

**Training Agricultural Research & Extension Staff
to Produce and Communicate Agro-Climatic
Information, to Enhance the Resilience and
Food Security of Farmers and Pastoralists in
Kiteto, Tanzania**

Preliminary Findings from the GFCS Adaptation
Programme in Africa

Working Paper No. 132

CGIAR Research Program on Climate Change,
Agriculture and Food Security (CCAFS)

Peter Dorward
Arame Tall
Harneet Kaur
James Hansen



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



Working Paper

Training Agricultural Research & Extension Staff to Produce and Communicate Agro-Climatic Information, to Enhance the Resilience and Food Security of Farmers and Pastoralists in Kiteto, Tanzania

Preliminary Findings from the GFCS Adaptation Programme in Africa

Working Paper No. 132

CGIAR Research Program on Climate Change,
Agriculture and Food Security (CCAFS)

Peter Dorward
Arame Tall
Harneet Kaur
James Hansen

Correct citation:

Dorward, P., Tall, A., Kaur, H. and Hansen, J. 2014. Training Agricultural Research & Extension Staff to Produce and Communicate Agro-Climatic Advisories, to Enhance the Resilience and Food Security of Farmers and Pastoralists in Tanzania. Preliminary Findings from the GFCS Adaptation Program in Africa. CCAFS Working Paper no. 132. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark.

Titles in this Working Paper series aim to disseminate interim climate change, agriculture and food security research and practices and stimulate feedback from the scientific community.

This document is published by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), which is a strategic partnership of the CGIAR and the Earth System Science Partnership (ESSP). CCAFS is supported by the CGIAR Fund, the Danish International Development Agency (DANIDA), the Government of Australia (ACIAR), Irish Aid, Environment Canada, Ministry of Foreign Affairs for the Netherlands, Swiss Agency for Development and Cooperation (SDC), Instituto de Investigação Científica Tropical (IICT), UK Aid, and the European Union (EU). The Program is carried out with technical support from the International Fund for Agricultural Development (IFAD).

Contact:

CCAFS Coordinating Unit - Faculty of Science, Department of Plant and Environmental Sciences, University of Copenhagen, Rolighedsvej 21, DK-1958 Frederiksberg C, Denmark. Tel: +45 35331046; Email: ccaafs@cgiar.org

Creative Commons License



This report is licensed under a Creative Commons Attribution – NonCommercial–NoDerivs 3.0 Unported License.

Articles appearing in this publication may be freely quoted and reproduced provided the source is acknowledged. No use of this publication may be made for resale or other commercial purposes.

© 2014 CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). CCAFS Working Paper no. 132

DISCLAIMER:

This Working Paper has been prepared as a n output for Flagship 2: Climate Information Services and Climate-Informed Safety Nets under the CCAFS program and 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 CCAFS, donor agencies, or partners.

All images remain the sole property of their source and may not be used for any purpose without written permission of the source.

Abstract

National Agricultural Extension Systems in ten districts in Tanzania and Malawi are receiving training in the production and use of climate services as part of a WFP-CCAFS joint activity within the GFCS Adaptation Programme in Africa. This document reports on the first training of intermediaries, conducted for 30 agricultural extension and NGO staff from Kiteto District, Tanzania, 13-17th October 2014 and draws lessons from this to feed forward into preparation and training in the remaining districts in 2015. Preparation for the course included analysis of historical climate information, as well as training of staff from the Tanzania Meteorological Agency in downscaling using the Climate Prediction Tool (CPT). The ensuing training course for intermediaries covered the Participatory Integrated Climate Services for Agriculture (PICSA) approach. This aimed to equip agricultural extension field staff to provide local historical climate information, seasonal and sub-seasonal forecasts (seamless forecasts) together with crop and livelihood information and to facilitate use of participatory decision making tools by smallholder farmers, in order to enhance farm and field-level decision making for resilience and food security. Training included a strong practical component. At the end of the training course agricultural extension officers and NGO staff developed plans for implementation in the locations that they work. Formal and informal feedback from participants was very positive. From this first training several improvements to feed into subsequent training in Tanzania and Malawi were identified and recommendations are made. These include: how to ensure that climate information for districts is analysed well in advance; appropriate crop and livestock management options are identified to cover variation within each district; climatic variability is adequately addressed within districts; and the potential benefits of CPT downscaled forecasting are fully explored.

Keywords

Climate Services; Intermediaries; National Agricultural Extension Services; Smallholder Farmers

About the authors

Peter Dorward is an Associate Professor in the School of Agriculture, Policy and Development and member of the Walker Institute for Climate System Research at the University of Reading, UK. Contact: p.t.dorward@reading.ac.uk

Arame Tall is the Climate Services Expert for the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), based at the International Food Policy Research Institute (IFPRI), in Washington, D.C. Contact: A.tall@cgiar.org.

Harneet Kaur is Program Support Consultant with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) Flagship 2: Climate Information Services and Climate-informed Safety Nets, based at International Livestock Research Institute (ILRI) in Nairobi, Kenya. Contact: h.k.kaur@cgiar.org / kaur.harneet@outlook.com

James Hansen is the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) Flagship 2 Leader: Climate Information Services and Climate-Informed Safety Nets, based at the International Research Institute for Climate and Society (IRI), Columbia University, New York. Contact jhansen@iri.columbia.edu

Contents

Introduction.....	7
Activity Objectives: Training the ‘Missing Link’	8
GFCS Adaptation Program: Testing new tools for training intermediaries	10
Training Workshop for Intermediaries for Kiteto District.....	11
Preparation for the workshop.....	11
Workshop Participants	11
Training Contents, Activities & Methods.....	11
Observations and Participant Feedback on training content and approach	12
Monitoring of trained staff and activities in Kiteto	13
Conclusion and Recommendations.....	13
References.....	15

Acronyms

ANACIM	Agence nationale de la météorologie du Sénégal (Senegalese Meteorological Agency)
ARI	Agricultural Research Institute
CBO	Community Based Organization
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CPT	Climate Prediction Tool
CSP	Climate Services Partnership
e-SIAC	Statistics in Applied Climatology
GFCS	Global Framework for Climate Services
GHARCOF	Greater Horn of Africa Regional Climate Outlook Forum
ICT	Information and Communications Technology
IRI	International Research Institute for Climate and Society
NGO	Non-Governmental Organization
PICSA	Participatory Integrated Climate Services for Agriculture
SMS	Short Message Service
ToT	Training of Trainers
TMA	Tanzania Meteorological Agency
WFP	World Food Programme
WMO	World Meteorological Organization

Introduction

This document summarises the preliminary findings from the WFP-CCAFS joint activity as part of the GFCS Adaptation Programme in Africa, specifically on the first round of Training of Agricultural Research & Extension to Produce and Disseminate Agro-Climatic Advisories, to enhance the Resilience and Food Security of Farmers and Pastoralists in Tanzania in 2014.

The overall aim of this activity is to strengthen the capacity of national stakeholders in Tanzania to develop and deliver tailored agro-climatic products that help smallholder farmers and pastoralists increase their food security and resilience against climate change.

The first training workshop for intermediaries was for staff from Kiteto District Tanzania, one of the Districts that the project focuses on, and was held between 13th and 17th October 2014. The report provides an overview of the training aims, the participants, content and feedback, and importantly, identifies lessons and next steps for the implementation of the activity in other Districts in Tanzania and Malawi in 2015, and future programs seeking to enhance the capacity of intermediaries to serve as the 'Missing Link' between climate forecasters, agricultural researchers and farmers.

Activity Objectives: Training the ‘Missing Link’

Climate services are beginning to receive recognition as an important part of the adaptation agenda. Indeed, a number of global initiatives have placed Climate Services at the centre of attention:

At the World Climate Conference-III (WMO, Geneva, September 2009), delegates of 155 nations endorsed a Global Framework for Climate Services (GFCS) “to strengthen the production, availability, delivery and application of science-based climate prediction and services.” The GFCS implementation plan targets gaps in climate services in support of four key climate-sensitive sectors (agriculture, disaster reduction, energy and water) in vulnerable developing countries.

The CSP, launched at the International Conference on Climate Services (New York, October 2011), is a global network of climate service providers, users, funders and researchers. It aims to advance climate services worldwide by fostering collaboration, capturing and sharing knowledge; and filling gaps in knowledge and evidence.

Improving climate-related information products and services for agriculture and food security is part of the agenda of the CGIAR research program on Climate Change, Agriculture and Food Securing (CCAFS), under its Theme, “Adaptation through Managing Climate Risk.” The program is connecting the considerable research capacity of the CGIAR with new climate science and climate service partners, including the CSP and GFCS.

As a result, considerable efforts to integrate climate information services into decision-making are currently underway at local, national, regional, and international scales and in a range of different sectors, including agriculture, health, forestry, fisheries, transport, tourism, disaster risk reduction, water resources management, and energy. Most importantly, a range of organisations and stakeholders worldwide are now devoting increasing resources to ensuring that relevant climate information and advisory services reach regional stakeholders, national planners and communities most at risk from impacts of a changing climate.

At the heart of these endeavours is the belief that climate services will improve preparedness to climate risks under a changing climate, and enable better-informed decisions, empowering end users, including farmers at the frontlines, to better anticipate and manage climate risks.

While the supply of improved climate services for users across a broad range of sectors and scales is receiving greater attention however, there has been very little to identify and develop relevant communication channels to ensure adequate communication of available climate information and forecasting products, across timescales, to end users and vulnerable communities at the frontlines of a changing climate’s impacts.

Training the ‘Missing Link’

In the agricultural sector, one of such channels identified is to work through intermediaries, able to serve as a critical ‘missing link’ between suppliers of climate information services (climate forecasters and agricultural researchers, experts in production of climate information and related agricultural and livelihood information to produce agro-climatic advisories relevant for farmers) and final end users, i.e. farmer communities, pastoralists, etc. A recent

CCAFS report highlights the importance of exploiting scalable communication channels to reach “the last mile” (Tall et al., 2014). Once tailored products are developed, the next challenge is to communicate widely to ensure the products reach the majority of farmers in the country or target region. As cases reviewed in this report indicate, a wide range of communication channels can be used to deliver climate-related information and advisories, and to collect farmer feedback. Assessment of the literature and case studies, suggest that expanding access to climate services for smallholder farmers is best accomplished through a combination of leveraging the reach and cost-effectiveness of ICTs (e.g., SMS, rural radio, voice recordings, call services); and working through trained staff of boundary organisations who already routinely work with farmer communities, otherwise known as intermediaries (agricultural extension, NGOs, Community Based Organisations (CBO), agri-business and farmer facilitators) who can facilitate farmers’ understanding and adoption of complex climate information and related agro-climatic advisories (Tall et al., 2014). Evidence indicates that two-way communication between farmers and climate service providers is essential, regardless of the communication channels used (Jost 2013; Stigter and Winarto 2013).

Little has been achieved however by way of strengthening the capacity of intermediaries to serve as missing links in our global endeavour to provide user-relevant climate information services, and develop relevant tools to train intermediaries. This leaves humanitarian organizations, CBOs, local faith-based and farmer organisations, national extension services, media personnel, professional communicators and rural radios, with very little guidance on how to serve as critical information relays, the “missing link” between those who have advance information and early warnings on weather/climate, to those who need it to make improved ex-ante decisions and early actions, including farmer communities.

Improving our collective understanding on how best to train intermediaries to communicate climate information services to farmer groups, pastoralists, fishermen, and other most vulnerable groups in at risk communities, is a critical step in enhancing our ability to support local communities manage climate-related risk. We need to specifically better understand: what are best practices in training intermediaries to communicate climate information services to the most vulnerable? Who are the best intermediaries for which type of climate information and advisory services, at which timescale? Which channels of communication are most appropriate to reach which groups of end users? Only with a set of good practice materials to train intermediaries to communicate climate information services, can we make informed progress to reach vulnerable communities with climate information services at large scale.

CCAFS Expert Workshop “Developing a Methodology to Communicate Climate Services for Farmers”, Nairobi, June 2013

As an initial contribution to this emerging discussion, the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) held an expert workshop invited to synthesize and develop good practice training materials for the communication of climate information services for farmer communities across Africa and South Asia. This endeavour built on previous efforts to train farmer groups and communities at risk, and documented success, failures, and lessons learned from a wide range of more or less successful experiences training intermediaries across Africa and South Asia. We focused on developing

practical Training of Trainers (ToT) materials, for use in emerging climate service projects, providing practical training guidance for intermediaries willing to serve as two-way relays of climate and agricultural information in support of adaptation/resilience in the communities they serve.

Experts were invited at a workshop in Nairobi in June 2013 to take part in the development of training materials for the communication of climate information and advisory services, across timescales (from seasonal to short range timescales and historical data). Synthesized training materials sought to establish guidelines and good practice tools/methods for equipping intermediaries to understand available climate/weather forecast products, and in turn to produce tailored agro-climatic advisories and communicate them to farmers in the respective communities they serve. In this regard, the training materials offer practical ToT tools and methods for boundary organizations and intermediaries alike to train their field staff and enhance the capacity of national systems to communicate climate services (May et al., 2013).

The Participatory Integrated Climate Services for Agriculture (PICSA) approach was shared at the Nairobi workshop and had been developed in Zimbabwe funded by Nuffield Foundation, and then improved and piloted in Tanzania and Kenya with CCAFS support. The approach was specifically developed for extension staff to use with groups of farmers as part of their ongoing work. It aims to facilitate farmers to make informed plans and decisions in the lead up to and during the production season and includes: providing and considering both historical climate and weather forecast information with farmers; exploring crop, livelihood and livestock options and their risks with farmers; and use of a set of participatory tools to enable farmers to use this information in planning and decision making at household and 'field' level for their own individual circumstances. (A summary of the steps involved in PICSA are given in Annex 1.)

GFCS Adaptation Program: Testing new tools for training intermediaries

As part of the GFCS Adaptation Program in Africa, the GFCS' pilot program on climate services in Africa, CCAFS and project partners put to the test new materials for training intermediaries in Tanzania, starting ahead of the at-risk OND rainy season 2014. Aims of this activity were to start to scale out integrated climate services using intermediaries and to test and assess the adequacy of ToT training materials for one set of intermediaries –national agricultural extension officers and NGO field staff. The PICSA approach had been developed and piloted in Zimbabwe and Tanzania but not used at district level and a component of this activity was to derive lessons on its use when scaling out to inform future iterations of intermediary trainings within the GFCS pilot project and beyond (see activity concept note in Annex 1). A team of facilitators from Reading University prepared and developed content for the training course, targeting 30 extension officers in the project target district of Kiteto in Northern Tanzania. In an aim for South-South collaboration, an expert from the Senegalese Meteorological Agency (ANACIM) was brought on-board to train his peers at the Tanzania Meteorological Agency (TMA) on the use of the Climate Prediction tool (CPT) for downscaling the seasonal forecast, output of the GHARCOF, to the district of Kiteto, bringing the forecast to the scale of farmers' decision making. Finally, experts from Tanzania's national Agricultural Research Institute were brought as collaborators to support extension

officers' tailoring of climate information with agricultural extension support, to provide necessary products relevant to support farm and field-level decisions and ex-ante risk management by farmers. This joint effort led to the training of 30 local extension officers in Kiteto district between 13th and 17th October 2014.

Training Workshop for Intermediaries for Kiteto District

Preparation for the workshop

Several activities were undertaken in preparation for the training of intermediaries. Professor Roger Stern (University of Reading) worked with Tanzania Meteorological Agency (TMA) to prepare historical climate data and Dr Ousmane Ndiaye from the Senegalese Meteorological Agency (ANACIM) conducted a training workshop on the use of CPT for downscaled seasonal forecasting for TMA staff. Professor John Gathenya (University of Nairobi) collated and prepared information on crop requirements (locally potentially suitable crops and varieties and their requirements in terms of water, lengths of season etc). Dr Peter Dorward and Dr Graham Clarkson (University of Reading) prepared material for the training course and worked with other contributors to the training who also developed materials. Juvenal Kisanga of WFP led workshop preparations and liaised with organisations working in Kiteto to identify and invite intermediaries who would benefit from and utilise the training.

Workshop Participants

Participants were carefully selected using the criteria specified in the activity concept note (including their reach, experience and existing capacity), see Annex 1. The majority of the 30 participants were Agriculture and livestock extension officers and these were joined by two staff from NGOs (including the Tanzania Red Cross) and one seed supplier. In addition to village or ward level extension staff, district supervisors and senior management staff participated in the whole course. The seven facilitators were from University of Reading, TMA, Kings College London and Agricultural Research Institute (ARI). Names of all trainees and facilitators are given in Appendix 1.

Training Contents, Activities & Methods

The aim of the training was to equip intermediaries to better work with smallholder farmers to enable them to use a seamless and integrated combination of climate, weather and agricultural information and to improve their planning, decision making and livelihoods. The training ran for 5 days, and included both an in class and field component. The contents of the course are outlined in appendix 2.

The training covered how historical climate data and seasonal and short term forecasts are produced and communicated and how they can be interpreted. Details on the most appropriate crop and livelihood options and details on their management were covered, and trainees practiced how to integrate information and to use participatory decision making tools to facilitate identification of the best options for enterprises and enterprise management under different weather conditions.

An important aspect of the course was ensuring that participants had the opportunity to practice, both in class and in the field. A day was spent in a local community (Mtumba) as part of the course where participants worked with small groups of farmers. This proved very useful and participants gained both skills and confidence. Day 5 the final day of the course was spent on practical planning for implementation. Trainees developed plans and charts for implementation in their own work locations and both field staff and their supervisors and managers were fully engaged in this process.

Observations and Participant Feedback on training content and approach

Trainees were fully engaged throughout the course and especially in the practical exercises and activities in class and on the field day. This was particularly the case with village and ward level field staff. Trainees evaluated the course through use of an anonymous feedback questionnaire. Mean scores on a scale of 1-5 (where 1 = very poor to 5 = excellent) from the 30 trainees are given in Table 1.

How much I learned from the course	4.3
Course components on climate and weather	4.2
Course components on crops	4.0
Course components on decision making tools	4.3
Materials provided at the end of the course	4.1
Training facilities	4.6

(n=30)

Table 1. Feedback by intermediaries on aspects of the training course (mean scores on scale of 1-5).

The scores for each of the aspects were high and support both the comments made by participants and the facilitator's observations. Of particular note is the importance of the field day (day 4) when pairs or small groups of trainees practiced the PICSA exercises and activities with farmers in a nearby community. The main benefits were: Trainees developed their skills and experience; gained confidence in their own (and farmers) ability to conduct the approaches and in the value of the exercises; farmers fully engaged in the exercises and found them useful. Without this practice it is doubtful that trainees would have the necessary skills and confidence to implement the approach when they return to their own work locations, particularly given that some of the activities involved use of tools and types of information that were new to trainees and farmers (e.g. graphs of historical rainfall, working out simple probabilities of success / failure of different crops). The self-reflection and feedback after the field day enabled trainees to report on what they felt had worked well and why, but also importantly to identify aspects that they felt unclear about or that needed more attention in the course or required adapting. The course was designed and delivered in a way to encourage trainees to interact with farmers in a participatory and supportive way. Important underlying principles were brought out and emphasised such as the benefits of considering 'options by context' and the role of staff as 'facilitators' rather than instructors.

The presence of field staff who interact directly with farmers together with their managers was also important. Managers need to be fully aware of the approach to be able to support

field staff but it was clear by the end of the course that managers were enthusiastic about both the approach and its benefits which is essential if field staff are to implement what they have been trained in, and for it to be given priority. The plans developed by trainees on the final day regarding what they would implement after the course were shared in the group and appeared to have the support and buy-in of managers. A follow-up monitoring visit to Kiteto approximately six weeks after the course revealed that all trainees that were visited or contacted (i.e. almost all trainees) had implemented the PICSA approach activities with farmers. Further monitoring and follow up is planned.

Monitoring of trained staff and activities in Kiteto

WFP conducted a field monitoring visit from 8th - 12th December 2014 in Kiteto District. This was to follow up the training and monitor whether staff were implementing the practices and approach with farmers. This included visiting 6 out of 10 pilot villages. In all places visited, farmers confirmed and appreciated the value of the training they had received from the trained intermediaries. The cropping season was about to start but staff were encouraged to cover more farmers particularly after receiving the funds from WFP to support this. Kiteto is relatively large District with a dispersed villages and it was not feasible to visit all villages. Staff in villages that could not be visited were contacted by mobile phone and reported that farmers had been trained before the start of the season.

Most trained farmers have provided their cell phone numbers for TMA to send them forecast updates. One local challenge identified was that there was limited availability of improved seed due to recent changes in the subsidy voucher scheme.

Conclusion and Recommendations

Overall the training of intermediaries worked very well. The focus on integrated climate services and the approach introduced fitted well with the roles that extension staffs perform and with the needs of farmers. These were not just for information on climate and weather but how to integrate information with crop, livestock and livelihood options, and for tools and methods to explore and plan at group, household and field levels. The interactive and participatory nature of the training ensured active involvement by participants together with reflection on how the approach and contents applied to their own work with farmers. At the end of the workshop all trainees developed practical plans for how they will use the approaches and training material with groups of farmers in the lead up to the rainy season. An initial monitoring visit six weeks later indicated that these were being implemented.

Whilst the training event worked well as the first implementation at district level there are useful practical lessons to be learned and addressed ahead of the subsequent scaling out of the training of intermediaries in other districts in Tanzania and Malawi.

Historical data needs to be analysed for each of the 10 districts. Data in Malawi requires considerable work to establish the quality and to conduct analysis. In Tanzania TMA staff-members have the skills to do this and have produced analysed data for several locations. However with competing demands and activities there is a danger that this essential task is

not conducted in time for the focus districts. In Malawi several staff-members are currently taking ESIAC course which helps towards raising awareness and developing capacity.

Appropriate crop and livestock management options need to be identified with local experts across and within the target Districts e.g. details on locally suitable crop varieties, local crop and livestock management practices and recommendations. There is often variability within a district. This detailed identification of locally appropriate innovations is essential for the linking of climate information and agricultural options that farmers can explore and implement at local level. A way forward to achieve this aim is by convening a series of small workshops for Ministry of Agriculture (crop and livestock specialists) that include national and district level staff, to identify farmer's current practices and then detail the range of innovations available and suitable for different locations.

Use of CPT approach. Forecasting units in TMA (and probably Malawi Met.) are using CPT to a limited extent. Experts in CPT (e.g. in IRI) consider that it has major potential to improve downscaled forecasting. There would be significant merit in exploring this further. At a follow up meeting with TMA forecasting staff in Dar Es Salaam after the training of intermediaries in Kiteto, TMA offered to produce a CPT based forecast ahead of training of intermediaries in Longido and to use the work in Longido as a pilot. In addition a meeting of CPT experts at the Met services to further explore options would be beneficial. Since October 2014 possible ways of improving statistical analysis have been identified by staff at IRI and University of Reading which warrants further consideration.

Addressing climatic variation within Districts. Within Kiteto there are areas that are predominantly uni-modal and areas that are more bi-modal. Farmers need services that are relevant to their local conditions. There are likely to be differences in local climate within most districts, although for some they will be more pronounced. Short term forecasts and warnings (provided by mobile phone) do not currently take account of this. This is an important limitation and one that will erode trust in the services (e.g. of early warnings due to receiving 'false' warnings that don't apply). Addressing this is already a component of the wider GFCS project.

The first training of intermediaries as part of scaling out integrated climate services within the GFCS project has been successful. It builds on a practical and previously piloted integrated approach. As the first in a series of trainings to scale out to districts in Tanzania and Malawi the training was well received by participants who are now implementing it in their own locations. Several practical issues, mainly related to implementing at scale, have been identified and that can be addressed in the preparation for training in the remaining districts in 2015.

References

- Jost C. 2013. Delivery models for climate information in East and West Africa. CCAFS Working Paper no. 41. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available at: http://ccafs.cgiar.org/publications/delivery-models-climate-information-east-and-west-africa#.U_23jfmSySo
- May S, Hansen J, Tall A. 2013. Workshop report: Developing a methodology to communicate climate services for farmers at scale: CCAFS workshop, Nairobi, Kenya, 12-14 June 2013. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available online at: www.ccafs.cgiar.org
- Stigter K and Winarto YT. 2013. Science Field Shops in Indonesia. A start of improved agricultural extension that fits a rural response to climate change. *J. Agric. Sc. Appl.* 2 (2): 112-123.
- Tall A., Hansen, J., Jay, A. Campbell, B., Kinyangi, J., Aggarwal, P.K., Zougmore, R., 2014. Scaling up climate services for farmers: Mission Possible - Learning from good practice in Africa and South Asia. CCAFS Report No. 13. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark. Available online at: www.ccafs.cgiar.org

Annex 1: Activity Concept Note

Training Agricultural Research & Extension Staff (Training Of Trainers) To Produce and Disseminate Agro-Climatic Advisories, to enhance the resilience and food security of Farmers And Pastoralists In Tanzania

CCAFS-WFP Joint activity as part of the GFCS Adaptation Programme in Africa - CSA

Support by the Walker Institute, University of Reading

CONCEPT NOTE

September 5, 2014

I. Introduction:

This concept note outlines the objectives of the joint WFP-CCAFS activity for 2014 in Tanzania: “Training Agricultural Research & Extension Staff (Training Of Trainers) To Produce and Disseminate Agro-Climatic Advisories, to enhance the resilience and food security of Farmers And Pastoralists In Tanzania”.

Under the auspices of the Norway-funded Global Framework for Climate Services (GFCS) Adaptation Programme in Africa, the World Food Program (WFP) and the CGIAR Research program on Climate Change, Agriculture and Food Security (CCAFS) are joining forces to support Tanzania’s national Meteorological Agency (TMA) and the Ministry of Agriculture - Agricultural Research & Extension departments (MoA), to bring climate information to farmers and pastoralists.

II. Activity objectives

The overall aim of this activity is to strengthen the capacity of national stakeholders in Tanzania to develop and deliver tailored agro-climatic products that help smallholder farmers and pastoralists increase their food security and resilience against climate change.

More specifically, this activity aims to train “farmer intermediaries” (government extension workers, NGO workers, lead farmers, heads of farmers’ associations) to produce and communicate agro-climatic advisories which help farmers and pastoralists optimize their production and livelihood decisions. These trainings will help “farmer intermediaries” to package climate and weather information with agricultural expertise to produce relevant livelihoods and agricultural production advisories for farmers and pastoralists.

These advisories will be integrated within existing agricultural extension schemes and channels. A key part of the training will be helping farmer intermediaries to tailor, package and communicate these advisories in ways that are most relevant and useful to the communities they work in.

The trainings will initially be carried out in the GFCS project’s target districts, focusing on communities benefitting from WFP assistance, with the aim of having them scaled up throughout the country by national stakeholders.

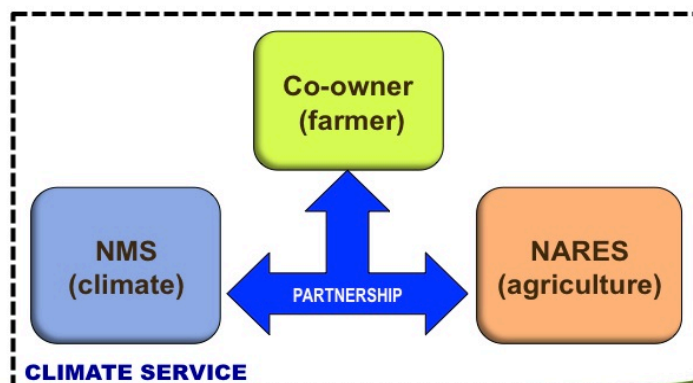


Fig 1 The institutional setup for co-production of climate services for agriculture

III. Activity planning and implementation stages

Note that the summary workplan is shown in Annex 1

Stage 1: Support TMA agro-meteorology staff to develop tailored agro-met products that address the needs of farmers and pastoralists in the project’s target districts (August 2014- End of project)

Note that WFP will not be involved in stage 1, as this goes well beyond the scope of the farmer intermediary training activity.

The detailed outline of this stage is included in Annex 3

Stage 2: Training Preparation (August -Sept 2014):

2.1 Design draft training material (manual, schedule) for trainers and trainees

- Responsible: CCAFS/ University of Reading (UoR) (P Dorward, G Clarkson, in discussion with E. Visman, A. Tall and J. Hansen)
- Dates: July to late Sept 2014

2.2 Review and amend training material

- Responsible: WFP Tanz Country Office, Ministry of Agriculture (MoA), TMA
- Dates: Mid- September 2014

2.3 Finalize training material

- Responsible: CCAFS, WFP Tanz CO, MoA, TMA
- Dates: Late September 2014

2.4 Organize training workshop logistics:

Select workshop participants (i.e. trainees) within extension services, NGOs and lead farmers. Trainees with the best potential will be selected to become trainers themselves (i.e. train other intermediaries from their districts in 2015).

- Responsible: CCAFS (J. Gathenya) and WFP Tanz CO, working with MoA
- Dates: Late sept- early Oct 2014
- Criteria for selection of trainees:
 - Occupy a “farmer intermediary” function in the target district (Longido and Kiteto for 2014) i.e. be in close contact with farmers/ pastoralists and be someone they go to for agricultural/ livelihoods advice). E.g. Government

extension worker (agricultural or other); NGO worker at local level; lead farmer; head of farmers' association.

- Preferably (but not necessarily) work in a WFP-assisted community
- Have good knowledge and understanding of smallholder farmers and farming systems as well as agro-pastoral systems
- Have demonstrated very high levels of motivation and commitment
- Be recognised as being good at: working with and motivating people; verbal communication; training
- Have a strong desire to help smallholder farmers and agro-pastoralists improve their production and wellbeing

Stage 3: Carry out training of intermediaries (Kiteto: mid October 2014; Longido: February 2015)

3 Training workshops at the district level.

Train “farmer intermediaries” (government extension workers, NGO workers, lead farmers, heads of farmers associations) in how to access and interpret climate information, to produce rural advisories for farmers and pastoralists which help them optimize production and livelihood decisions. These advisories will be integrated within existing agricultural extension schemes and channels. A key part of the training will be helping farmer intermediaries to tailor, package and communicate these advisories in ways that are most relevant and useful to the communities they work in.

Workshop structure:

- 1 day “pre-training” with approximately 10 national and district level staff from TMA, MoA, seed suppliers, FAO; clan leaders and other stakeholders. This is to get political buy-in, inform senior people of what the training is about.
- 4 day training of trainers with up to 30 community-level extension workers, lead farmers, NGO workers.

Workshop content:

- “Classroom” style training on the following topics:
 - Understanding and communicating local historical climate information products (climate variability and climate change)
 - Relating crops and livestock to the local climate in the context of risk management and decision making
 - Participatory decision support tools that integrate weather, climate, agriculture and livelihoods information for coping and adaptation strategies.
 - Participatory Market Analysis to identify constraints that hinder translation of weather/climate knowledge to action
 - Understanding and using weather and climate forecasts for decision making.
 - Planning for follow-up training activities
- One day field practice with farmers

Responsible:

- Conducting training: CCAFS (P Dorward, G Clarkson, J Gathenya)
- Organizing logistics: WFP Tanz, with support from MoA

Stage 4: Trained intermediaries train farmers (October 2014)

4. First batch of trained intermediaries go back to their communities and apply approaches and tools learned through the workshop: communicate agro-climate advisories to farmers as part of their normal work.

Stage 5: Trainees become trainers themselves (Nov 2015)

5. Best individuals from 1st batch of trained intermediaries train *other* intermediaries from their areas/ communities.

Stage 6: Review, learning and preparation for scaling up (End of season/ early 2015)

6.1 Review and finalize intermediary training process and materials

- Responsible: CCAFS (A. Tall, P. Dorward, J. Gathenya)
- Dates: end of season (i.e. early 2015 for Kiteto/ mid-2015 for Longido)

6.2 Lessons and improvements incorporated into process, materials and activities for 2015

- Responsible: CCAFS (J. Gathenya)
- Dates: mid-2015

6.3 Trained intermediaries attend three feedback and support meetings with trainers to facilitate review of progress, shared learning and planning (at start, middle and end of season).

- Responsible: CCAFS
- Dates: December 2014 and into 2015.

Stage 7: Scale up (2015 and 2016)

7 Intermediary training workshops carried out in other districts

IV. Focal points

- TMA=
- Ministry of Agriculture (extension services)=
- Other extension services (health? DRR?)
- Agr research=
- WFP HQ = Kate Milliken, Kaisu Leena Rajala and Anna Law
- WFP Tanz = Juvenal Kisanga and Marina Negroponte
- CCAFS= John Gathenya, Arame Tall
- University of Reading (brought in by CCAFS) = Roger Stern; Peter Dorward; Graham.
- ANACIM (brought in by CCAFS)= Ousmane Ndiaye

Annex 2: Rainfall distribution in Longido and Kiteto districts

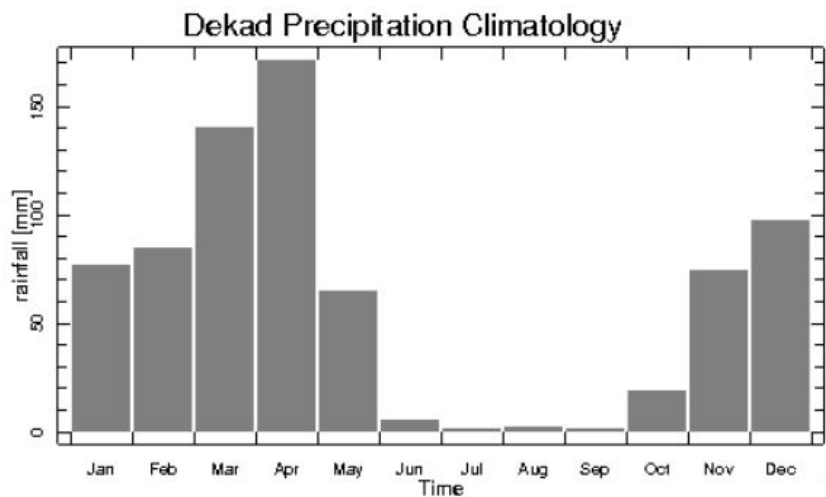


Fig 2 Rainfall distribution at Longido District - one cropping season from March to May, October to December season is weak and unreliable except in the highlands.

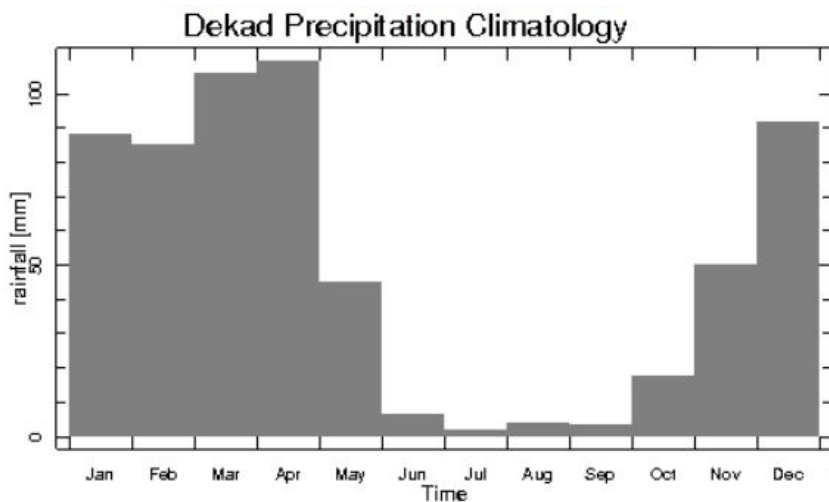


Fig 3 Rainfall distribution at Kiteto District - one cropping season from December to April

Annex 3: CCAFS-specific activities

Detailed activity breakdown of Stage 1: Support TMA agro-meteorology staff to develop tailored agro-met products that address the needs of farmers and pastoralists in the project's target districts.

This includes production of products from analyzed historical data + seasonal forecast downscaling using the Climate Predictability Tool (CPT) for agricultural purposes.

1.1 Learning from the findings of CCAFS' baseline data collection regarding needs of farmers and national agricultural development planners in the food security sector in Tanzania.

1.2 Preparation of analysed historical climate information.

Objective: Determine scope to use ENACTS map rooms (already developed by IRI) and Marksim for spatial and historical infilling. Start getting processes and products ready for 2015 and if feasible start using in 2014

1.3 Develop downscaled OND 2014 seasonal forecasts for target locations. Training on seasonal forecast downscaling and CPT tool use by Ousmane Ndiaye (ANACIM) >develop downscaled forecasts for OND 2014.

1.4 Establishment of an enabling institutional framework where co-production of climate services can take place between TMA, Ministry of Agriculture/Research and Extension, and farmers themselves. It is proposed here to establish a Climate & Food Security Working group / the Multidisciplinary Working Group on Climate Services for Agriculture (WGCSA). This group will be an emanation of discussions between lead farmers, the Ministry of Agriculture & the National Meteorological Agency, and will offer a much-needed interface between met, farmers and agricultural research technicians and extensionists, thus expanding the boundary of knowledge production to include all three partners (see fig. 1). This group, which will meet regularly during high-risk seasons, will also serve as the home for blending

technical meteorological forecasts with agronomical knowledge for the period, for tailoring and value adding climate information to create a useful climate service for farmers, as well a space for continuously adapting climate advisory products to serve the evolving needs of farmers and extension technologies availed by agricultural research.

1.5 Carry out a 5-day workshop in early 2015 to establish interface with Tanzania's Ministry of Agriculture – Agriculture Research Institutes and district extension staff.

Appendix 1 Course Participants and Facilitators

	PARTICIPANTS	LOCATION IN KITETO
1.	RAMADHANI MSANGI	SUNYA
2.	WILLIAM MSUYA	KIBAYA
3.	RENSON MALUNGU	DODOMA
4.	MAYANI MAYANI	KITETO
5.	NEEMA URASSA	KITETO
6.	GODFREY KINGU	NJORO
7.	REDCASE GODFRED	MBIGIRI
8.	BALABALA PUNDUGU	KIBAYA
9.	ANGELA RAPHAEL	KIBAYA
10.	DINO CELESTIN	KIBAYA
11.	PASCA MWESERA	ORKIPE
12.	AMINA MFUNDO	CHAPAKAZI
13.	PATRIC CYPRIAN	NAMELOCK
14.	ALEX EVARIST	ENGUSERO
15.	MIRAJI SALUM	KIBAYA
16.	JACKSON KACHWILW	KIBAYA
17.	AMANI MISANA	S/MBELE
18.	FRATERINE MAHOO	KIPERESA
19.	LIOBA TIGWELA	KIBAYA
20.	STEPHEN FISOO	NDALETA
21.	KISAKA J.H	KIBAYA
22.	AMINA MDILA	KIBAYA
23.	HIPOLIT BAYYO	MAKAME
24.	AUGUSTINE DARENA	KIJUNGU
25.	STEVE MTITU	NDEDO
26.	MIRAMBO GIBSON	KIBAYA

27.	BLANDINA MGIMBA	MWANYA
28.	LAURENT DENIS	ALGIRA
29.	SELINA AKARO	B/MOYE
30.	NICOMED SALUSTIAN	BAYO-DONGO
	FACILITATORS	ORGANISATION
	PETER DOWARD (PD)	READING UK
	JOHN GATHENYA (JG)	CCAFS
	GRAHAM CLARKSON (GC)	READING UK
	JUVENAL KISANGA (JK)	WFP
	EMMA VISMAN (EV)	KINGS' COLLEGE UK
	MECKLINA MERCHADES (MM)	TMA
	EDWIN IGENGE (EI)	TMA
	ELIREHEMA SWAI (ES)	ARI

Appendix 2 Program for Intermediaries Training Course

DAY 1		Topic	Facilitator
8.30		Registration	JK
		Introduction and welcome	JK PD
		Roles and background of course participants	JK
		Official opening	Neema Sitta
		Course aims and outline	PD
BREAK 10.20-10.40			
		An overview of climate services and the PICSA approach	PD
		What are climate, climate variability and change	JG
LUNCH 1.00-2.00			
		Current farming & livelihoods in your location (using RAMs, Seasonal Calendars for crops and livestock) (exercise)	PD
TEA			
		Historical Climate information (what is it, where is it from, how is it produced, products for farmers)	MM
		Historical Climate information for your area (exercise)	JG
DAY 2 START 8.30			
		What has happened to the climate & what does this mean (exercise)	JG, PD
		What are the main characteristics of the climate here	JG, PD
BREAK 10.20-10.50			
		Crop options (including working out probabilities & using crop tables) (exercise)	JG
LUNCH 1.00-2.00			
		Livelihood options (including probabilities, livelihood options table, RAMs)	PD
TEA 3.30-3.45			
		Exploring/planning for selected crops & livelihood options (PBs, RAMs)	GC

DAY 3 START 8.30			
		What is the Seasonal Climate Forecast (SCF) ie as widely used at present. How is it produced and communicated, what does it include, what are its advantages and limitations	EI
		Short term forecasts, severe weather warnings & updates to the SCF – how and when are they produced and communicated	EI
BREAK 9.40-10.10			
		Moving from historical rainfall time series to probability distribution curves (exceedance graphs) of seasonal rainfall	EI JG
		What is downscaled SCF using the approach introduced by Ousmane Ndiaye	JG
		The forecast for the coming season	MM EI
LUNCH 1.00-2.00			
		Building on farmers current use of weather indicators (all sources ie indigenous, Met forecasts)	EV
		Communicating and interpreting forecasts (game that explores how farmers and intermediaries may interpret forecasts)	EV
TEA 4.00-4.15			
		Planning for field day	GC JG
		Prepare materials and practice exercises for field day	GC
DAY 4 START 8.00		Field day	
DAY 5 START 8.30			
		Reflection, feedback, lessons	All
		Review of materials used with farmers	All
		Recap on PICSA and key components	PD
BREAK 9.50-10.20			
		Practical planning for implementation	PD JK
		Support for participants when practicing this, learning and reflection and sharing, feedback and reporting, monitoring and evaluation	JK

LUNCH 1.00-2.00			
		Finalise any practical issues	JK PD
		Course evaluation	PD
		Certificates and close	

Peter Doward (PD), John Gathenya (JG), Graham Clarkson (GC), Juvenal Kisanga (JK),

Emma Visman (EV), Mecklina Merchades (MM), Edwin Igenge (EI)

Appendix 3 Photographs

Course participants and farmers at Mtimba village on practical field day





Group picture of course participants and farmers at Mtimba village on practical field day



(Photos by Peter Dorward)



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is a strategic initiative of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT). CCAFS is the world's most comprehensive global research program to examine and address the critical interactions between climate change, agriculture and food security.

For more information, visit www.ccafs.cgiar.org

Titles in this Working Paper series aim to disseminate interim climate change, agriculture and food security research and practices and stimulate feedback from the scientific community.

CCAFS is led by:



Strategic partner:



Research supported by:

