 3867880-7, 0724 255 153/4
E-mail: director@meteo.go.ke, info@meteo.go.ke
Facebook: fb.com/KenyaMeteorologicalDepartment X: @MeteoKenya

Ref. No. KMD/FCST/4-2024/MO/12 Date: 30 November 2024

CLIMATE OUTLOOK FOR DECEMBER AND REVIEW FOR NOVEMBER 2024

Monthly Weather Forecast for Decemb...
1.8 MB, PDFXEdit.PDF

Open Save as...

08:00



Makindu Ward Lead Farmers

Boaz Waswa , Esther , Ivy Kinyua , Templer, ~agnes, ~Alfred, ~an...

~John Kariuki +254 [redacted]

☑ Planting demo plots, makindu Eleanor muli syengoni in collabarion with icrisat

Great work 🙌😊

14:11

~John Kariuki +254 [redacted]

→ Forwarded

Makueni wards weekly forecasts (41).do...
140 KB, Microsoft Word Document

Open Save as...

14:40

Figure 1 &2. Excerpts from the Makindu lead farmers WhatsApp group where AICCRA (Boaz Waswa) and the Ward Agriculture Officer WAO (John Kariuki) periodically relay the weather forecasts. WAO provides advisories via the same group channel.

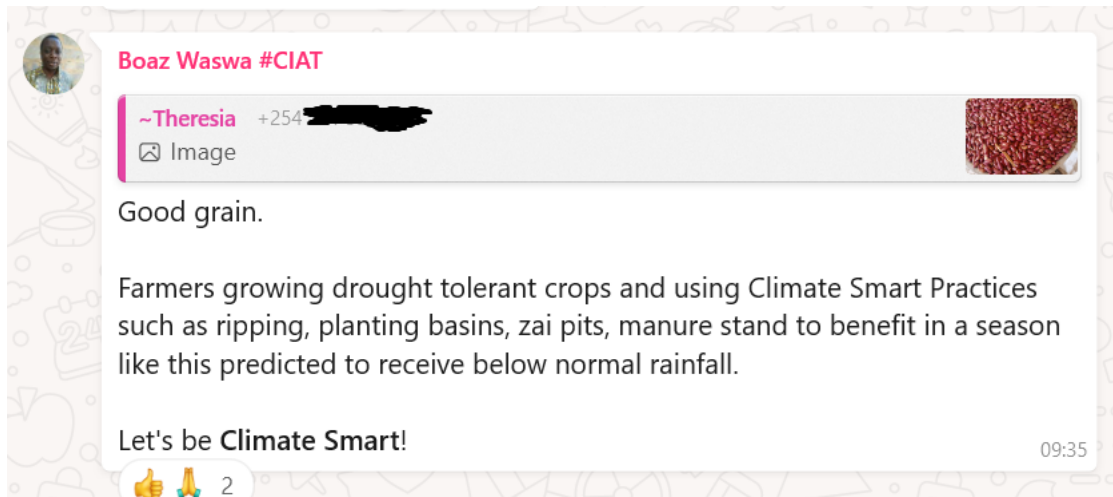


Figure 3. An advisory shared by Boaz Waswa, Scientist at the Alliance.

During the training, AICCRA utilized printed guides and visual aids, posters with key CIS and CSA information that was explained in the Swahili language and translated to local languages where necessary. The participants were engaged to discuss the weather forecasts and explore how it would inform their growing calendars. It's important to note, every farmers' group/cluster has a lead farmer who accesses the weather forecasts and shares this with the group members during the regular meetings to ensure the members without access to WhatsApp also benefit and are well informed for the growing season. Kimatwa Women SACCO holds regular meetings with its members where a refresher on the CSA trainings is conducted as well as sharing of weather forecasts and advisories from the Ward Agriculture Officer.

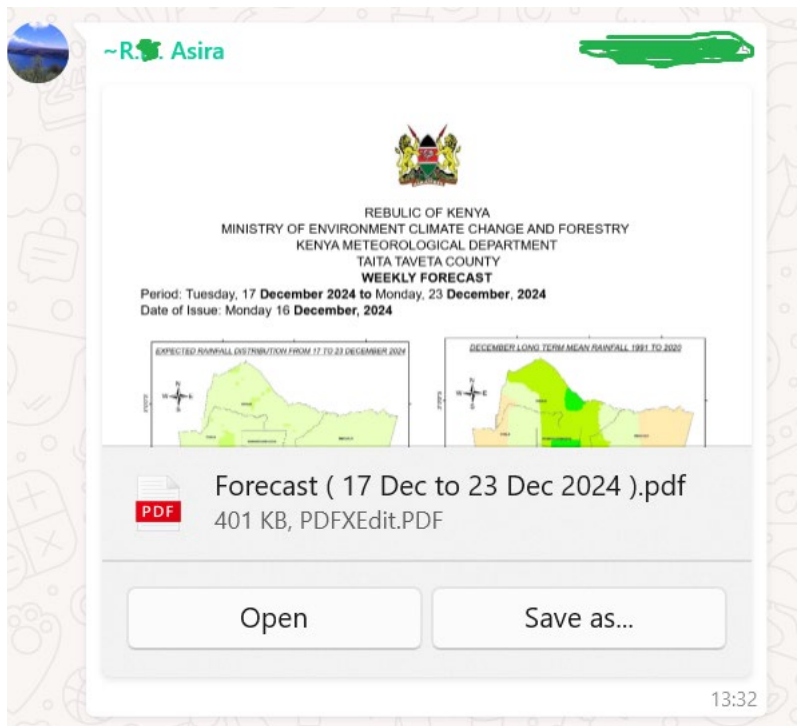


Figure 4. Weather forecasts shared to Taita Taveta CSA Multistakeholder Platform WhatsApp group by the county director (Kenya Meteorological Department) for Kwale and Taita Taveta, Mr. Asira.



OCTOBER-NOVEMBER-DECEMBER 2024 SEASONAL FORECAST

Upper Zone	Middle Zone	Lower Zone
Onset: 26th October to 8th November, 2024 Cessation 1st to 15th December 2024 Status: Below normal (310mm to 490mm). Distribution: Poor both in time and space	Onset: 26th October to 8th November, 2024 Cessation 1st to 15th December 2024 Status: Below normal (310mm to 490mm). Distribution: Poor both in time and space	Onset: 26th October to 8th November, 2024 Cessation 1st to 15th December 2024 Status: Below normal (310mm to 490mm). Distribution: Poor both in time and space

Middle Zone: Wards (Tuilmani, Kako/Waia, Kisau/Kiteta, Kasikeu, Mukaa, KiimaKiu/Kalanzoni, Nzau/Kiili/Kalamba, Email/Mulala, Wote/Nziu, Muvau/Kikumini, Mbitini)

Advisories Based on Rainfall Lower Limit Forecast

Crops	Recommended Actions
Maize	DH01 & DH02, KD V2, Sungura, Haraka, Kishindo
Beans	KATB1, GLP 92, KATX56, KATB9, Locals, KATX69, , Locals (KAKUNZU), Nyota,Mwezi Moja
Cow Peas	K80, M66, K VU27-1, Locals (Kangau), Ken kunde, Kunde Soko, Kunde mboga,
Pigeon peas	Mbaazi 1, KAT 68, Locals, Mbaazi 2, ICEAP 00936 and ICEAP 00554, Mpesa, Mituki
Dolichos	DL 1002, DL 1009
Cassava	KME 1, Mucericeri, KME 61, Red Stemmed Varieties, Locals
Sweet Potatoes	Locals, KSP 20, Kemp 10, SPK 004, Irene (OFSP)
Green grams	N26, KS20, Biashara, Karemba, Ndengu Tosha
Sorghum	Kari Mtama 1, Gadam, Serena, Seredo, Kari Mtama 2,Sila, Macia, Kamani.
Millet	Pearl millet [PM 1,PM2,PM3], Finger millet

For More information Contact, the Nearest Agricultural Office: Ward Admin’s Office, Sub County Offices & County Offices.

COUNTY DIRECTOR OF MET. SERVICES: 0795929926.
Email: kmdmakuenicounty@gmail.com

<https://meteo.go.ke/node/4191>

Figure 4. An advisory from KMD and Makueni County government Climate Change Unit shared by the WAO to the lead farmers in the group.



Reference

Nyang'au, J. O., Mohamed, J. H., Mango, N., Makate, C., & Wangeci, A. N. (2021). Smallholder farmers' perception of climate change and adoption of climate smart agriculture practices in Masaba South Sub- County, Kisii, Kenya. *Heliyon*, 7(4).



AICCRA
Accelerating Impacts of CGIAR
Climate Research for Africa



About AICCRA

Accelerating Impacts of CGIAR Climate Research for Africa

(AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture.

It is led by the Alliance of Bioversity International and CIAT and supported by a grant from International Development Association (IDA) of the World Bank.

Discover more at aiccra.cgiar.org