Does climate information matter?

A proposed monitoring and evaluation framework for participatory assessment of the impact of climate services for male and female farmers

Working Paper No. 69

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

Arame Tall
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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: ccafs@cgiar.org

Abstract

This report summarizes a new contextual and gender-responsive monitoring and evaluation framework (M&E) to assess the added value of climate information and advisory services for smallholder farming communities across the developing world. The proposed M&E is based on three primary goals for conducting an evaluation of climate services for farmers: 1) to inform design of a new climate service project; 2) to identify gaps in climate service delivery, and improve project effectiveness and service delivery quality; and 3) to assess impact of provided services for farmers, hypothesized to benefit from the climate service. In order to meet these goals, we developed a multi-step process for climate service impact evaluation, including a pre-assessment (PA) toolkit of ethnographic and evaluative tools, followed by guidelines for baseline data collection, monitoring, and evaluation of climate service projects. The PA serves to build understanding of background contextual issues that constrain or enable the usefulness of climate information services in any given community, such as information about farmer's decision- making, socio-economic and cultural constraints behind behavioral changes, and gender roles and norms within a given community. These elements may have impacts on information use and changes in practices, skills and abilities that aid farmers' adaptation to a changing climate, and uptake of information to make decisions under uncertainty. Once such understanding of farmers' decision-making context is determined, evaluators will be better equipped to define a contextualized impact pathway of climate information for rural farmers. The PA is the first step in a larger process of developing a targeted, locally-specific and gender-responsive M&E framework. This M&E framework will enable project teams to evaluate the relevance of climate services to support smallholder farmer decision-making under an uncertain climate and improve local management of climate related risks at the farm-level.

Keywords

Climate services; M&E; monitoring and evaluation; gender; local context; Africa; South Asia.

About the authors

Arame Tall is an expert on climate services working for the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) Research Theme on Climate Risk Management, based at the International Food Policy Research Institute (IFPRI). Dr. Tall's work focuses on strengthening the contribution of the CGIAR to climate services for agriculture and food security and championing climate services for farmers worldwide through work with partners. Contact: A.tall@cgiar.org.

Alicia Davis is an independent consultant working for the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) on gender, risk, and monitoring and evaluation projects. Dr. Davis is also working with the Institute for Behavioral Sciences at the University of Colorado, Boulder on research about women's empowerment in East Africa. Contact: alicia.davis@colorado.edu.

Sweta Agrawal is a scientist based at ICRISAT. She is a specialist on gender and social network analysis. Contact: a.sweta@cgiar.org.

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Contents

Acronyms

ANACIM	Senegal National Agency for Meteorology
CCAFS	Climate Change, Agriculture, Food Security
CSP	Climate Services Partnership
FAO	Food and Agriculture Organization
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit, German development organization
HH	Household
ICRAF	International Agro-Forestry Center
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
PA	Pre-Assessment Suite
SNV	Netherlands Development Organization,
WMO	World Meteorological Organization
WYGFT	What You Get From This

Introduction

Climate services can be defined as providing climate information in a way that assists decision-making by individuals and organizations of a society. A service requires appropriate engagement to produce an advisory usable by end-users to aid their decision-making and enable early action and preparedness along with an effective access and delivery mechanism. Most of all, a climate service must respond to user needs (Tall 2013, CCAFS 2014a[1]). Climate services are thought to reduce uncertainty for farmers so that they can better adapt to climate variability and climate risks. Such servicesare also thought to "increase farmers' preparedness and lead to better economic and environmental outcomes" (Meza, et al. 2008). Given the potential impact of climate forecasts, "qualitative and quantitative assessments are important to fully exploit the potential benefits associated with them (value) and to understand the limitations of their application (use)" (Meza et al. 2008: 2). Delivery of climate services is not a new endeavour; however, there is increased need to cater these services to local settings as well as to reach the most vulnerable people within farming communities, such as women (CCAFS 2014). There has been an effort within the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) to deliver climate services by combining climate information, such as forecasts, with agricultural advisories, to create a useable service for rural farmers. Along with this climate service delivery, CCAFS and the CGIAR have also been promoting the need to develop a means to measure and assess the use and usefulness of these climate information and agricultural advisory services for farmers. Within that need for evaluation is a desire to identify gaps in the delivery of climate information services and agricultural advisories so that their delivery and utility can be improved. This process first requires understanding the usefulness of current services that are being provided; yet evaluation of such services have been dominated by "ex-ante bioeconomic modeling" (Meza et al. 2008: 1270), limiting the full picture of how these services are impacting individuals and communities.

Climate information and climate services for rural farmers are considered critical to risk management and adaptation to climate change, especially for the world's most vulnerable farmers, i.e. those in areas facing climate risks, variability, and change at unprecedented levels (WMO 2011b). Vulnerable communities more generally, and the most vulnerable within those communities, in South Asia and Africa in particular, not only face climate risks, variability, and change, but are often marginalized from information and access to resources and livelihood options (WMO 2011, World Bank 2009, Tschakert 2007, Vogel et al. 2007, Roncoli 2006, Meza et al. 2008, McOmber 2013, Adger 2006, Little et al. 2001, Bohle 1994, Bebbington 1999). Understanding farmers' decision-making contexts, socio-cultural, socio-political, and economic norms and constraints within communities and at the household level can inform how and why interventions may or may not succeed.

[1] http://ccafs.cgiar.org/climate-services-farmers#.UyZznF5NXDQ

Women farmers are particularly vulnerable to climate risks and climate variability, especially given that women across the globe are commonly prevented from controlling the resources they use (Denton 2002, Aurora-Jonsson 2011, Goh 2012, Tschakert & Machado 2012, Nelson et al. 2002). Women farmers, particularly in South Asia and Africa, are not only marginalized from information, but also from land ownership (Agrawal 2014, Daley & Englert 2010, World Bank 2009, Englert & Daley 2008, Benschop Denton 2004, 2002, Doss 2001, Sen 1997), though not uniformly. Compared to men, women often have significantly more limited access and ownership to the means of production and decision making at household and community levels. CCAFS scientists (and beyond) are increasingly supporting the idea that women can be empowered with information and potentially be agents of change within their communities, especially in relation to climate change (McOmber et al. 2013, Nelson et al. 2002, Chadhury et al. 2012, May et al. 2013, Tall et al. 2013, Tall and Njinga 2013, Ashby et al. 2012, CCAFS 2014b).[2] Therefore, understanding the role gender plays in mediating or constraining information flows, access to information, and resources becomes critical in disseminating climate services to vulnerable populations.[3]

In order to understand these key issues, the CCAFS community initiated design of an innovative tool to evaluate climate services. An expert workshop convened in May 2013 in Kaffrine, Senegal, established the roadmap for creating the tool. The workshop was a collaboration between the CGIAR-CCAFS, the United States Agency for International Development (USAID), the Senegal National Agency for Meteorology (ANACIM) and individual CGIAR centers such as the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). Workshop participants laid the groundwork and guidelines for creating a gender responsive, community-based and context driven M&E protocol.

In a joint effort by CCAFS and ICRISAT scientists, we have developed a new protocol for monitoring and evaluating climate services. This protocol involves multiple steps to help climate service providers design, evaluate and improve climate information services. Our team has designed the protocol such that key factors that contribute to the vulnerability of women and vulnerable communities will be revealed in the process. We also consider the potential to empower women though locally specific and gender responsive climate services. Finally, we have tested this tool at three CCAFS field sites in South Asia, East and West Africa.

This report outlines the development, from workshop to implementation, of this new multi-stage and multi-step evaluation process. This report also provides background to this framework, a discussion of key literature, a detailed overview of the tool itself, a review of the process of creating and testing this tool, methods for implementing the tool, case study examples that present some initial results compiled during trials of the tool, and next steps forward for disseminating and implementing this tool.

[2] For an overview of CCAFS policies, research, working papers, and publications on gender and climate change see: http://ccafs.cgiar.org/gender-and-climate-change#.Uzj9tl469_G

[3] See Carr & Thompson 2014 for recent overview of using binary gender categories in vulnerability and climate change research and interventions.

Background

Developing an M&E framework to assess the added-value of climate services for farmers

The impetus for developing a gender responsive, community-based, and context-driven M&E protocol to evaluate the impact of climate services for farmers stems from the CGIAR-CCAFS' need to asses the added-value of climate services that can support farmers in their already on-going efforts to face rising risks on their farms. A current CCAFS goal includes improving climate risk management through the delivery of context appropriate climate and agricultural advisory services for farmers in the world's most vulnerable regions to climate variability and change. Delivery of climate information services, according to CGIAR experts, should be tailored to local needs and local contexts (Tall et al. 2013, May & Tall 2013, Tall & Njinga 2013). However little effort has been made in assessing the impact and impact pathways of current climate service projects, which has become even more critical as new projects are launched around the world. In order to assess the impact and impact pathway, local contexts, including the decision-making contexts within communities, need to be revealed.

With climate services delivery, comes the need to evaluate the utility of these services as well as to identify gaps in their delivery (Tall & Njinga 2013, May et al. 2013, Meza et al. 2008, McOmber et al. 2013). Climate service evaluation has been sparse to date (Meza et al. 2008; Tall & Njinga 2013, WMO 2011b, Tall & Hansen 2013). Thus, experts within the CGIAR and collaborating institutions identified the need to develop a clear and scalable protocol for evaluation. In order to arrive at the current toolkit, which includes ex-ante and ex-post assessment tools, we collaborated with experts and local research teams, seeking feedback and input along the way. Thus, the toolkit is not the work of one individual from one region, but it has had input and feedback from a global team. This collaborative process allowed us to create tools that can be applied and which will be useful at scale. However, the process of creating a locally and gender responsive M&E protocol was not without challenges. We also wanted to pay particular attention to and draw out information about how a community communicates as well as how individuals within that community communicate and make critical livelihood decisions, all while focusing on the impacts of climate change and climate services. Our methodologies are based heavily on the work and ideas of numerous scholars, development and evaluation experts, as CCAFS convened panels about how to specifically address climate services evaluation discussed below.

Results of expert roundtables on climate services evaluation

This CCAFS-ICRISAT collaborative project of creating the protocol directly answers the call of international expert workshops and scholars to create a protocol to evaluate the value of climate services. In March 2013, the Climate Services Partnership (CSP) sponsored a workshop titled, "Developing a methodology to evaluate climate services." The outcome of this meeting was a set of guidelines for developing monitoring and evaluation tools for climate services projects. The World Meteorological Organization (WMO) sponsored another workshop in April 2013, "Socio-Economic Benefits (SEB) of Weather and Climate services, under the aegis of the Global Framework for Climate Services (GFCS)," also setting the stage for locally specific climate

services and evaluation projects (see http://cscop.iri.columbia.edu/evaluation.html for an overview of these workshops). Both of these meetings stressed the importance of building a tool that would be gender responsive and which could demonstrate the added value of climate services for farmers and their communities. These meetings culminated in a CGIAR- CCAFS- USAID co-funded expert roundtable held in Kaffrine, Senegal in May 2013 titled, "Developing a Methodology to Evaluate Climate Services for Farmers in Africa and South Asia" (Tall & Njinga 2013). At this roundtable experts convened to hash out details and goals of this protocol and they set specific guidelines for building and implementing an evaluation tool, this time specifically looking at impact for farmers.

Evaluating climate services for farmers

The roundtable participants developed a concrete approach for creating the M&E protocol while outlining challenges for assessment. They also tested some of their ideas at the CCAFS site in Kaffrine, Senegal, and then revised their new guidelines based on the field tests. Participants also discussed potential indicators for the future protocol. Our project stemmed from this workshop and incorporated key features outlined at the workshop.

Panel participants came to consensus about three main goals for conducting an evaluation of climate services for farmers:

- To inform design of new climate services projects
- To identify current gaps in climate services delivery, and improve project effectiveness and service delivery quality for farmers throughout project duration
- To assess impact of provided services on farmers, and demonstrate project impact with a dollar value (notably towards donor reporting).

These three goals have shaped the direction of the pre-assessment, baseline, and M&E surveys presented in this paper.

Most of all, the May 2013 workshop in Kaffrine concluded that pre-climate services project assessment is an important step to determine not just context, but also information gaps, the information needs of a community, and the available channels for communication and information flow. The workshop participants also stressed the need to determine the type of services already available within a community, who is being specifically targeted, the most effective format for each service, and the intended beneficiaries. Additionally, panel participants indicated that decision-making contexts and communication norms and practices within a community should also be revealed. While exploring contexts around services it is also valuable to understand community expectations around such services, information, information sharing, and decision-making.

In order to understand these decision-making contexts, it first becomes critical to understand the key decisions individuals, households and communities are making, especially in terms of livelihoods and in the face of specific climate related risks. Decision making within a household or a community, more broadly, and culturally, can have a strong gendered component (Tall & Njinga 2013). Thus, it also becomes important for evaluators to define the gendered aspects of decision-making within households and their communities. This is also the case for resource use

and access, livelihoods, and for information sharing. Understanding gendered aspects of information sharing, such as the information networks and social networks where information flows, becomes significant to track especially if we are to determine whether interventions to disseminate information are reaching the most vulnerable within a community (Tall & Njinga 2013; McOmber et al. 2013, SNV 2012, Roncoli et al. 2009, Roncoli et al. 2011).

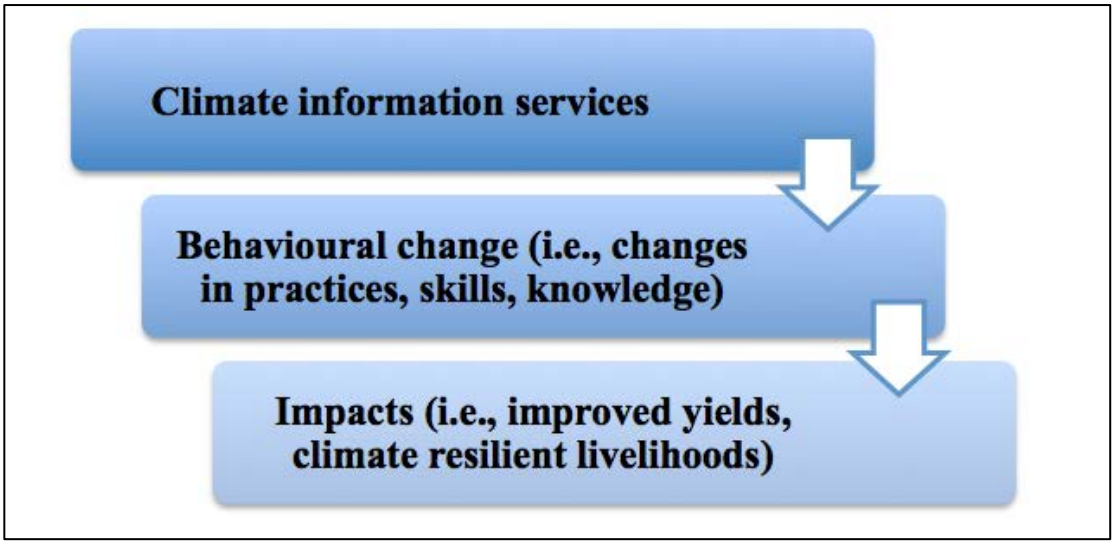

Figure 1: Proposed climate services impact pathway (Tall & Njinga 2013)

Given the start of several large-scale climate service delivery projects slated for 2014, creating the evaluation tools became a time-sensitive process. Given the time constraints of the project, a brief literature review was undertaken at the start of this project so that we could ascertain what methods, if any, were being used in the field to evaluate climate services. Given the sparse literature on this topic, we also looked to anthropological, development, and other social science methodologies that were similar to our climate services evaluation goals. Looking beyond the climate services discourse, we were able to learn from and incorporate innovative and well-tested methods, especially in terms of vulnerability studies, livelihood studies, and gender/gender disaggregated data collection. We utilized the expertise from a number of fields which we have expanded upon and re-shaped to fit climate services project evaluators' needs.

Literature review

Evaluating climate services:

In order to design an effective evaluation tool, we took a step back to understand what a climate service intends to do, what needs it is supposed to meet, and whether it meets certain qualities and characteristics. A component of evaluation for climate services also includes determining if the available information communities access is understandable, relevant, robust, provides added benefits, and whether it aids decision-making under uncertainty in a robust way, including training (Tall & Njinga 2013). The World Meteorological Organization (WMO) established several attributes that help define the usefulness of a climate service that can effectively meet the needs of the end user. These attributes include: that they are available and timely, dependable,

usable, credible, authentic, responsive and flexible (WMO 2011). The WMO (2014) has also suggested key criteria for measuring the benefits of climate services including: economic benefits such as increasing household economic status and welfare, reducing costs for key commodities, land, insurance, and agricultural costs; and providing benefits to health, well-being, and livelihoods.

Decision-making & livelihoods approaches:

The livelihoods approach to understanding farmer's decision-making, farmer choices, and farmer livelihood constraints has been used in the past and has provided a useful framework for research (Carr 2013). However, within the context of climate change, decisions and vulnerability, we did not want to "privilege any particular goal of a given livelihood a priori (Carr 2013:1). "Instead," we hope to reveal how particular contexts or decisions are shaped and influenced while taking a "step back and ask[ing] the general questions that originally inspired the livelihoods approach: how do people live in this place?" (Carr 2013: 1). Going beyond a livelihoods approach is essential so that investigators can bring into their analysis decision-making, livelihood pathways, and those key social (or socio-political) factors that impact decisions. Doing so can be more effective than a purely economic, rational-choice type of decision model (ibid). Carr's amalgamated approach asks researchers to investigate and therefore incorporate three key aspects of decision-making, namely livelihoods, forces of coercion, and identity. These aspects should not be taken at name-value, he suggests, but include both internal and external influences on an individual or household's decisions, influences ranging from context specific vulnerabilities, constraints, perceptions, group-specific activities and socio-political and economic constraints and forces as well as elements that influence identity such as cultural norms, values, social roles, beliefs, and ideals of how individuals and families fit into one's community (Carr 2013). Taking the WMO guidelines in hand, Carr also suggests some critical questions to ask during an evaluation of climate services including: who is targeted, how does information move in a community, what is the goal of the service, are the services "salient, credible, and legitimate," and is baseline information that has been or will be collected, reliable? Numerous scholars and practitioners have discussed at length the concept of creating "salient, credible, and legitimate" climate services (see Hansen et al. 2011 for overview). Determining in-situ within a community what salient, credible, and legitimate services are, calls for evaluators to first determine what other information or other practices within a community are also considered salient, credible and legitimate. In establishing general perceptions of salience, credibility, and legitimacy for broader types of information, knowledge, and risks, forms of communication and members of communication networks can help project planners ascertain what key qualities or characteristics may be important to include or create in their services and relationships with communities. Determining what defines a community's criteria or, determining if there are other values that people assign to information and decision-making criteria would reveal to climate service providers new approaches in creating and delivering catered, locally specific climate services. Mixing ethnography and rapid appraisal type methods, according to Carr (2013), may be the impetus to evaluate decision-making, livelihood and gender based issues.

An anthropological approach:

Msangi, Rosegrant, and You (2006) suggest that there has been a heavy-handed focus on ex-ante assessment of the value of climate forecasts and instead efforts should be re-focused onto the ex-post assessment of the impact of climate information. They suggest doing so by using agricultural research and extension as a point of entry into research and by centering design,

collection, and evaluation on econometric methodologies that mix economic theory and empiricism. Their recommended model puts an emphasis on the "decision maker's beliefs about climate before receiving the forecast information" so that once forecast information has been received, an evaluator can observe and note what decisions were made based on that new information, "a few days, months or even years" after climate events occur, but after all pertinent information has already been received (Msangi et al. 2006: 68). These International Food Policy Research Institute (IFPRI) scientists draw heavily from economic literature and in agricultural research to approach impact evaluation methods, and particularly "technological adoption by farmers, use of inputs, agricultural productivity, income, and growth" (ibid).

Msangi et al. also suggest integrating economic behavioral theory with exploration of farmer constraints, biases, and factors that influence decisions and behavior such as environmental influences (ibid: 79). Central to their approach is the emphasis that the relationship between information, action, and constraints is critical. We take this beyond just looking at physical constraints. We emphasize cultural and socially normative constraints that prevent certain populations from receiving and responding to new information, such as the constraints women farmers have in patriarchal, male-dominated communities.

Meza et al. 2008, point to a focus on ex-ante assessments that have relied on rational decision making models, and economic values of seasonal climate forecasts. They offer suggestions on how to counter the incomplete and biased research (Meza et al. 2008). Exploring broad factors that contribute to climate risks and hazards as well as opportunities may be useful in countering those biases, including understanding vulnerability and poverty traps (see Barrett & McPeak 2006, Luseno et al. 2003, Meza et al. 2008 for more lengthy discussion). Critical to the creation of a tool that moves beyond previous assessments, Meza et al. suggest combining, "the more qualitative social science methods for understanding the determinants of information use and value with bioeconomic modeling approaches that are rich enough to incorporate the resulting knowledge realistically" (p 1283). Roncoli et al. (2009) call attention to the fact that evaluators who overly focus on quantitative indicators and economic factors, may not capture "key social dynamics of climate risk communication and agricultural decision-making" (p435). They go on to assert that, "researchers may miss the contextual interaction of factors that shape how farmers understand and use climate forecasts" (Roncoli et al. 2009: 435).

Going beyond the logistical realities of climate services and their delivery, we set out to create a tool that could enlighten climate service providers about the context surrounding the risks local farmers face, their livelihoods, decision-making, communication and gender roles and norms. "Culture frames the way people perceive, understand, experience, and respond to key elements of the worlds which they live in" (Roncoli et al. 2008:87) especially as climate change evokes movement toward an "uncertain future" (ibid). Where and what people remember, understand, and see, "rests on cultural models and values" (ibid). Additionally, it is the common ideas "about what is believable, desirable, feasible, and acceptable" that reveal context about individual and collective adaptations (Nazarea-Sandoval 1995; Rappaport 1979 in Roncoli et al. 2009: 87). Anthropology's potential contribution to climate research includes "description and analysis of these mediating layers of cultural meaning and social practice, which cannot be easily captured by methods of other disciplines" (Roncoli et al. 2009: 87). In shaping this evaluation

platform, we draw heavily from anthropological methods and combine them with suggestions outlined by Carr (2013) and keeping in mind service provider goals.

Since CCAFS has suggested that as outcome-oriented evaluation becomes even more central to CGIAR programs, certain key elements should be included in the monitoring and evaluation process, such as taking a "learning approach" to M&E and exploring impact pathways (Chesterman & Ericksen 2013: 36). Following such key suggestions as offered above, we created a "systematic evaluation" which includes using "targeted themes to help understand linkages and feedbacks" between climate services and decision making, for example. Incorporating methods to elucidate context, such as in understanding the perception of risk, is also suggested as necessary to address some of the gaps in recent evaluation protocols (Chesterman & Ericksen 2013; AFB 2010).

Development outcomes-based M&E protocols:

In creating our evaluation toolkit, we also drew from numerous international development based monitoring and evaluation (M&E) methods. We searched M&E protocols that explored issues of vulnerability, environmental changes, climate, agro-economic change and interventions, poverty reduction, and behavior change in particular. We based our initial format on previous CCAFS M&E protocols utilized for conducting baseline studies in Africa and South Asia in small-holder agricultural areas (Kristjanson et al. 2011, Kristjanson et al. 2010). Other categories of inquiry, such as about communication, social networks, trust, beliefs, and household demographics, were influenced by partners at ICRISAT. From evaluation programs at the Netherlands Development Organization (SNV), World Bank, FAO, CCAFS, ILRI, and GIZ,[4] we gathered recommendations for risk assessment; evaluation of climate perceptions, goals, options, hazards, and services; and economic and vulnerability assessments. We gathered recommendations from anthropologists and other academic social scientists working to bring social science into the fields of climate science and conservation based evaluations (Roncoli et al. 2008; see also Carr 2013, Chesterman & Ericksen 2013, McOmber et al. 2013, Care International 2011, Crate 2011, Hinkel 2011, Bamberger et al. 2010; Moser 2010, MacGregor 2009, Abbot-Jamieson & Clay 2010; Adger and Kelly 1999; Crane et al. 2008, Ericksen & Kelly 2007, Eakin & Luers 2006, Füssel & Klein 2006, Luseno et al. 2003, Kelly & Adger 2000).

Specifically, practitioners such as the Global Environment Facility (GEF 2014) offers concrete suggestions on how to evaluate knowledge sharing and information dissemination. SNV also offered methods and analysis of tools that explore behavioral changes and how they relate to socio-cultural factors. They suggest, "relationships, social status, and access to information and resources are key for farmers" (SNV 2012: 13). SNV also suggests that collecting data about economic status, land, credit, relationships, linkages, trust, gendered distribution of daily activities, geography, and beliefs are all central to understanding these socio-cultural factors and their impacts. Many of these elements were easily tied to key factors and benchmark indicators that have been discussed within the contexts and variables of vulnerability (Hinkel 2011, Ericksen & Kelly 2007, Tschakert 2007, Eakin & Lers 2006, Füssel & Klein 2006, Adger &

[4] SNV-Netherlands Development Organization, FAO-Food and Agriculture Organization, ILRI-International Livestock Research Institute, GIZ-German Development Organization

Kelly 1999, Blakie et al. 1994), adaptation (Chesterman & Ericksen 2013, Care 2011, Crane et al. 2011, Lazlo 2011, Moser 2010, Roncoli 2009, Vogel et al. 2007, Janssen et al. 2006, Kelly & Adger 2000, Smith et al. 2000, Bebbington 1999), and gendered impacts of climate change (Bee et al. 2013, McOmber et al. 2013, Ashby et al. 2012, Goh 2012, Chaudhury et al. 2012, Swai 2012, Tschakert & Machado 2012, Aura-Jansson 2011, Kakota, 2011, MacGregor 2009, Denton 2002, 2004, Nelson et al. 2002).

The outcome, i.e. the assessment toolkit we propose, is a combination of ethnographic and participatory approaches to evaluation and research, and is influenced by livelihood approaches, vulnerability studies, risk analysis, and gender issues. We framed this approach within the context of climate services, infused it with the insights from experts at various roundtables held on climate services evaluation, revealing key information providers needs for evaluation and for creating more responsive climate services.

The proposed tool has been designed so that individual CCAFS researchers, as well as climate service evaluation teams across the world, can learn about locally specific contexts, and then use that information to create their own monitoring and evaluation protocols.

The following section describes the process through which we arrived at the proposed tool.

Methods: Process of getting to the proposed tool

Timeline of process to develop proposed M&E protocol:

Timeframe	Testing Location	Key tasks	Key output
March 2013	New York, USA	Workshop on Developing a methodology to evaluate climate services	Identification of the grand challenges to climate service evaluation
May 2013	Kaffrine, Senegal	Expert panel on Developing a methodology to Evaluate climate Services for Farmers	Key expert recommendations on way forward to develop a locally-relevant and globally useable M&E framework for evaluating the added-value of climate services for farmers in Africa and South Asia
October 2013	Nyando, Kenya	• Literature Review • Developed draft PA, M&E guidelines • Training Nyando • Preliminary test tools in Nyando	• Literature review • 1st Draft PA tools • Training report
November 2013	Dakar, Senegal; ICRISAT Headquarters, Hyderabad, India; Nyando, Kenya	• Refine PA • Outside review & input of PA • Creation of WYGFT themes • Test run of PA data collection, Nyando • Data collection in Nyando	• 2nd Draft PA tools • Introduction & Guideline documents to PA • Nyando data spreadsheets
December 2013	ICRISAT, India; Nyando, Kenya	• Test of 2nd draft of PA tools, India • Refine PA	• 3rd Draft PA tools • Data analysis grid

January 2014	Kaffrine, Senegal	• Test of 3rd draft of PA tools in Kaffrine, Senegal • Refine PA	• Data analysis grid & evaluation guidelines • PA→Baseline guide • Baseline survey draft-Nyando
February 2014	Nyando, Kenya	• Test run of Baseline data collection, Nyando, Kenya	• CCAFS blog post about process & protocol • Refined Draft of PA & Baseline
March 2014	N/A	• Finalize protocol • Finalize reports • Request input from outside experts	• CCAFS report finalized • Finalized M&E protocol

Table1: Timeline of process to create M&E

Below is a detailed overview of the process we used to create these M&E tools.

March-September 2013: Various expert panels and workshops at the global level highlight the importance of developing a methodology to evaluate climate services for farmers.

October 2013: Beginning in October 2013, CCAFS in collaboration with ICRISAT hired a social science consultant to support development of the M&E framework. Following a review of the relevant literature associated both with collaborative ex-ante and ex-post M&E protocols as well as on the current status of climate service evaluation processes, we drafted an initial "Pre-Assessment" (PA) survey. The survey originally included an individual household (HH) interview questionnaire as well as focus group discussion (FGD) questions. These methods were to be reviewed and tested with an ICRAF evaluation team based at the CCAFS site in Nyando, Kenya in mid-October. CCAFS researchers were part of the evaluation team in Nyando, and helped coordinate and conduct the training for the evaluation team. Input and revisions of the initial pre-assessment were provided both by the CCAFS researchers as well as by the evaluation team at ICRAF (as part of the CGIAR consortium). We spent two days training and modifying the questions and adapting them for needs of the local communities in Nyando. Enumerators, guided by a CGIAR-ICRAF field research expert, the ICRISAT consultant, and CCAFS scientists, then tested the tool. We originally included baseline type questions including economic data, demographic data, and a social network analysis. We also asked about direct context related topics including: risk, climate services, decision making, information sharing, climate hazards, cultural norms and values around trust, communication, leadership, land ownership and use, gender roles and norms, and gendered access to resources. However, it was an overly ambitious first attempt. Following the training and trial, the evaluation team decided the pre-assessment should solely focus on collecting local contextual information from which we could then cater a baseline and M&E protocol to fit local communities and scenarios. Thus, the PA was streamlined to collect broader socio-cultural information that would help evaluators create a baseline that was culturally relevant to the areas they would be working in. For example, we determined that questions about specific crop yields would be better suited to a baseline, and the PA should focus on land tenure rules in an area, or on determining if there were gender specific rules behind planting specific crops, or in ascertaining who made the major decisions about agriculture in a community and within households.

November 2013: Shortly after Nyando, we convened again in Dakar, Senegal to conduct another training and trial of a newly edited and evolving pre-assessment suite of tools. In Senegal, we met with scientists at the Senegalese Meteorological Agency seeking their input on our new approach. Due to funding issues, we had to postpone the training until January, which afforded the design team more time to refine the PA toolkit, and reflect on the lessons learnt from the Nyando site field test.

November-December 2013: Following intense revisions and work on the PA in Senegal, the design team convened in Hyderabad, India at ICRISAT's headquarters. At ICRISAT, we were able to work with social science/evaluation and gender experts. During several weeks of further refinement, we conducted a comprehensive overhaul of the PA yet again. This time, we added a two-part key informant questionnaire, for village leaders and for climate service or agriculture advisory providers working in the area where assessment will be done. At this stage, we defined the key thematic goals for the pre-assessment survey, which we named "WYGFT" or "what you get from this." WYGFT was a shorthand way to describe key desired thematic outcomes and the information we hoped to draw from the pre-assessment. We outlined WYGFT goals for each of the pre-assessment segments, the FGD, Key-Informant Interviews, and the Individual Household Survey. These are discussed in detail above. This version of the PA was conducted in Nyando by the evaluation team we had trained the previous month. The Nyando team spent two weeks in the field collecting data. 73 household interviews were conducted and over 10 focus group discussions were held. Further details are discussed below.

At the end of November, the project lead took the newly revised toolkit and introductory documents to the Third International Conference on Climate Services (ICCS-3) held in Montego Bay, Jamaica. She presented our approach and the toolkit and sought feedback from climate service experts. The protocol was well received and the feedback was encouraging; suggestions on further refinement were also provided by experts on evaluation in attendance at that forum.

December 2013: After the Jamaica feedback, we conducted another editorial round of review of the PA, which was followed by another field test. We assembled another team of enumerators to test the newly refined toolkit in Faisalwadi, India. We used the ICRISAT project site to test all three components of the PA. In addition to testing the PA, we prepared more concrete guidelines for evaluation teams. For example, we suggested that local evaluation teams create 'lexicons' for key climate change and climate service terms. The idea behind the lexicon is for evaluation teams to define key terms first in English/French, and then agree upon translations in the local languages that in which the PA will be conducted. In Nyando, we informally created a lexicon, however formalizing the process will not only provide more guidance to local evaluation teams, but will emphasize the importance that evaluators and local respondents are on the same page, i.e. talking about and understanding key terms similarly.

We conducted field tests for two days in Faisalwadi, conducting two focus groups, several key-informant interviews, and a handful of individual surveys. While the data in Faisalwadi was sparse, discussed below, the process provided important insights into the flow, content, and direction of the PA. After the field tests, the evaluation team re-visited the surveys question by question to draw out what was effective, redundant, valuable, and superfluous.

January 2014: After refining the PA after Faisalwadi, we brought the new toolkit for a final field test in the CCFAS site of Kaffrine Senegal, in January 2014. We trained experienced Red-Cross volunteers to serve as enumerators and form the evaluation team. After translating the PA into French then Wolof, we conducted several days of interviews in two villages in the region. Working closely with the Senegalese team, which also included a geography PhD student working on a climate change based project in the region, we took another figurative (and literal) red-pen to the PA, flushing out the final kinks that had arisen while conducting each segment of the protocol. One final step we took in this iteration of the PA was to create a data analysis protocol grid. In this grid, we used the key aspects of the WYGFTs to plot out what data we wanted for analysis as well as what kind of information would be most useful for climate service project providers in creating locally specific climate services and in terms of monitoring and evaluation of projects pre, mid, and post implementation. The data analysis grid is a simple formulaic form to facilitate analysis and to facilitate evaluation teams in transposing their baseline data into comprehensive, locally specific baseline and assessment questions.

February-March 2014: The final step in this project timeline occurred in February and March of 2014. Using the data collected for Nyando, we created a baseline survey to start the ICRAF evaluation team along on the process of baseline data collection. Nyando is a key CCAFS site and will collect baseline data in March 2014. We worked with the evaluation team to make final revisions and refinement of the baseline tools and remotely sat in on a question answer session of the training. It will be up to evaluation teams to analyze baseline data and monitor project implementation and conduct ex-post assessment.

Field Testing

In this section, we briefly discuss the methods used during the field-testing of the pre-assessment toolkit in three sites: Kenya, India, and Senegal.

First training & field test of PA plus comprehensive PA data collection by ICRAF, Nyando, Kenya:

As discussed above, we conducted a training of 9 ICRAF based enumerators, and team coordinators consisting of one CGIAR-ICRAF research team leader, one CCAFS agricultural economist and the ICRISAT consultant, an anthropologist. We spent two days training and refining the tool and two days in the field, in the villages of Kowala and Kokumu, to "test" the tools, the enumerators, and the team. We spent several hours after field testing, trouble shooting and debriefing. At the start of the field tests, we created an unofficial lexicon of key climate terms in Swahili, Luo, and Kalenjin languages. The first day of the field testing, we conducted individual household interviews, each leader observed enumerators collecting data in the local language of Luo, but the enumerators were asked to back-translate the HH survey. However, the translation process added a significant amount of time to each HH survey. Without the back translation, the HH survey took approximately 1.5 hours to complete.

The second day of the field-testing, we conducted further HH surveys as well as one focus group discussion, with the ICRAF coordinator acting as primary facilitator. Each enumerator took turns asking questions, recording notes, and translating. After the FGD was completed, data was reviewed and the group debriefed the process.

Once tested, the PA was further refined at ICRISAT headquarters in November, from where we sent the new version back to the evaluation team, who oversaw PA survey data collection for a two-week period in December 2013. The team sampled proportional numbers of respondents based on several identified major social cleavages, including tribe and gender. Samples were taken from Luo and Kalenjin communities, the two main tribes in Nyando, whose communities are fairly homogeneous. During data collection, the evaluation team sought respondents from several villages, so that a broad picture of cultural norms and contexts could be derived. Using tribal affiliation as a key social cleavage during data collection was important in this area specifically because the PA explores issues of gender and cultural norms, which can vary by tribe. Thus, data was collected from six Luo villages, Kamango, Obinju, Kobiero, Kamwana, Kabura, and Kowala; and four Kalenjin villages, Kapsorok, Chemildagei, Kapsomboch, and Tabet. The HH survey sampling was conducted from within these communities using stratified random sampling, with relative proportional sampling from each tribe. HH heads were chosen randomly, with half female and half male heads of households selected. Data was collected from 72 households across 10 villages, with 38 Luo and 34 Kalenjin respondents. Since there are a relatively (compared to the other field test sites) high proportion of female-headed households in Nyando (in part due to the impact of AIDS in the region), therefore we had 36 male and 36 female respondents. Additionally, there were 10 focus groups conducted, five in Luo communities and five in Kalenjin. The FGDs were primarily broken into homogeneous groups along demographic divisions, including age and gender. There were FGDs with groups of youth, elders, men, and women. One mixed group (male & female) FGD was also conducted in each community. The FGDs had approximately 10-15 participants in each.

The average HH interview took between 1-1.5 hours in length to conduct, while focus groups averaged about 1 hour in length. From Nyando, there are a total of 73 household interviews (39 Luo, and 34 Kalenjin) and approximately half the respondents amongst each group were female.

ICRAF staff entered the data using Excel spreadsheets; and the project consultant created simple summary statistics of the data. Because the final version of the PA was a significant departure from the version the ICRAF team conducted, the results do not fit easily into the final version of the data analysis grid or the WYGFT themes arrived at by the end of our social learning process on how to develop the proposed M&E framework. However, enough information was gleaned to create a Nyando-specific baseline questionnaire. The ICRAF team held a new training in March 2014 and they will be collecting baseline data in March and April 2014. A case study based overview of the PA results (that do coincide with the data analysis grid) is presented in Appendix 1.

Key Lessons of First Training & Data Collection Trial in Nyando:

- Streamlined PA should focus on collecting context-specific data about gender, culture, decision-making, resource access, information, and communication.
- Local evaluation teams provide excellent feedback both for cultural context, and shaping questions that can be understood by rural smallholders.
- Homogeneous FGDs provide space for women to answer questions freely.
- Attention needs to be paid to subtle (and overt) social cleavages such as tribe or language groups of communities, respondents as well as of local enumerators.
- HH surveys took between 1-1.5 hours to conduct. FGD also between 1-1.5 hours.

- 73 HH interviews were conducted across several villages in the span of one week with a team of 9 enumerators. 10 FGDs were conducted in a span of one week.

Second Training & Field Test of PA, Faisalwadi, India

After the third iteration of the PA was ready, we held a one-day training and two-day field test of the PA in Faisalwadi, India. The four enumerators consisted of three novice enumerators, two graduate researchers at ICRISAT and a project coordinator, and one experienced enumerator, a staff member of a local NGO. The project lead and the ICRISAT consultant led the evaluation team. As in Nyando, we refined and revised small errors, inconsistencies, and culturally problematic potential snags in the PA while training the enumerators. We created a Faisalwadi specific lexicon in Telugu for key climate terms. The enumerators practiced scenarios during the training. We spent two days in the field site of Faisalwadi where, the project leads led focus group discussions, translated by the enumerators. The focus group discussions were segregated by gender, with approximately 12-15 participants in each group. Following the FGDs, we divided the evaluation team and conducted key informant interviews for the rest of the afternoon, however, due to work distractions with the village leaders, interviews were not fully completed, thus the data we collected was sparse. On day two of field-testing, we conducted one more key-informant interview and several opportunistic HH interviews, with one man and two women. We met for a fifth day at ICRISAT headquarters to debrief and to troubleshoot what appeared to be holes and problems with the current PA format. The ICRISAT consultant conducted data entry and analysis, using the data analysis grid. However, collecting data was less a focus than the process and working through kinks with each of the PA sections. The sparse, but interesting data revealed from Faisalwadi is discussed in brief below.

Key Lessons of Second Training & Field Testing in Faisalwadi, India

- Creating a comprehensive lexicon is critical.
- One day for training is not sufficient.
- Coordinating with local NGOs as enumerators can be both useful and problematic.
- Debriefing after training, and conducting field testing is highly effective for obtaining and offering feedback (for both process and topics).

Third Training & Field Test of PA, Kaffrine, Senegal

The third and final training and field test took place in January 2014 in Kaffrine, Senegal. Before the training, we met with a local evaluation expert from IPAR, Dakar with whom we collaborated with to review the survey material and make modifications to fit the exigencies of the Senegalese context. The following day, we drove out to the Kaffrine area and worked with an experienced field crew based at the Red Cross National Society Kaffrine local branch. We spent two days conducting a joint training/editing session with the four local enumerators assisted by a US based graduate student in geography who is doing research in the region. This third iteration of the process of training/reviewing PA materials served to hone the tools into a near final draft, ready for field-testing in three identified villages of Kaffrine. The enumerators also compiled a detailed lexicon of climate terms in French and in Wolof, to facilitate enumerators' translation during data collection.

We spent the next two days field-testing and collecting data in two local villages, Malem and Djoly. In Malem, enumerators conducted approximately 8 individual household surveys and two

joint focus group interviews while the project leads conducted two key informant interviews and participated in the focus group discussions, one with women and one with men. Day two of field testing consisted of another round of individual household interviews followed by two focus group discussions, again one with women and one with men. The project leads again conducted key informant interviews and led the FGDs. The day ended with a tour of Djoly's market site, where villagers had created a forecast information board that was accessible to residents as well as guests who arrived to the weekly market. The final day of the training/field-test week, we sat as a group to de-brief and to work out any last kinks and issues with the survey segments.

The project consultant dealt with data management and analysis. There were some problems with data management in this segment due to limited funds to hire a data manager who could handle the French/Wolof materials. As such, data was collected in French and Wolof, enumerators typed their responses in French and the project consultant reviewed the material using Google Translate. Discrepancies in information gleaned are to be noted as a result of this process. Again however, the main outcome of the field-testing in Senegal was to work through the process and refine the final versions of the PA survey to see how applicable it was in a third setting in West Africa.

Key Lessons of Third Training & Field Testing in Kaffrine, Senegal

- Two-days for training is insufficient to adequately train enumerators for the PA.
- Input from local evaluation experts is critical in tailoring a toolkit to specific sites.
- Having effective translators is paramount to good data collection and management.
- Enumerators have differing levels of skills and abilities. Evaluation team leaders should observe enumerators during field-testing days of training.
- Creating a data synthesis grid is an effective tool to consider before collecting data, i.e. will the data you are collecting answer your main thematic questions?

Results: the M&E protocol

The process described above resulted in the development of a multi-stage M&E framework for aptly evaluating the value of climate services for farmers. The figure below provides an overview of the process and outcomes.

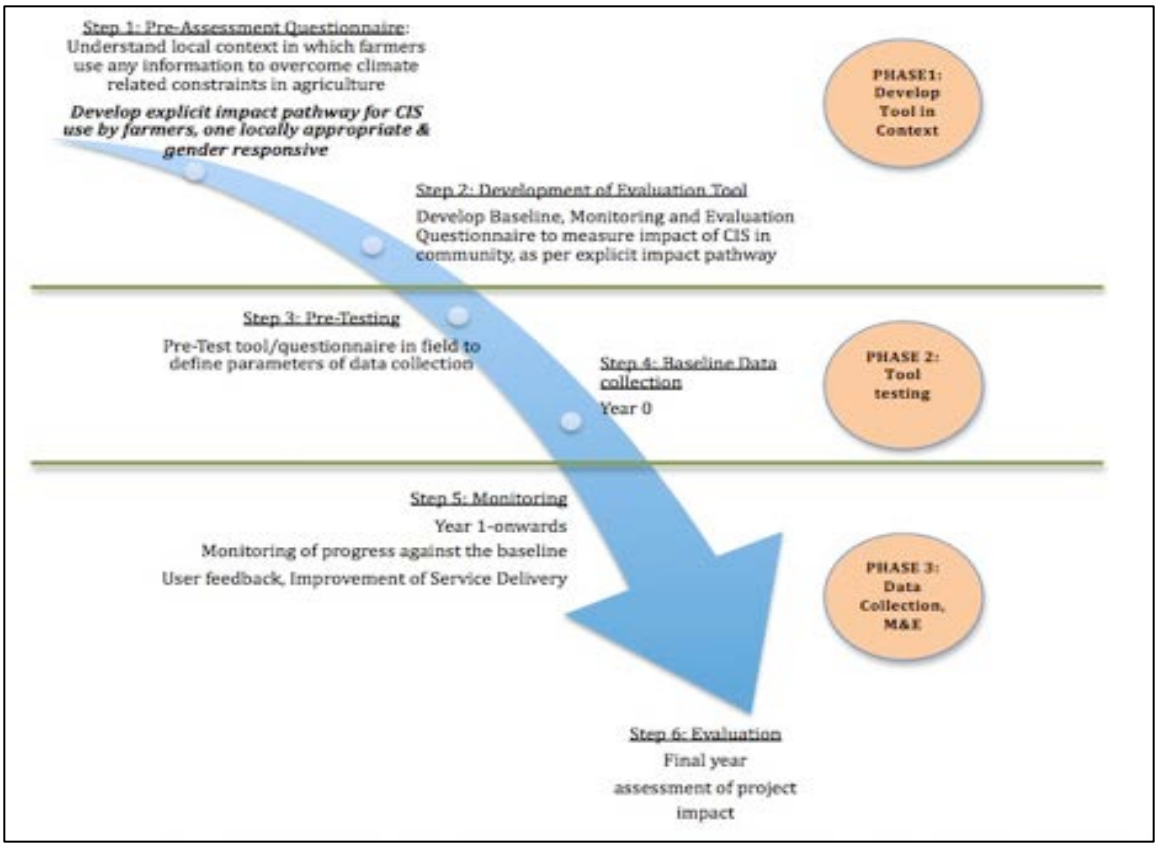

Figure 2: M&E framework for assessing impact in Climate Service projects

There are two main components to this tool that have been tested in three sites as well as been refined after input from various evaluation and climate services experts. The two components include 1) a pre-assessment (PA) survey and 2) a baseline questionnaire. Additional components include guideline documents for implementing each component as well as a guideline document for analysis and evaluation and transforming the PA into the baseline. The entire process for our evaluation tools can be broken down into three phases: Phase One involves developing the tool in local contexts; Phase Two includes field testing and baseline data collection, and Phase Three includes monitoring and evaluation and data collection (see figure 1). The outcome of this process is intended to improve climate service delivery at CCAFS sites across the globe.

A. The pre-assessment (PA) survey

We designed the pre-assessment (PA) to be implemented prior to a baseline survey, in an ex-ante design prior to climate services being provided within a community. The PA is itself designed to gain better understanding of farmers' decision-making context, and facilitate the onward creation of locally-informed and gender responsive baseline and M&E tools. Before baseline data is ever collected, we suggest that evaluation teams/project design teams first spent time to "learn" about the areas that they will be working in, delivering climate services for, and the farmers whom are supposed to hypothetically benefit from delivered climate services, before any actual evaluating takes place. Or, as presented above, how people live in their place? (Carr 2013). The PA is not just designed to merely "learn" about an area, but to collect integral information about farming and livelihood practices, geographic and climatic constraints, the risks farmers face in their livelihoods, the cultural norms and values around information communication, sharing and trust,

and constraints/enablers to use of information for decision-making, changes in farming practices, and gender roles.

The PA facilitates the work of evaluation teams in assessing specific ways farmers use information to face and manage climate risks through understanding the similarities and differences between men and women/young and older farmers' decision-making capacities and their access to information and knowledge networks. The PA will help teams first learn what the major social cleavages within a community are, then help them understand how those cleavages shape access to information and knowledge, to decisions, and to resources, among other topics. Through revealing information on decision-making and knowledge networks, evaluators will be able to define a contextualized impact pathway of climate information to rural small holders. The impact pathway is reliant on understanding the crops farmers grow, the agro-climatic regions in which they farm, and their socio-economic context, norms, and constraints that mediate information use to secure improved livelihood outcomes under a changing climate. The pre-assessment will reveal crucial information about these topics.

The pre-assessment survey also serves to explore some of these background contextual issues that constrain or enable the usefulness of climate information services in any given community. The pre-assessment tools elicit key information about farmer's decision-making as well as the socio-economic and cultural constraints behind behavioral changes, including gender roles and norms. We built the pre-assessment with the assumption that these elements have impacts on information use and on any potential changes in practices, skills and abilities that could potentially aid farmers' adaptation to a changing climate. Our starting point was that climate services are *potentially* useful; but realized usefulness at the local level is predicated upon farmers' needs for such services, to inform specific crop and farm-specific operations. Thus, the pre-assessment survey becomes the first step in the larger process of developing a targeted, locally-specific and gender-responsive M&E framework that will eventually enable project teams to evaluate the relevance of climate services to support smallholder farmer decision-making and which will facilitate improved local management of climate related risks at the farm-level.

The pre-assessment survey consists of three key parts, primarily derived from anthropological and participatory social science methodologies. The first part of the PA is a semi-structured interview in two parts, one for key informants such as local leaders inside a community; the second is for key informants outside of communities, such as local NGO workers or climate service providers. The main goal of the key informant interview is to provide overview information about geography, climate events, information availability, and community norms within the area targeted for evaluation. The second part of the PA is a focus group questionnaire, which we are recommending be implemented within homogeneous groups of men, women, youth, or elders. Mixed groups are also possible, but it will be up to the evaluator's discretion. The third, and final part of the PA is an individual household head (HH) questionnaire. The HH questionnaire is suitable for both male and female heads of households, and/or their spouses (see table 2).

Additional documents are also provided which will facilitate data analysis as well as the transition from PA to Baseline. Below we also suggest potential sampling procedures, which address how gender disaggregated data can be collected and analysed.

PA Part:	**Goals:**
Introduction & Guidelines documents	• To provide overview of PA materials, sampling protocols, and M&E context
Part I-A: Key informant Interview, Local Leaders	• Provide overview information about the following topics within the targeted area for evaluation: o Geography o Major climate events o Information availability o Community norms o Social cleavages o Demographic overview
Part I-B: Key informant Interview, Stakeholders	• Provide overview information about the following topics within the targeted area for evaluation: o Major climate events o Climate services provided o Agriculture or climate service information available o Development interventions
Part II: Focus Group Discussion Guide	• Provide overview information about the following topics within the targeted area for evaluation: o Social, cultural norms within the community o Gender norms within the community o Risk assessment o Communication norms
Part III: Individual Household Survey	• Provide overview information about the following topics within the targeted area for evaluation: o Constraints on individual HH farms o Individual risk assessment o Perceptions of climate events, risks o Knowledge/awareness of climate information/climate services
Analysis Worksheet	• Provide guidelines for analysis of PA data • Follows WYGFT themes
PA→Baseline Guideline Document	• Provide guidelines for transitioning PA data to Baseline • Provides sample questions, format for Baseline tools

Table 2: The Pre-Assessment survey in brief: segments & major goals

What You Get From This (WYGFT):

Each of the three main PA survey components is further divided into thematic sections. Thus the key informant interviews, the focus group discussion, and the individual household survey are organized by critical themes for meeting the CCAF roundtable goals presented above. Each section has questions that cater to its specific format and target respondents. The themes are presented below, followed by what we call the WYGFT-or what (information) you get from this (section), i.e. critical information we hope evaluators will derive from each section. The WYGFT also serve as thematic guides for evaluators when operationalizing cohesive indicators that should be obtained in the baseline, monitoring, and evaluation phases. Below, we present the

section themes, a list of the PA part they can be found in, and the WYGFT evaluators should ascertain for each theme.

PA Thematic Structure:

Section	***Theme***	***What (Information) You Get From This (section) WYGFT***
I.	KEY INFORMANT RESPONDENT DETAILS AND TYPE	• Where to access other sources of baseline information available on the community.
II.	GEOGRAPHIC ZONING	• Physical and human geography of the area to be evaluated; • Information to facilitate defining N in the baseline; • Key social cleavage lines/divisions within the community (breaks in population homogeneity); • Data to help identify different perspectives to be captured throughout the evaluation process.
III.	CONSTRAINTS ENCOUNTERED IN AGRICULTURE IN THE AREA	• Various constraints farmers face in their agriculture • Determination if climate is a limiting factor • Answers key questions: o Are climate-related risks significant constraints to improving the lives, livelihoods and productivity of farmers in the area? o Which climate related risks are most significant to agricultural productivity in the area (which if anticipated and managed appropriately, would be beneficial to increase agricultural productivity in the area)?
IV.	INFORMATION TYPES & DECISIONS: TYPES OF INFORMATION USED FOR AGRICULTURAL DECISIONS	• Information farmers in area are using to make decisions in their agricultural activities, • Determine local farming calendar for the season. • Answers key questions: o How is information used specifically: to influence which specific decisions? o Leading to which particular changes in practices, behaviors, and/or skills? o Are there different types of information accessed by men and women farmers? o Reveals how climate information may be influencing decisions.
IV.	INFORMATION FLOW: MOST RELEVANT COMMUNICATION CHANNELS	• Salient communication channels to reach men and women farmers with information services in the target area, o Including climate services.
V.	CONTROL & ACCESS: GENDER ROLES IN AGRICULTURE AND DECISION-MAKING	• Different gender roles in agriculture in the area, • Decision-making roles within the household. • Conceptualization of who controls information and has decision-making power to make use of received information. Asks: o What are they key socio-cultural barriers & opportunities for information use in support of agriculture in a community?
VI.	MEASURES OF SOCIAL RESILIENCE	Asks: • What are key assets that farmers resort to or forfeit when confronted with a climate shock? • What are farmers turning to in times of livelihood constrictions?

Table 3: Thematic structure of PA including WYGFT, i.e. major thematic questions to be answered through conducting PA

Depending on the types of responses that communities provide, evaluation teams will determine what themes become significant and are relevant to explore further as indicators of climate

service impact in the baseline survey. Drawing from these responses, evaluation teams will be able to create concrete indicators and benchmarks and for operationalizing assessment. Thus, evaluation teams will derive locally specific questions and data to collect during the baseline, monitoring and evaluation phases of their project assessment.

B. From PA to baseline survey

The baseline survey materials are part of the second phase of the multi-step evaluation platform. After the pre-assessment has been completed and analysed, evaluators can use our proposed *Analysis Guidelines and Synthesis Grid* and *Transition to Baseline* worksheets to transform their PA into a comprehensive baseline survey, based on their findings and based on the locally specific information they have acquired. As the pre-assessment survey facilitated collecting information on background contextual issues that constrain or enable the usefulness of climate information services in any given community, the baseline solidifies the evaluation process by collecting benchmark data about these topics. The pre-assessment tools will elicit key information about farmer's decision- making as well as the socio-economic and cultural constraints behind behavioral changes, including gender roles and norms. Since these elements may have impacts on information use and changes in practices, skills and abilities that aid farmer's adaptation to a changing climate, evaluation teams will utilize the information gleaned from the PA to shape and individualize the baseline and monitoring and evaluation protocols to collect specific data about these topics that can be monitored and tracked for changes over a period of time before, during, and after the life of a climate services project.

The guidelines provided include a data analysis grid, segmented into WYGFT themes with key components that evaluators should address through their data analysis process. The analysis grid also explains which segment(s) of the PA the synthesis questions stem from. The data synthesis is not limited to these guidelines. This is a starting point for analysis. Summary and correlation statistics will also be useful to conduct, however it will be left to individual evaluation teams to carry this out.

In addition to answering critical questions and addressing key themes, the evaluation guidelines are also the starting point for creating baseline tools. The *Transition to Baseline* worksheet suggests possible baseline appropriate questions that can be derived from the PA analysis. While we offer some examples of specific questions, the *Transition to Baseline* guidelines primarily provide broad themes that can be utilized in baseline, monitoring, and evaluation surveys and questionnaires. Additionally, there are a number of questions and data points that we suggest can be directly replicated and tracked for changes, during baseline, monitoring, and evaluation phases of project assessment. Finally, these worksheets are meant as a guide, therefore experienced evaluation teams should remain flexible and use the PA to inform their own, locally specific M&E process.

C. The baseline

The purpose of the baseline survey, in our proposed M&E framework for assessing climate service impact for farmers, is to collect baseline data on indicators of progress against which we will measure project (or programme) impact over time. While the final transition between PA and baseline will be up to individual regional evaluation or project teams based on the outcomes

of the pre-assessment survey, we recognize that there will be some common themes across most baseline data collection efforts. Therefore, given some of the extensive work done on explicating variables of vulnerability and resilience in climate risk prone areas, given some of the similarities in regards to climate change, climate services, and agricultural decision-making in many vulnerable rural communities in the developing world, and finally, given the need for global comparisons among CCAFS sites, we developed a list of certain parameters that most evaluators will test, monitor, and evaluate over time in similar ways. These similar benchmarks may include household economic factors, risk and social network analyses, agricultural productivity and/or HH demographics, to name a few. In addition, because of the importance of farmer decision-making within impact pathways, questions about individual HH decisions as well as how people communicate information may be likely included in a baseline. The *evaluation guideline* document for transforming the PA into a Baseline is meant to be a flexible guide, allowing for locally specific responses and scenarios revealed in the PA. However, based on testing/trials of the PA across Africa and India, and in order to make the baselines comparable across CCAFS sites, we have included sample questions and formatting that may be useful in many scenarios and locations.

Baseline Structure:

The baseline is divided into two key components, a community level key-informant interview and a household survey. Evaluation teams may choose to include further focus group discussions or other participatory methods, however this toolkit does not provide guidelines for these activities.

The Baseline (as part of a larger M&E framework) includes:

- Introduction & Guideline Documents
- A Sample Baseline HH Survey and Key Informant Interview Questionnaire

D. M&E tools

Following Baseline data collection, we recommend that evaluation teams choose a mid-project point to track project progress, i.e. the monitoring phase. The baseline materials should be reviewed and re-shaped to suit an assessment point during project implementation. Baseline materials can be easily converted to monitoring surveys and questionnaires that will elicit information about key target indicators to track project progress. Identifying key benchmark goals for individual climate service projects will also be useful for the monitoring phase. Following the WYGFT themes will facilitate data collection at the monitoring and evaluation phases of project assessment.

If the climate service project can afford the financial resources and time, a recurrent monitoring & evaluation effort is recommended after each rainy season where climate services are provided for farmers; i.e. after the June-July-August period in West Africa, the monsoon in South Asia or the October-November-December season in East Africa. Period re-assessments are instrumental to capturing local feedback on provided climate services, further exploration of community needs as they begin to become familiar with the range of climate services available to aid their decision-making, and as trust gets established between climate service provider and end-user. Incorporation of such local feedback at the end of each season enhances two-way

communication, and improves quality of service delivery for the end-user, who now has a medium through which to give their say onto provided services, so that these may better fits their needs at local level.

E. Final Assessment Survey

Like the monitoring and evaluation phase, evaluators may want to revisit the baseline data for the final assessment, at the end of project intervention. Repeated measurement of key benchmarks may be useful for project evaluators in this phase. The baseline survey materials will again be useful to draw from during the final assessment. Using the WYGFT themes will also facilitate data collection and analysis at this phase of project assessment.

Suggested data collection methods and sampling protocol: PA and baseline

A. Pre-Assessment

1) Pre-Assessment Data Collection.

a. Key informant, parts A&B-targeted sampling. Part A: Stakeholder-key informants should include staff of organizations or ins
b. titutions working within a community. The targeted stakeholders can include local or regional NGO staff, agriculture extension agents, regional government officials, or others working within a community or a direct stakeholder in delivering climate or agricultural advisory services. Part B: Village Leader-key informants should include a targeted population in a community (leaders, elders, women's leaders, traditional leaders, school teachers, committee members, those who have particular reputation for the knowledge of customs and traditions). We want to interview people who have a certain level of cultural expertise or knowledge or who are well respected within their communities. Target N for key informant include 3-5 key informants per village.
c. Individual HH surveys should employ stratified random or stratified-opportunistic sampling. Interview gender ratio should be as close to 50:50 where possible (hence some opportunistic sampling where there are few female headed households, interview spouses of HH heads). Random selection methods can be determined by the local evaluation team who will know how to populate a list of HH in their area. Stratification should occur along major social cleavage or demographic lines.
d. Focus group discussions: should employ opportunistic and random sampling, depending on the makeup of the group being interviewed. For example, random selection of groups of men or women can be chosen, however groups of elders might require targeted sampling depending on community demographics. Because specific cultural information is covered in the FGD, targeting known 'knowledgeable' people to participate may be appropriate.
e. Sampling should represent demographic trends for ethnicity, tribe, religion, or other major social cleavage that defines a community's population.
f. N-Number of HH interviews: N depends on several factors, including time, funds, and ability of local evaluation teams. N also depends on regional populations. Ideally, 100-200 people for an area (depending on population) should be chosen for HH surveys.

2) PA-Data Entry and Analysis:

a. For entry and analysis, target is to answer questions/fill in village data synthesis form. Data entry can be done in Excel, SPSS, or other software that supports statistical data analysis and data management.

b. Qualitative data can also be evaluated using ethnographic data packages such as Nvivo, The Ethnograph, etc.
c. Explain "what is going on" in the community as a case study may be useful.
d. Simple summary statistics will be useful to conduct. Aggregate data by gender, along social cleavage lines, and other demographic factors (where useful).
e. After filling in village synthesis form, use baseline guide to determine baseline benchmarks and indicators.

B. Baseline

1) Baseline Data Collection:

a. Target populations, study group = communities with climate service projects
b. Target populations, control group = communities that have not had regular climate services or climate service interventions. Control populations may be challenging to find due to information leakages, however individual evaluation teams should assess their areas for best possible control populations.
c. Target population, Individual HH survey = household heads, both men and women, and/or their spouses.
d. Target population, Key informant interview: community/village leaders, formal and informal including elected/appointed leaders, elders, teachers, etc. Number of respondents will vary, but a target range should include 3-5 leaders per community.
e. Sampling: stratified random sampling. Stratification occurs along major social cleavages (i.e. by ethnic group, gender, religious affiliation) so that multiple perspectives can be captured. Samples should be proportional along demographic breakdown of community by major social cleavage.
f. Should have fair representation of men and women, thus baseline should be conducted with HH heads, men and/or women. If there are not sufficient women HH heads, then interview HH head's spouse.
g. Sample size: dependent on population of target area, survey team size and ability, funding, and timeframe, though evaluation teams should aim for a minimum of 200 HH.

2) Baseline Data Entry and Analysis:

a. For entry and analysis, target is to address WYGFT and to create benchmark data set. Data collected during monitoring and evaluation phases can be measured against baseline benchmark data.
b. Data entry can be done in Excel, SPSS, or other software that supports statistical data analysis and data management.
c. Qualitative data can also be evaluated using ethnographic data packages such as Nvivo, The Ethnograph, etc.
d. Consider explaining "what is going on" in the community as a case study.
e. Simple summary statistics will be useful to carry out. Aggregate data by gender, along social cleavage lines, and other demographic factors (where useful).

3) Sample baseline indicators:

A sample list of baseline indicators can be found in Appendix 6.

Next steps

With our M&E protocol created and field tested across various CCAFS sites, we shared the materials with the wider CCAFS and climate service communities, for their review and critical feedback. The primary idea behind this step is to engage stakeholders, evaluation teams, and climate service experts globally, who themselves will be engaging communities on the ground, to create and build upon their knowledge of evaluating climate service projects across the globe. If the proposed M&E tools are to be adopted and used in multiple sites, i.e. at scale, across the globe, then feedback from those who will use the protocol will be critical for refinement and comparability at multiple sites.

Applying the proposed M&E protocol in Africa and South Asia: case studies in evaluating climate services

Using the information and data we collected during the testing of the PA in Kenya, Senegal, and India, we were able to draw preliminary insights about the communities we tested the pre-assessment tool in regarding their need for climate services and use of currently available climate information to guide their agricultural decisions. Results of these are presented as case studies in Appendix A. In the case study for Nyando, Kenya we discuss both the process as well as the findings gleaned in terms of climate services, decision-making, gender, information flows and impact pathways. The case study will be outlined using the WYGFT as thematic guides for presenting the data. We also present brief case studies for India and Senegal. However, given the paucity of data collected in these two sites, where the effort focused on refined tools and data collection process, we will present general overviews of findings and lessons learned about the process.

Discussion

Creating a collaborative, flexible, implementable climate services evaluation framework—key lessons learned:

Through the process of creating a context specific and gender responsive M&E framework, we migrated away from highly ethnographic and qualitative data collection while moving toward streamlined and simplified questionnaires and surveys that still capture cultural and contextual nuance. The ability to collect data on complexity has remained. The toolkit provides in-depth data collection by asking a variety of highly tailored qualitative and quantitative questions while allowing for triangulation between key informants, focus group participants, and individual participants. We strove to eliminate questions that veered off of the WYGFT themes, yet provided flexibility and space to allow for accessibility and ease of implementation for a variety of evaluators and sites. Through a process of trial and error and input from evaluation teams, we ended up with a tool that will fit project timeframes, budgetary constraints, and multiple audiences, i.e. climate scientists and service providers and their project evaluation teams. For the climate services community, many of the qualitative questions will be outside the box of the usual econo-centric, rational choice based economic evaluations. Successful implementation and application of this data will therefore rely on a certain degree of flexibility of the evaluation

teams. For anthropologists and ethnographic based social scientists some of the cultural context related questions and concerns may seem absent or overly simplified, and depending on the evaluators, analysis may perhaps lack depth and ethnographic detail. However, we are moving in the right direction by incorporating a manageable set of cultural, contextual, and gender based information into the framework of evaluation of climate services.

Through the process of running the M&E protocol in multiple sites and gathering input from trained evaluation teams and experts along the way, the tools have been through multiple iterations and refined. We also learned a few critical lessons for successful implementation and application of the Pre-Assessment on the ground. Trainings for evaluation teams for example, should be conducted over a minimum of a four-day period. At trainings, each step of the PA should be reviewed in detail. Training on how to conduct field-based interviews, focus group discussions, and data collection should be led by experts in these areas. One day of training should be dedicated to field-practice as well. Finally, evaluation teams should make sure to leave time to create and review a local lexicon of key terminology to ensure everyone on the team is, "on the same page" as one another, with local respondents, and with CCAFS and climate service scientists.

In converting the pre-assessment into a baseline survey, evaluation teams should follow the guidelines provided but remain flexible. Analysis for key aspects of the PA and the baseline will depend on local expertise, time, and funds. Thus, evaluators should focus on the WYGFT themes. As a foundation, questions during the PA and baseline should answer key aspects of the WYGFT. Focusing on the WYGFT and the impact pathways will, at a minimum, facilitate the creation and dissemination of locally specific, gender responsive, salient, credible, and useful climate services for rural smallholders.

Lessons learned & recommendations:

- Using a suite of methods derived from anthropology and development evaluation paradigms allows for broad yet thorough data collection, inclusive of CCAFS evaluation needs.
- Flexibility makes the toolkit transferable and usable across CCAFS sites.
- Flexibility in the toolkit allows for local evaluation teams to collect data that suits their particular cultural contexts.
- Trainings should incorporate evaluation experts and social scientists adept at collecting contextual information.
- For the PA, trainings should be no fewer than 4 days. Given the breadth and extensiveness of the tools, enumerators will need time to digest the material and practice implementing the methods.
- During the PA training, create a locally specific lexicon for key climate change and climate service terms. Have enumerators practice translating into local language as a group so there is consistency across a site.
- During PA data collection and analysis, focus on the WYGFT themes. Evaluation teams should ask themselves if these themes are being addressed.
- Evaluation teams should be able to assess whether they have a clearer understanding of the impact pathways for climate services to rural smallholders and women.

Conclusions

From the beginning of the concerted global effort to create an M&E protocol in March 2013, this has been a fast paced yet collaborative initiative. The use of anthropological methodologies, as well as development outcome-based participatory methods yielded a fruitful suite of tools to collect contextual data, about farmers' decision-making context, gender, culturally specific factors affecting risk, decisions, communication, and livelihoods (to name a few). Testing the tool in three diverse sites across Africa and South Asia was an effective and thorough process, resulting in a strong and effective survey toolkit for evaluating climate services impact, from pre-assessment, to baseline, monitoring and final evaluation.

As a team comprised of a climate scientist, an anthropologist, and a gender specialist, and with input from a range of experts over the course of six months, our approach was well rounded and comprehensive. Though we began with a heavy emphasis on using an anthropological perspective, we had to strike a critical balance between providing a tool that could collect relevant and useful contextual and cultural data within limited time frames and budgets and at multiple sites across the globe, which is the reality of many climate service projects sprouting across the globe. Detailed ethnographic data, while useful and important in the right setting, is not entirely feasible and applicable at scale nor in truly evaluation-based scenarios or for meeting project goals. The input and feedback we received from evaluation teams and experts in each site where our proposed tool was tested, including from climate service providers, evaluation experts, and local NGO workers from across the globe, was invaluable and strengthened the tool, making it truly collaborative and flexible. We believe we have crafted a context and gender responsive evaluation framework.

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Appendix 1: Results from applying the proposed evaluation tool in Africa and South Asia: case studies in evaluating climate services

Using the information and data we collected during the testing of the PA in Kenya, Senegal, and India, we were able to draw preliminary insights about the communities we tested the pre-assessment tool in regarding their need for climate services and use of currently availed climate information to guide their agricultural decisions. Results of these are presented as case studies below. In the case study for Nyando, Kenya we discuss both the process as well as the findings, that is what is going on in terms of climate services, decision-making, gender, information flows and impact pathways. The case study will be outlined using the WYGFT as thematic guides for presenting the data. We also present brief case studies for India and Senegal. However, given the paucity of data collected in these two sites, we will present general overviews of findings and lessons learned about the process.

CASE STUDY #1: Nyando, Kenya—Early versions of the PA still yield fruitful results

Text Box 1: Ethnographic Excerpts from Focus Group Discussion in Nyando, Kenya

Enumerator Question*: What would make climate information more useful to you?*

FGD respondent *(an elder woman): I trust what is being told on the radio. If it was announced it will rain, I prepare my farm. I trust what I get on the radio. It helps. It's been correct, so I can plant my farm.*

FGD respondent #*2 (man): What is on the radio is not specific, it is too broad. For example, "Kisumu" is not here. It can rain in Kisumu and not here. The information is too broad.*

FGD respondent #3 *(woman): Yes, that's true. It was announced it will rain in Kisumu, but it never rained (here), so to me, when I listen to the radio and hear it will rain, I will prepare (my farm). But it may happen or not. If it doesn't rain, fine, I will prepare based on that (radio report, though).*

Enumerator Question: *What barriers do you face/do you have to get good climate information?*

Respondent #1 *(man): most of us don't have radio or TV, and it will take a lot because of lack of funds. So, since we don't have, sometimes we get information after it has happened.*

Respondent #2 *(woman): Well, most people don't attend the barazaa [village wide meetings], so they don't get information…and most people have so much work, living costs are too high, I do so many tasks to make ends meet.*

Respondent # 1 *(man): another reason, the distance of the village to the agriculture office, it is so far, it prevents us from seeking information.*

Respondent #3 *(man): they announce[on the radio] in their vernacular (their language), and so, we don't get the exact meaning, or understandable information being announced*

--from focus group discussion during PA field test day in Kowala village, Nyando

PA data overview from Nyando, Kenya

Nyando is an area of villages in western Kenya in the Kisumu region north of Lake Victoria. Nyando is one of two CCAFS site in Kenya, and it is also the site of multiple agricultural, agro-forestry and development interventions. We chose Nyando to conduct the first test run of the PA protocol for a number of reasons, including the presence of experienced enumerators employed by ICRAF, an experienced CGIAR research coordinator at ICRAF, and collaboration with a CCAFS agricultural economist based in Nairobi who was able to assist in training, research coordination, and provide input into the protocol.

The majority of villages and residents of Nyando are agriculturally based, with some degree of livestock keeping (cattle and shoats). Nyando is an area of interest given increasing drought and periodic floods, adding to the vulnerability of its mainly subsistence based farming residents. One major social cleavage in Nyando is tribal affiliation. The Nyando area is primarily comprised of Luo, who are the largest majority (60%), followed by the Kalenjin (40% of the population). (See also methods discussion above).

There was a surprising amount of homogeneity in PA answers across major social cleavages, such as tribe, and gender. There seems to be an overwhelming consensus about the major constraints that people face, the way people share information, acceptance of gender norms, though these are changing, and the usefulness or issues with available climate services. Below we present key findings aggregated by WYGFT theme.

WYGFT Theme I: Constraints Found in Agriculture in the Area:
Residents of Nyando are faced with a number of constraints to improving their lives, livelihoods, productivity, a number of which are climate related constraints. The risks people face are also heavily influenced by climatic conditions. Amongst the major constraints people faced are the following 1) poor rainfall patterns and unpredictable rainfall, which leads to reduced food production; 2) limitations on land, that is a high birthrate that does not match land availability for the population; 3) drought, which has decreased food security; 4) low production values of their crops (low yields); 5) high cost of living; 6) poor quality local seeds (low yields); 7) new crop diseases; 8) soil erosion and gullies; 9) local cattle breeds cost too much in labor, that is, you have to pay people to herd your livestock now; 10) there is less land for grazing livestock; 11) soil fertility has decreased; 12) excessive rainfall, leads to flooding. These are the major constraints that were repeated in the FGDs. Men and women named similar constraints, while Kalenjin respondents mentioned livestock more often than Luo, one tribe did not exclusively name them.

FGD respondents were asked to list their top 5 risks. The top risks people named were consistent across tribal, gender, and age lines. These included drought, diseases, strong winds, hailstorms, floods, and heavy rainfall. Unsurprisingly, the majority of the top risks that were named are climate related.

WYGFT Theme II: Information and Decisions: Information Currently Used By Communities.
Here we present findings, primarily compiled from the Individual HH Survey about the particular information farmers use in Nyando to determine their farming calendar as well as what information serves as a decision trigger. We reveal key insight into what information farmers are using, as well as whether farmers in Nyando are satisfied with current information sources.

Key themes arose when discussing types of information used in agricultural decisions. In all stages of respondents farming calendars, there were several factors that were recurring including rainfall patterns, finances, and availability of labor (also linked to finances). There were slight variations depending on the stage of the cropping calendar, i.e. such as availability of seeds during planting, or size of crop when weeding, or maturation when buying seeds. However labor and finances appeared in nearly every stage, as did factors associated with rainfall (from onset to availability to patterns). In discussing factors that influence each type of farming activity in the calendar (not decisions about those activities), for example, when to plant, respondents overwhelmingly named rainfall as the key factor that influences their decisions around this activity (35/72 named it as their top influencing factor, while it was named a total of 50 times as one of the top five factors). Rainfall was followed by the availability of labor (9/72 named it as their top influencing factor, 13/72 named it as the second most important and it was named 27 times in the top four). Weather and climate were seldom named as a top factor influencing their decisions about when to plant.

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Table 4: Top factors that influence when & what farmers plant (N=72)

When to plant		**What to plant**	
Rainfall	50 (35 named as top factor)	Season	31 (20 named as top factor)
Labor	27 (9 as top factor)	Rainfall	13 (8 as top factor)
Season	23 (8 as top factor)	Finance	18 (5 as top factor)
Weather/climate	3	Crop type	6 (1 as top factor)

Most residents we interviewed were satisfied with their current sources of information (61/73 people in HH surveys responded they were satisfied), however much discussion was generated during our PA field tests during the focus groups, and the additional FGD data collected indicates that people would like additional information and resources. Residents acknowledged the link between information and its utility, especially information coming from agricultural extension agents, NGOs, and their neighbors considered "expert" farmers. 38/72 respondents suggesting that advice they have received has led to improved yields and 12/72 indicated such advice leads to food security (additionally people spoke about the link between outside agricultural information, soil conservation, and extra income). In one focus groups, women came to the consensus that they were satisfied with their sources of information, while more men expressed a need for more climate relevant information in their outside advice and before making key agricultural decisions. There were differences, however, between agricultural information and climate-based information (discussed below).

WYGFT Theme III: Information Flow: Most Relevant Communication Channels
Our format for exploring communication channels changed significantly between the PA version implemented in Nyando and its final version. However we did learn that residents of Nyando had a great deal of trust in the information they received from a few key sources, including local "expert" farmers, NGOs, agriculture extension agents, spouses, family and meteorological services (for climate data) and district government officials (for livestock information).

Table 5: Most trusted sources for information about farming, livestock, climate & weather, and livelihood activities (N=72)

(N=72)	**Most trusted sources for information about:**							
Information source:	**Farming**		**Livestock**		**Climate/weather information**		**Other livelihood activities**	
	Total	**First choice**	**Total**	**First choice**	**Total**	**First choice**	**Total**	**First choice**
Village leaders	11	1	10	0	9	1	11	3
Traditional healers	6	1	6	0	9	2	7	1
Elders	7	2	4	0	9	0	13	2
Women's leaders	0	0	0	0	0	0	4	0
Expert farmer	42	9	36	12	20	0	11	1
NGO	51	16	42	12	38	11	25	8
Farmer group/co-cop	28	2	23	3	18	0	8	1
Neighbors	13	0	10	0	16	0	16	0
Family members	19	6	17	6	11	0	28	6
Children	12	3	16	4	13	2	21	3
Spouse	28	10	30	13	23	9	33	26
Religious leaders	0	0	0	0	2	0	20	3
District government	1	9	19	2	15	1	1	0
Ag extension	48	19	45	21	22	0	14	2
Climate forecasters	9	2	4	0	46	41	2	0
Women's group	2	0	3	0	1	0	13	4
Other	0	0	0	0	2	2	0	0

A key component we added to the PA after the Nyando data had been collected is data about communication systems in place within the community to communicate climate information. We ask key informants to draw a flowchart tracking the flow of information from MET services to the community. Despite this omission from the Nyando PA, we did collect interesting information about how to improve current systems of communication within a community. The focus group participants offered several suggestions that could be easily built into climate service delivery, for example. One women's focus group suggested that climate information should be repeated daily (and using multiple sources) because many don't receive information the first time it is publicized. One men's focus group asked that information be directly applicable to real circumstances. Other suggestions included providing information at barazaas (village wide meetings) and passing information to various farming and development based groups (and other groups within a community), so that members of a group can understand it, discuss it, and then share it with others.

The most effective channels for getting information to a community include rural radio, through NGOs or the village barazas. The household respondents were almost evenly split in whether or not they were receiving climate information. Of those who receive it, most share that information with others, primarily with their spouses, other family members, neighbors and the various groups people belong to.

Table 6: Is information useful & is it shared? (N=72)

Interview Question:		**Yes**	**No**
Is climate information widely available in your community to anyone who wants it?	Total	38	34
	Women	17	19
	Men	21	15
If you receive this information do you discuss it with others?	Total	70	2
	Women	36	2
	Men	34	0
Can you use this information?	Total	63	4
	Women	33	0
	Men	30	4

When asked about effective channels to get information to women, respondents mentioned passing information to NGOs, through schools, to groups, and in public places where people meet, such as the market. As a communication channel, there was a mixed reaction to radio. While it is effective, there are a number of people who mentioned they cannot afford radio nor not access one regularly. Despite this, a large majority of HH respondents named radio as their source for various types of climate information. Multiple FGD respondents mentioned that information should be made to be more specific to their area.

WYGFT Theme IV: Control & Access-Gender Roles in Agriculture and Decision-Making
Background, contextual information about gender roles in agriculture, in resource use, access, and control, and about gender roles in decision making are critical components to the PA and to the M&E protocol. In Nyando, men control most agricultural resources and the means of production, though women have equal access to them. This is not the case with land, however. Women do have access, and some women own their own land, however there are tribal customs amongst the Luo that dictate whether or not a woman is even allowed to discuss land. Women are not supposed to discuss land or land issues while their husband is alive, however women can purchase land or inherit land after he has died. Women can buy land, however this is done infrequently.

WYGFT Theme V: Climate-Access to Climate Information Services
While there were some questions about climate information interspersed in other themes, the main questions about specific climate information and its delivery are discussed here. Two key components of inquiry about climate services can be found in the tables below. The first outlines the types of climate information HH respondents are receiving. The second addresses an open-ended question soliciting respondent's ideal types of climate information.

Table 7: Specific climate information HHs in Nyando are receiving (N starts at 72, but is relative to answers given in columns from left-right)

Type of information received:	**a. Climate information received:** ***(01=Yes, 00=No)***	**b. Frequency received:** ***01=daily 02=weekly 03=monthly 04=seasonally***	**c. Source of information received:**				**d. Recipient of Info in HH:** ***01=Husband, 02=Wife; 03=Both; 04= Child; 05= Other family member (specify)***	**e. Paired with farming advice** ***(01=Yes 00=N)***	**f. Apply advice** ***(01=Yes, 00=No)***	**Farm practice changed:**			
Forecast of an extreme event (e.g.: heavy rains, storm, dry spell, strong winds, storm, cyclone, tidal surge or other)	Yes= 68/72 No = 4/72	Seasonally = 58/68	Radio	67	Newspaper; own observations	10	Both=48; Women=9 Men=12	Yes=58/58	Yes=54/58	Land management	23	Crop variety; Soil & water conservation	20
			NGO	20	Friends	8				Crop type	21	Change in timing of farming	17
			TV; friends	11						Field location=10; Change inputs; Water management =6; Livestock type=5; Irrigation=4			
Forecast of the start of the rains (onset)	Yes = 71 No = 1	Seasonally=46 Monthly = 10 Daily =10 Weekly = 5	Radio	69	Traditional forecast	12	Both=42; Women=13; Men=11	No=10	No= 5	Crop Type	38	Crop Variety	20
			Own observation	22	Neighbors; Newspaper	6				Soil &water conservation	36	Irrigation	18
			TV	16	AG extension; MET	5				Change in inputs	28	Own observation	9
			Friends	15	Village meetings; Farmer groups	3				Feed management=8; Land area=7; Use of manure=6; Field location =2			
Forecast of the rains for the following 2-3 months (seasonal forecast)	Yes = 6 No = 66	Seasonally = 3 Monthly = 2 Weekly =1	Radio	5			Both=6	Yes=5 No=1	Yes=3 No=2	Crop variety, Soil and water conservation=2; Irrigation, Inputs=1			
			TV; AG extension; NGO	1									
Forecast of the weather for today and/or next 2-3 days	Yes = 23 No = 48	Daily = 22 Weekly = 1	Radio; Own observation	23			Both=12; Women=9; Men=2	No=20 Yes=3	Yes=3	Crop variety=2; Change in inputs, Soil and water conservation, Irrigation, Water management, Livestock breed, Livestock type=1			
			TV	7									
			MET	1									

Table 8: Ranked list of information desired by communities in Nyando

Type of Information	Total times ranked (1-5)	Times Ranked #1	Most often ranked as # (# times)
1. Seasonal rainfall outlook	70	44	1
2. Forecast on onset	67	20	2 (37)
3. Possibility of extreme weather event	57	4	5 (19)
4. Forecast on end of rains	44	1	2 (21)
5. Number of days of rainfall	24	0	3(10)
6. Daily & weekly weather forecasts	23	2	5 (10)
7. Real time (daily rainfall and temp)	22	0	4 (8)

WYGFT Theme VI: Trust
Household interviews revealed a number of "go-to" trusted sources for agriculture and climate information. Agriculture extension agents, NGOs, and community "expert" farmers were among the top choices for agriculture (and livestock) information. Additionally, spouses, and farmer/women's groups were seen as trustworthy sources. MET services were perceived as a trustworthy source for climate information, along with extension agents, NGOs, and spouses.

WYGFT Theme VI: Measures of Social Resilience
PA data that was collected suggests that Nyando is not a food secure area. A scant 11/78 household heads responded that they had produced enough food for the entire year. However when we asked respondents to explain how many months their food supply would last, as many as 13 respondents said they had between 7-12 months of food, though the majority, 44 respondents, had a supply of six months or less.

Nyando revealed valuable information that has been transformed into a baseline survey. The process in Nyando also revealed valuable insights into content for the PA as well as into the process and flow of data collection and data management. However, there are some inconsistencies found throughout the data, due to data collection and entry errors. Data collection and entry errors are not unexpected, especially given the rapid turnaround in this field-testing and editorial process. Because the PA in Nyando was "incomplete" compared to the final version, we do not have the means to verify some of these inconsistencies. The final version of the PA will allow for triangulation between sources. Evaluation teams should be less pressed for time when implementing the PA and M&E. We recognize given our project timeframe, hurried data collection and management was unavoidable.

CASE STUDY #2: Faisalwadi, India – cross checking data with multiple methods

The Faisalwadi site is an example of this hurried process. As presented in the methods section above, we held a rapid one-day training and two brief days field-testing the methods. The Faisalwadi work was not without insight into both process and content, however. The focus group discussions in Faisalwadi demonstrate the importance for cross-verification of data through interviewing multiple sources, as well as through observation, this will be discussed subsequently. First, we present some background about the site.

Faisalwadi is a peri-urban agricultural village located outside of Hyderabad, Andhra Pradesh state, India. Faisalwadi is not a CCAFS site, but it is an ICRISAT agricultural development site, located just 30 minutes from ICRISAT headquarters. It is fairly homogenous in terms of social divisions, with 100% Telugu speaking, Hindu population. We were not able to uncover caste-based divisions, given the short time spent in the community and our inability to complete a key-informant interview in its entirety. Recent changes in agricultural production, however, are having significant effects on the community. A recently built sugar-processing factory has spurred farmers to shift from growing vegetable crops for income toward growing sugarcane. This shift has had an unintended effect on the women of Faisalwadi, which we revealed in our women's focus group discussion. Women can no longer go to their fields alone, as they did when many residents grew chili peppers. Now, sugar cane grows thickly and densely, hiding marauding men who have been known to attack and assault women going to do farm work. We do not have statistics on these incidents, however women were adamant that if they had the choice, they would not grow sugar cane. This is indicative of the gender norms and contexts revealed in our interviews. Women have little control or access to agricultural decisions or means of production in this community.

This gender disparity was also reflected in women's access to information, notably climate information. Comparing notes from the men's and women's focus group discussions, there is little consistency or overlap in the availability of climate services for men and women. Women insisted that they had little information available to them, and little ability to seek information given cultural rules. Women knew almost nothing about significant information technological innovations for delivering climate services in India. Men, however, were receiving SMS and voice message alerts about weather forecasts. These efforts are part of a public-private partnership between MET services and a phone company. Men were impressed with the efficiency and accuracy of these messages and insisted they shared the information with their spouses. Interviewing their spouses did not indicate this was the case.

Conducting a brief but informative field-test in Faisalwadi, exemplifies the importance of cross-verification of data through conducting multiple types of methods. Our interviews also show the potential data gaps within one village, demonstrating the vulnerability of women in smallholder communities, as discussed throughout this report.

CASE STUDY #3: Kaffrine, Senegal—A community's homegrown effort to deliver information

Kaffrine is another CCAFS site, located in central Senegal in the former peanut belt. Peanuts are still a main staple in the semi-arid region, as is sorghum. We conducted another brief training, as discussed in the methods above, where the focus was on refining the PA tools with an experienced team of local enumerators as well with a graduate student working in the region. In Kaffrine, we also created a French translation of the PA. We spent two days field-testing the mostly refined tools, which provided a much needed opportunity to work the final kinks out of the questions, the format, and flow. We conducted the field tests in two villages, Djoly and Malem, where nearly 100% of the residents are Wolof speakers.

It was in the village of Djoly where we saw the potential effects of motivated village leadership desiring to provide climate information to their community. Because Djoly was a CCAFS site, it had been part of a climate service delivery project for the past couple years. The community is besieged by drastic soil erosion, however residents are not without hope for improving soils and their farms. During focus groups, both men and women discussed the importance of communicating about vital agro-climate advisories to those within and beyond their community.

There have been two main sources of information delivery across the village. The first, the community mosque, had been used for disseminating a variety of information to village residents. This was not a new method for communication, however, villagers took it upon themselves to make sure climate information was incorporated into the messaging service of the mosque. The second source is tied to Djoly's large permanent market built in the village center. The market is only open once a week, with visitors arriving from multiple villages, however the marketplace site has become a site for climate service delivery as well. Juxtaposed against the backdrop of a massive gully cutting through the center of the village and next to the market buildings, is a small shop with a blackboard. One of the village leaders has been part of a climate service project, and up until a few months ago, had been receiving daily forecasts, which he would then write, in multiple languages, on the blackboard. Residents of the community and those from outside were now accustomed to these forecasts, though both men and women complained and wondered why they had stopped recently. We were pleasantly surprised to see how village leadership had incorporated climate services into previous methods, while also innovating new methods of communication.

Appendix 2: The Pre-Assessment survey

Please see additional PDF.

Appendix 3: Analysis guidelines & synthesis grid worksheet

Please see additional PDF.

Appendix 4: Transition to Baseline worksheet

Please see additional PDF.

Appendix 5: Baseline survey tools

Please see additional PDF.

Appendix 6: Sample baseline indicators of climate service impact

Summary of sample indicators for M&E to evaluate climate services for farmers: the Baseline Survey

Key Informant Indicators

Section	Measure	As an Indicator of	Purpose
I. Key Informant Respondent Details	Organization, position etc.	Relationship to the community	Knowledge of informant
II. Community Risks	Perceived threats to productivity	Risks	To gauge the perceived risk posed by climate change over time. Understanding risks can help design better services and serve as an indicator of how useful climate services can be in improving livelihood outcomes.
III. Sources of Information	Where respondents seek advice	Trusted sources of information	To monitor whether trust in climate information (and other sources) changes as a result of the project.
	Where NGOs, leaders, district officials, and other respected individuals get their information	The availability of information	To verify that information is reaching essential figures in the community. This can be compared to responses from individuals to see to what extent information reaching leaders is adequately communicated to individual households.
	Where and how key informants share information	Information flows and constraints to communication	To monitor whether information flows are changing and whether the project is using effective channels.
IV: Sources and Communication of Climate Information (Specifically)	Kinds of climate information and training received and frequency of information	Availability of information	To track changes in the availability of climate information and related advisory services as a result of the project
V: Gender and Access to Climate Information	Ability to seek advice and access training	Equal gender access to climate services	To ensure that climate services are reaching both genders. Monitoring the potential for climate services to exacerbate (or alleviate) gender inequality.

Individual HH Survey Indicators

Section	Measure	As an Indicator	Purpose

		of	
I. Household Type and Respondent Information	Age, gender, ethnicity, education, religion etc.	Social position	Basic demographic information for comparison across, gender, age and other lines.
II. Additional Demographic Information – Household Assets and Risks	Assets, facilities and land ownership	Socio-economic status	To provide a better sense of the resources available to the respondent, which will shape their access to information and their ability to act on that information. This will also help to monitor potential constraints to the use of the information provided throughout the project.
	Perceived threats to productivity	Risks	To gauge the perceived risk posed by climate change over time. Understanding risks can help design better services and serve as an indicator of how useful climate services can be in improving livelihood outcomes.
III: Sources of Information (General)	Sources of information used in decisions and ranking of those sources	Importance of climate and other forms of information in decision-making	To track whether respondents change the kinds of information they use over the course of the project and if their perceptions of the relative importance of different kinds of information has changed.
	Where individuals get their information	Availability of information	To verify that information is reaching essential figures in the community. For comparison with information reaching key informants to evaluate the extent to which information reaching leaders also reaches individual households.
	Where respondents seek advice	Trusted sources of information	To monitor whether trust in climate information (and other sources) changes as a result of the project
IV: Use of Information (Generally) and Perceived Impacts	Changes in planting time and other livelihood patterns (and reasons for those changes)	Actual use (behavior change) as a result of climate services	To track changes in agricultural and pastoral activities, asking for the motivation for the change in order to connect activities to climate services. The questions in this section intentionally neglect to ask about CS directly in order to validate answers in the next section.
	Perceptions of impacts of behavioral changes	Socio-economic (or other) impacts of climate services	To track the perceived impact behavioral changes on respondent livelihoods (changes in agricultural or livestock productivity etc.).

V: Use of Climate Information (Specifically) and Perceived Impacts	Kinds of climate information/training received and frequency of information	Availability of information	To track changes in the availability of climate information as a result of the project.
	Changes in livelihoods practices	Ability to act on climate information	To monitor whether people are willing and able to act on climate services provided. If people do not or cannot act on the information provided, there will be no impact.
	Perceived impact of behavioral changes	Socio-economic (or other) impacts of climate services	To track the perceived impact behavioral changes on respondent livelihoods (changes in agricultural or livestock productivity etc.).
VI: Gender and Access to Climate Information	Ability to seek climate advice	Equal gender access	Monitoring whether climate services are equally available to both men and women and for determining whether both have equal opportunity to act on that information. Monitoring the potential for climate services to exacerbate (or alleviate) gender inequality.
	Ability of men and women to act on information	Gender equality	
VII: Impacts	HH crop and livestock production	Climate service impacts on agricultural yields	*These questions would collect baseline on anticipated Impacts of climate service use. However please note that we do not anticipate to see any significant change in local livelihoods over the course of the mere 3-4 years that climate service projects typically last. Impacts will only become apparent following multiple years and decades of climate service use. We recommend that baseline data is still important to collect on these variables, against which to monitor change at a decadal timescale).* NB Caveat: it is not only that the impacts might not be felt within 3-4 years, but that it would be extremely difficult to prove a relationship between changes in yields etc. and climate services alone.
	External sources of support	Household self-reliance	Here again, there would be many other intervening variables that might interfere with the ability of climate services to increase HH self-reliance.

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