



Workshop Report

Training of Trainers (ToT) on Enhancing National Climate Services (ENACTS) Maprooms for Users in Kenya

November 2022



AICCRA
Accelerating Impacts of CGIAR
Climate Research for Africa



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About AICCRA

Accelerating Impacts of CGIAR Climate Research in 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 AICCRA's work at aiccra.cgiar.org

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Abstract

A five-day training of trainers (ToT) workshop was implemented from October 31 to November 4, 2022, in Nairobi, Kenya by the International Research Institute for Climate and Society (IRI) in collaboration with the Kenya Meteorological Department (KMD) and the International Livestock Research Institute (ILRI). The workshop, which was organized as part of the World Bank's Accelerating the Impact of CGIAR Climate Research for Africa (AICCRA) project, brought together 21 participants from national and county KMD offices, the Ministry of Agriculture, Livestock, and Fisheries (MOAL&F), and the Kenya Agriculture and Livestock Research Organization (KALRO) to be trained on KMD's existing suite of free online ENACTS Maprooms. The major objective of the workshop was to ensure that each of these institutions that play an important role in promoting the use of climate information and services and broader resilience of the agricultural sector are aware of and have the capacity to train users within Kenya on the best-available climate information products for decision-making. The ENACTS maproom products, which are freely available through KMD's website, provide location-specific (4 km grid) historical, monitoring, and forecast information that is important for activities related to planning, monitoring, and response for the agricultural sector and wider food system.

Keywords

Kenya; agriculture; climate change; climate variability; food security; capacity development; climate-smart agriculture; climatology; monitoring systems; forecasting; Goal 2 Zero Hunger

About the Authors

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Tufa Dinku is a Senior Research Scientist at the International Research Institute for Climate and Society (IRI) of the Columbia Climate School. Within the AICCRA project, he is the IRI's Team Lead for Ethiopia, Kenya, Zambia, Ghana, and Mali and also the lead for the IRI's Enhancing National Climate Services (ENACTS) initiative which has improved the availability, access, and use of climate data and information in more than 20 countries.

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Highlights



1 Ensuring all institutions that play a role in promoting the use of climate information and services are aware of and have the capacity to train users within Kenya on the best-available climate information products for decision-making is critical for **building resilience of the agricultural sector**.



2 From October 31-November 4, 2022, a **five-day training** on the use of the Kenya Meteorological Department's Enhancing National Climate Services (ENACTS) Maprooms was implemented in Nairobi, Kenya by the International Research Institute for Climate and Society (IRI), in collaboration with the International Livestock Research Institute (ILRI).



3 A total of **21 participants from the national and county KMD offices, the MoAL&F, and KALRO were capacitated** on how to access, navigate, and use KMD's suite of free online Maproom products for analysing past, current, and future climate in relation to the agricultural sector. Detailed feedback and priorities on the improvement of existing Maprooms and the development of new ones was gathered.



4 The participants who were trained on climate basics and KMD's Maprooms will **share the knowledge, skills, and resources** gained from the training with their county level counterparts, following a training of trainers (ToT) approach with four regions in Kenya.



5 The training had participation from institutions responsible for generating, translating, and communicating climate information to **extend the reach and co-production of climate information to the most local levels** and integrate it within decision-making processes and planning.



6 The **hands-on, practical training** covered climate basics and how to use Maprooms to analyze past, current, and future climate information to meet the needs of adaptive decision-making for the agricultural sector in both the near and long-term.

1: Introduction

Improved availability and quality of climate data and information has been necessary but not sufficient in the development of effective, decision-relevant, sustainable, and locally-led climate services for the agricultural sector in Kenya. In particular, while the Kenya Meteorological Department (KMD) has long produced high quality information available at high resolution, this has not been enough to ensure that it is easily accessed, understood, or able to be used at the sectoral level in decision-making for agriculture. Rather, intentional efforts to both promote the translation (contextualization) and transfer (communication) of this information alongside capacity building for its use have been needed.

An important platform for facilitating the access and wider use of climate information in decision-making by governments, as well as the public and private sectors, is the IRI's [Climate Data Library](#). The Data Library is a powerful and freely accessible online platform that allows users to view, analyse, download, and share hundreds of terabytes of multidisciplinary climate-related data through a standard web browser (Blumenthal et al., 2014). ICT solutions like this and especially co-created map visualizations such as the IRI's interactive "Maproom" visuals and graphs of climate data can play a large role in making climate information more usable by translating past, present, or future conditions into expected

Participants of the November 2022 Training of Trainers (ToT) on the Enhancing National Climate Services (ENACTS) Maprooms for Users pause for a group photo outside of the Sarova Panafric Hotel in Nairobi, Kenya.

impacts and management advisories for different decision-makers (Christel et al., 2018; Daron et al., 2015).

In Kenya, the Enhancing National Climate Services (ENACTS) initiative has helped the country overcome gaps in its meteorological records by combining quality-controlled station records with proxies (satellite data for precipitation and climate model reanalysis data for temperature) that are freely available from global sources. In doing so, it has enabled the provision of long-term (more than 35 years for rainfall and 50 years for temperature) daily and decadal (10-day) gridded time series data at a 4-km resolution.

This downscaled location-specific climate information, made possible through the [ENACTS approach](#) (Nsengiyumva et al., 2021), represents a huge stride in climate information availability for the country because it is important for informing a wide variety of choices and planning decisions at the farm level in Kenya's various agro-ecological zones, from planting date to cultivar selection, timing of fertilizer application, and other practices affected by the crop calendar (Grossi & Dinku, 2022).

However, it is the ensuing activities of the ENACTS initiative that move beyond data availability to promoting its access and use through freely available online visualizations and analyses ("Maprooms"), alongside capacity building to promote the use and co-production of new products, that have enabled and will continue enable the information to become locally relevant services at scale.

"Maprooms," or visualizations and automations of climate analyses derived from these gridded datasets, in particular, have been instrumental in co-producing and communicating locally-relevant and demand-driven analyses in the 22 countries where the ENACTS initiative has been implemented, including Kenya.

The training of trainers (ToT) described in this report, which took place from October 31-November 4, 2022, in Nairobi, Kenya aimed to ensure that all major institutions that play an important role in promoting the use of climate information and services and broader resilience of the agricultural sector are aware of and have



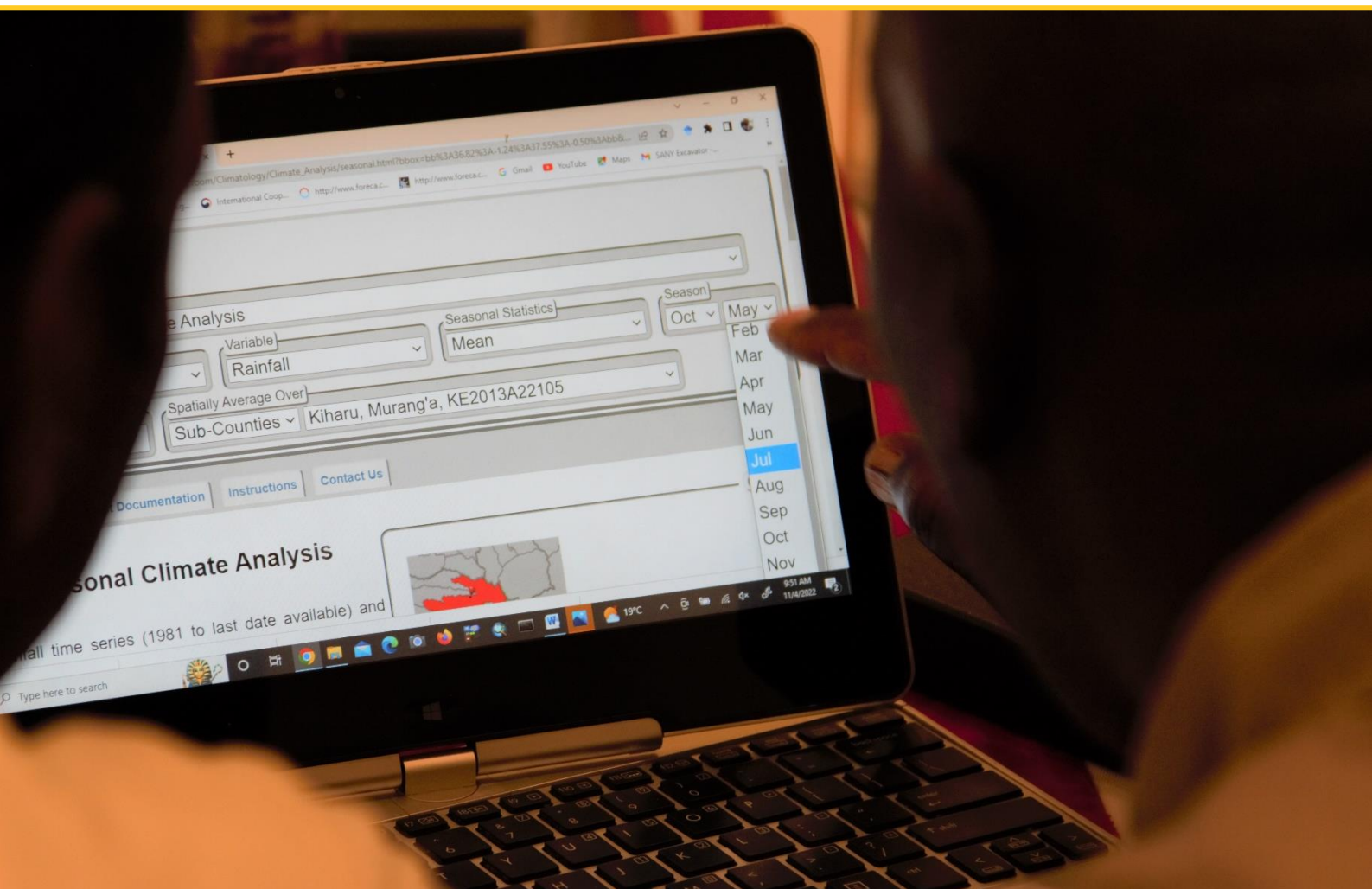
the capacity to train users within Kenya on the best-available climate information products for decision-making in [KMD's suite of online "Maprooms."](#) (Kenya Meteorological Department, 2022).

These institutions included both national and county-level staff from the Kenya Meteorological Department (KMD), which is mandated with generating and devolving climate information for the country's multifarious user communities, as well as national staff from the Kenya Agriculture and Livestock Research Organization (KALRO) and the Ministry of Agriculture, Livestock, and Fisheries (MOAL&F), which play important roles in tailoring, communicating, and otherwise building capacity of users to understand and act on this information in support of climate adaptation.

The ENACTS maproom products which were the subject of the training are freely available through KMD's website, and provide location-specific (4 km grid) historical, monitoring, and forecast information that is important for activities related to planning, monitoring, and response for the agricultural sector and wider food system.

The maps, graphs, and other visualizations that comprise the ENACTS maprooms are not pre-made or ready-made maps but are rather generated live based on the analysis that any user would like to do.

Subnational KMD staff from Murang'a county practice navigating through the Seasonal Climate Analysis Maproom, which enables analysis of the full forecast distribution compared to the historical distribution for any given season and location in Kenya.



2: Approaches and Methods

Towards its overarching goal of ensuring that institutions playing a role promoting the use of climate information and services in the agricultural sector are aware of and have the capacity to train users within Kenya on the best-available climate information products for decision-making, the workshop aimed to achieve the following:

- 1) Provide foundational knowledge about climate concepts, data, common data analyses, and the forecast, as well as local and global factors that influence Kenyan climate (climate basics)
- 2) Introduce participants to basic analytical tools and visualizations for understanding historical climate (climatology) for any given area of interest ([“Climate Analysis” maprooms](#))
- 3) Introduce participants to basic analytical tools and visualizations for understanding current climatic conditions (monitoring), including identification of extremes and anomalies ([“Climate Monitoring” maprooms](#))

4) Introduce participants to basic analytical tools and visualizations for understanding future climatic conditions (forecasting), including the flexible forecast format for communicating uncertainty for agricultural decision-makers ([“Climate Forecast” maprooms](#))

5) Expose participants to analytical tools and visualizations available from the IGAD Climate Prediction and Applications Centre (ICPAC) for understanding longer-term climate change in Kenya ([“Climate Change” maprooms](#))

6) Introduce participants to Maprooms for understanding how climate interacts with particular sectors, namely the agricultural sector ([“Agriculture and Food Security” maprooms](#)), and how these Maprooms and the other aforementioned maprooms can be used to answer common questions confronting the agricultural sector, such as crop suitability for a given area.

The workshop was an important forum not only for capacitating trainees on the use of KMD’s ENACTS “Maprooms,” but also for promoting and encouraging interactions between those who generate climate information and those who ultimately use it. Pictured here, staff from KMD’s national office, one of its county offices (Murang’a), and the Ministry of Agriculture all work together on a group exercise to practice navigating and producing analyses from KMD’s Climate and Agriculture “Maproom.” Products in this Maproom provide downscaled and decision-relevant climate information to actors working in the agricultural sector.



7) Gather feedback for the improvement of existing Maprooms and the development of new Maprooms for the agricultural sector in 2023.

The workshop was a training of trainers (ToT) of national and county-level KMD staff, as well as other relevant national institutions such as KALRO and the MoA, with an eye towards cascading capacities to the most local levels through a series of four regional trainings for Western, Central, Northern, and Coastal Kenya in late 2022 and early 2023.

Cascading such capacities to the most local levels in Kenya through counties is important not just due to the government's strong emphasis on devolution of services, but because counties are increasingly responsible for developing county climate services information plans which include a variety of actors from the MoA and even input suppliers who must be made aware of tools such as Maprooms for planning and climate risk management.

Awareness of climate information tools such as Maprooms at the most local levels with KMD county staff and their relevant MoA counterparts also helps to ensure that the development of new climate services such as Maprooms meets the real and not just perceived needs of the agricultural sector, and that climate services are truly locally-led.

County-level KMD staff from Turkana, national KMD staff, and staff from the MoA L&F work together on a group exercise to determine the suitability of a hypothetical crop with specific water, temperature, and other requirements in a given location using the Maprooms.

The ToT on ENACTS Maprooms for Users in Kenya provided an important forum for achieving these goals, as well as for promoting interfacing amongst those who produce climate information and products (KMD) and those who ultimately translate and use them (KALRO, MoA, etc.). The still-yet-to-be launched National Framework for Climate Services (NFCS) will help systematize these interactions between actors with different but complementary roles in the development of user-centred climate information and services (Dinku & Grossi, 2022).

A full list of participants and their affiliate institutions can be found in **Box 1**, while the list of trainers and support staff can be found in **Box 2**. The full agenda for the workshop can be found in **Section 6 (Agenda)**.



3: Key Results and Findings

All 21 participants from the national and county KMD offices, the MoAL&F, and KALRO were successfully capacitated on how to access, navigate, and use KMD's suite of free online Maproom products for analysing past, current, and future climate in relation to the agricultural sector. This was evidenced in a culminating group project and presentation whereby groups of 5-6 people selected a sub-county and created 10-slide PowerPoints to answer a series of questions related to: rainfall and temperature seasonality, La Niña's impact on seasonal rainfall, interpretation of the seasonal forecast, and crop suitability given specific parameters related to total rainfall, temperature tolerance, dry spell tolerance, and wet spell requirements.

Moreover, through presentations from various KMD staff, the training raised awareness about climate information products beyond ENACTS products that are available through KMD, as well as certain initiatives and approaches such as CARE's Participatory Scenario Planning (PSP) that are currently employed to help end-users

such as farmers understand climate information such as the seasonal forecast (CARE, 2018).

In addition to this, specific feedback on the improvement of existing KMD Maprooms and development of new Maprooms was gathered.

These requests and comments, which will be addressed in 2023 by the IRI and KMD through the AICCRA project, are outlined below:

The Seasonal Climate Forecast Maproom

There was positive feedback on the [Seasonal Climate Forecast Maproom](#) and its presentation of the forecast in the flexible forecast format with probabilities of exceedance. In general, participants felt that the ability to see the probability of exceeding any given amount of rainfall (rather than having probabilities lumped into three terciles) was very beneficial and practical for decision-making and planning. Some participants noted that this format could



“Climate effects are not confined to certain boundaries but affect all people everywhere. These trainings are important for building our capacity to deliver services to our citizens.”

—Simon Gachuri, Deputy Director, Kenya Meteorological Department (KMD)

have applications in other sectors related to agriculture as well, such as the water sector, whereby such a format would be useful for visualizing thresholds for flooding.

The New Python Maprooms

In a move to modernize and improve the ability of others to create and modify Maprooms, the IRI is working to transition the programming language with which they are made from Ingrid to that of Python. While most of KMD's Maprooms have yet to be translated to Python, trainees at this workshop were exposed to two of KMD's Maprooms that have already been translated to Python: the [Planting and Harvest Decision Support Maproom](#) (also known as the Onset and Cessation Maproom) and the [Monthly Climatology Maproom](#). Generally, participants found these maprooms more visually appealing and intuitive.

However, they requested to have more options to customize the maps, which they would like to use in their professional work, communications, and reporting. In particular, they requested an option or advanced feature to be able to change the colour schemes and palettes of the maps.

The Monthly Climate Analysis Maproom

For the [Monthly Climate Analysis Maproom](#) (historical climate analysis), participants requested some improvements to the visualization capabilities offered through the Maproom. In particular, they requested an option to see an animation of the progression of the season(s) for the entire year for any selected date range. For example, if one indicated a date range of January to December, participants wanted to be able to see an animation (time-lapse) of the progression of the season(s) over that time period for any given location.

Requests for New Maprooms

Climate and Water Maproom

During the training, participants were exposed to Maprooms beyond those at KMD for inspiration on how it might improve its own suite of products. These included [Maprooms from the Ethiopian Meteorological Institute \(EMI\)](#), which, as the first of the 22 countries to implement ENACTS more than ten years ago, has an extensive suite of Maproom products.

After viewing these products, participants requested that the set of [Climate and Water Maproom](#) products currently available for Ethiopia also be added to KMD's suite of Maprooms, as the historical, current, and forecasted water conditions have a natural bearing upon the success of agriculture in the country. These products include historical ("Analysis") maprooms such as the [Monthly Analysis](#), [Daily Analysis](#), and [Dekad \(10-Daily\) Analysis](#) maprooms, as well as a [Monitoring Maproom](#).

Climate and DRM Maproom

A set of "DRM Maproom" products, currently under development for Ethiopia, was also requested by the county KMD staff present at the training, as disaster risk management and reduction activities (DRM/R) in Kenya, like most government services, are also devolved to the most local county levels. The proposed "Climate and DRM Maproom" would be a hub pulling together already existing products relevant to the DRM sector—Maprooms related to analysis of climate extremes (Standardized Precipitation Index) and Maprooms related to NDVI monitoring of Vegetation Condition Index (VCI), for example—as well as potential new products to strengthen the sector with risk analysis, monitoring, and anticipation.

Agriculture and Food Security Maproom

While KMD does have an [Agriculture and Food Security](#) sectoral Maproom, its products are not as extensive as that available through [Ethiopia's Climate and Agriculture Maproom](#), and which could be relatively easily adapted and added to KMD's online suite of Maproom products.

A high priority for the participants and institutions represented at the training is the addition of a complete Historical Onset and Cessation Maproom. Currently, KMD only has onset and not cessation dates. Once cessation dates are available, they would also like to see a Historical Seasonal Totals Maproom available for Kenya (Cessation date is needed to calculate this.)

Climate Maproom

Also of high priority is the addition of an [Extreme Rainfall Analysis Maproom](#) and the [Extreme Temperature Analysis Maproom](#) products (currently available in Ethiopia) to the Climate Maproom for KMD.

Climate and Health Maproom

Also inspired by Ethiopia, participants from Kenya desired the addition of a new [Climate and Health Maproom](#), with a view towards adopting a wider food systems perspective acknowledging the interplay of other sectors (water, health) on the agricultural and food security sectors in Kenya.

General Comments on Functionality

A suggestion and comment echoed repeatedly from all corners was to improve the user experience across all Maprooms by minimizing interruptions by the Data Library system. In particular, when users change any criteria on the menu bars at the top of the Maprooms, the system will automatically start calculating the maps and analyses, which can then become very slow. Due to limited bandwidth and a desire to have the Maprooms perform more quickly and efficiently, there was a universal request from the participants to add a “Submit” button on the top menu bars of the Maprooms, such that only

after users are finished entering all of their criteria will the Maprooms start calculating and displaying. In other words, they want the Maprooms to execute according to their parameters after entering all information, not be updating after even one just parameter is changed or entered. Participants appreciated that Maprooms are generated live according to specification, but insisted that they have the freedom to initiate the generation only after entering all required information.

In addition to this, participants complained that functions related to downloading Maproom outputs do not function ideally. In particular, when one downloads maps or graphs, the legends/keys must be downloaded separately. Participants requested that the “Download” function be automated such that maps/graphs and their corresponding legends are downloaded together and with appropriately labelled units such that visuals are self-explanatory with minimum additional editing for use in decision-making.

“For long, accessing climate information and data for us to assist users has been a challenge. With these Maprooms, we are going to get **more granular information** and data. And what’s more, these datasets are already translated, tailored and put in **one portal where any user, technical or not, can get that information.**”

—John Kisangau, Data Scientist,
Kenya Agricultural and Livestock
Research Organization (KALRO)





“The Maprooms have some really useful outputs that can support us in giving advisories and also proper planning for agricultural insurance such as with the Kenya Livestock Insurance Program (KLIP).”

—Meshack Keter, Ministry of Agriculture, Livestock, and Fisheries (MoALF)

Re-Organization of Existing Maprooms

After viewing the organization and groupings of KMD's Maprooms according to certain categories, participants requested that some of them be moved, as follows:

- Move all ENSO and IOD Analysis Maproom products which currently sit in KMD's Climate Forecast tab of its Climate Maproom to more logically sit in KMD's [Climate Analysis \(historical\) Maproom collection](#).

User Support and Help Desk Feedback

In addition to KMD's maprooms, ICPAC also hosts [Maprooms for each of the countries in the East African region](#) (ICPAC, 2022) using CHIRPS rather than ENACTS data. For improved response time, participants requested that the Help Desk contact for Kenya on this website be updated to designate a staff member of KMD. There were also requests for these regional ICPAC maprooms to point to KMD (ENACTS) data.

New Maprooms for Other Countries Inspired by KMD and ICPAC Maprooms

The ICPAC versions of the Kenya Maprooms has a Climate Maproom with a [Climate Forecast Information tab](#) that other countries do not have. This includes the Seasonal Rainfall Forecast; Probability of Monthly Averages (in a Season) Rainfall Tercile Conditioned on ENSO; Probability of Monthly Averages (in a Season) Temperature Tercile Conditioned on ENSO; Probability of Monthly Averages (in a Season) Rainfall Tercile Conditioned on IOD; and Probability of Monthly Averages (in a Season) Temperature Tercile Conditioned on IOD.

These Kenya Maprooms can serve as an example for other East and Southern Africa country maprooms, and should be added elsewhere for other countries.

4: Conclusions and Recommendations



Participants present their final group projects on the last day of the workshop. The project tied together training on all of the Maprooms by asking trainees to answer specific questions requiring the use of various Maprooms for a given location.

In addition to this, the *ENACTS Maprooms Users Guide for Kenya*, which is currently in draft and walks users through the purpose of each of KMD's Maprooms, as well as how to navigate and use them in great detail, should be completed to support the expanded utilization of these important climate information products in the agricultural sector.

Another request by participants to support the expanded use of such products in Kenya and elsewhere was to give users the confidence and trust in the underlying ENACTS merged data of the Maprooms by better documenting its quality and how it comes about. For this, the IRI and its colleagues at the national meteorological services should finalize a publication comparing ENACTS data to the best-available global products to demonstrate its advantages.

Lastly, a number of potential applications for KMD's Maprooms in supporting adaptive decision-making in the agricultural sector arose during discussion, including its potential use in informing agricultural insurance (crop and livestock) through the Government of Kenya's drought insurance program known as the Kenya Livestock Insurance Program (KLIP), as well as communication of its outputs through Shamba Shape Up, Kenya's most-watched agriculture TV show. The AICCRA-Kenya and IRI teams should explore these avenues for scaling the use and impact of Maprooms and their composite climate information and services within the country.

In terms of next steps, the detailed feedback outlined in the Results & Findings section needs to be addressed, including the improvement of existing Maprooms and development of new ones in line with identified priorities. These improvements and additions will be made in early 2023, and then another training will be held with these participants (led by the IRI) to ensure that they are capacitated in the use of these new and improved Maproom products through KMD.

5: List of Participants and Trainers

Box 1

List of Trainees: CRMAE for EMI RMSC Training (September 1-7, 2022)

No.	Name	Gender	Organization/ Structure	Contact
1	Meshack Keter	M	MOAL&F	chirchirmeshack@yahoo.com
2	Joseph Mutinda Komu	M	MoALF	mutindaxx2014@gmail.com
3	Morris Gatheru	M	KALRO	Morris.Gatheru@kalro.org
4	John Kisangau	M	KALRO	John.Kisangau@kalro.org
5	Jane Njeri Reuben	F	MoAL- CCU	njerireuben@gmail.com
6	Bahati Musilu	F	KMD-HQ	musilubahati@gmail.com
7	Peterson Ngari	M	KMD-HQ	pngari09@gmail.com
8	Pascaline Chemaiyo	F	KMD-HQ	pchemaiyo@gmail.com
9	Christine Mahonga	F	KMD-HQ	COMAHONGA@GMAIL.COM
10	Pamela Muange	F	KMD-HQ	muangepamela@gmail.com
11	Absae Seda	M	KMD-HQ	ndegendegef@gmail.com
12	Onesmus Ruirie	M	KMD-HQ	ruirie.o@gmail.com
13	Philip Okello	M	KMD-HQ	koderaphillips@yahoo.com
14	Samuel Kamau	M	KMD-HQ	mwurahrk@gmail.com
15	Paul Oloo	M	CDM-Kisumu	paul_oloo@yahoo.com
16	Geoffrey Ogutu	M	CDM-Mombasa	ogutugeoff@hotmail.com
17	Robert Kyalo	M	CDM-Machakos	dominicrobert7@gmail.com
18	Vicent Sakwa	M	CDM-Kakamega	sakwa_v@yahoo.co.uk
19	Daniel Wanjui	M	CDM-Wajir	dmwanjuhi@gmail.com
20	Francis Muinda	M	CDM-Lodwar	fmuinda@gmail.com
21	Paul Murage	M	CDM-Muranga	muragehpaul@gmail.com

There were a total of 21 trainees, 5 of whom were women (24%) and one of whom was a youth (under the age of 35).

Box 2

List of Trainers & Support Staff: ToT on ENACTS Maprooms for Users (October 31-November 4, 2022)

No.	Name	Gender	Organization/ Structure	Position/Title	Email
1	Tufa Dinku	M	IRI	Senior Research Scientist	tufa@iri.columbia.edu
2	Amanda Grossi	F	IRI	Senior Staff Associate	amanda@iri.columbia.edu
3	Beth Njoroge	F	ILRI	Administrative Assistant	B.Njoroge@cgiar.org
4	Joy Andati	F	ILRI	Assistant to Project Manager in Sustainable Livestock Systems program	J.Andati@cgiar.org

6: Agenda

Day 1 (Monday, October 31)	
Time	Activity
08:30 - 09:00	Registration
09:00 – 09:30	Welcome and opening Around the room introductions
09:30 – 10:30	<ul style="list-style-type: none"> • Introduction to the training (IRI) • Weather and Climate Services provided by KMD (KMD)
10:30 – 11:00	Coffee Break and group photo
11:00 – 12:30	Climate Basics Part I: What defines local climate (IRI)
12:30 – 13:30	Lunch
13:30 – 14:30	Climate Basics Part I (continued)
14:30 – 15:30	Climate Basics Part II: Climate Variability
15:30 – 16:00	Coffee break
16:00 – 17:00	The Climate of Kenya (by KMD)

Day 2 (Tuesday, November 1)	
Time	Activity
09:00 – 10:30	<ul style="list-style-type: none"> • Overview of previous day (15min) • Climate Basics Part III: Data vs information
10:30 – 11:00	Coffee Break
11:00 – 12:30	Climate Basics Part IV: Forecasting/projecting into the future
12:30 – 13:30	Lunch
13:30 – 15:00	<ul style="list-style-type: none"> • Intro to Climate Services and ENACTS • Intro to ENACTS Maprooms
15:00 – 15:30	Coffee Break
15:30 – 17:00	<ul style="list-style-type: none"> • Intro to Reading Maps and graphs

Day 3 (Wednesday, November 2)	
<i>Time</i>	<i>Activity</i>
09:00 – 10:30	<ul style="list-style-type: none"> Overview of previous day (15 min) Demonstration: Climate Analysis Maproom
10:30 – 11:00	Coffee Break
11:00 – 12:30	<ul style="list-style-type: none"> Activity: Exploring the Climate Analysis Maproom
12:30 – 13:30	Lunch
13:30 – 15:00	<ul style="list-style-type: none"> Demonstration: Climate and Agriculture Maproom Activity: Exploring the Climate and Agriculture Maproom
15:00 – 15:30	Coffee Break
15:30 – 17:00	<ul style="list-style-type: none"> Demonstration: Climate Monitoring Maproom Activity: Exploring the Climate Monitoring Maproom

Day 4 (Thursday, November 3)	
<i>Time</i>	<i>Activity</i>
09:00 – 10:30	<ul style="list-style-type: none"> Overview of previous day (15 min) Demonstration: Climate Forecast Maproom
10:30 – 11:00	Coffee Break
11:00 – 12:30	Activity: Exploring the Climate Forecast Maproom
12:30 – 13:30	Lunch
13:30 – 15:00	Demonstration: Water and Health Maprooms
15:00 – 15:30	Coffee Break
15:30 – 17:00	Discussion on maproom products

Day 5 (Friday, November 4)	
<i>Time</i>	<i>Activity</i>
09:00 – 10:30	<ul style="list-style-type: none"> Overview of previous day (15min) Project work
10:30 – 11:00	Coffee Break
11:00 – 12:30	Project work (cont.)
12:30 – 13:30	Lunch
13:30 – 15:00	Project presentation
15:00 – 15:30	Coffee Break
15:30 – 17:00	Discussion and closing

References

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