

Inclusion of gender equality in monitoring and evaluation of climate services

Working Paper No. 249

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

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



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Abstract

The working paper aims to identify recommendations for gender-aware monitoring and evaluation (M&E) of rural climate services, highlighting system design and indicator development. Drawing from the literature from rural development sectors, the paper first identifies key lessons learned on gender-aware M&E. For example, to measure changes related to gender equality, it can be key to incorporate frameworks for measuring empowerment, use mixed methods and participatory tools, and follow gender-aware interview practices. Clearly incorporating gender equality objectives in the theory of change, facilitating gender support for M&E project teams, and carrying out a robust social assessment that includes gender analysis can be important practices to ensure that gender considerations are taken into account from the onset of M&E design. It is also critical to meet the minimum standards for sex-disaggregated data collection and analysis to ensure that gender trends can be accurately assessed.

The paper then focuses on considerations specific to rural climate services. The paper highlights that gender-aware M&E for climate services must collect datasets that represent key factors underlying gender inequalities in access and use of weather and climate information, particularly: i) access to group processes, ii) access to sources and formats, iii) relevance of weather and climate information, and iv) capacities to act on information. It can also be necessary to collect datasets that allow for assessment of how climate services contributes to women's participation in agricultural decision-making. The appendices present sample quantitative and qualitative questions for collection of the datasets.

The paper also presents three case studies of M&E used in climate services projects and programs supported by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and its partners. The case studies help to analyse the differing M&E practices used to take into account gender equality, according to the scope and expected outcomes of an intervention.

The working paper concludes with recommendations for gender-aware climate services M&E. These emphasize that baseline assessments must collect information on key gender differences and trends that influence inequalities in access and use of climate services in order

to ensure that gender-based challenges to benefit from climate services are assessed from the onset. Furthermore, it is important that mixed methods are used to monitor and evaluate changes in the factors influencing gender inequalities in access and use over the course of the project. Assessment of the impacts of climate services on women's participation in agricultural decision-making is also critical; it can be important to assess additional indicators of women's empowerment, as well, depending on the project's expected outcomes. In response to methodological challenges, it is paramount that data detailing individual experiences concerning access and use of climate information is collected from both women and men in order to ensure accurate and complete gender analysis.

Keywords

Weather and climate data; gender; rural development; monitoring and evaluation.

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Contents

Introduction.....	9
Lessons on gender-aware M&E in other contexts	10
M&E of gender-based challenges in climate services	14
2.1 Access to group processes	15
2.2 Access to sources and formats	16
2.3 Differences in climate information relevance and capacity to act	18
2.4 Influence of climate services on women’s participation in decision-making....	19
Case Studies	20
3.1 Climate services for agriculture: empowering farmers to manage risk and adapt to a changing climate in Rwanda	20
3.2 Enhancing adaptive capacity of women and ethnic minority smallholder farmers through improved agro-climate information in South East Asia (ACIS) ...	21
3.3 Agrometeorological Advisory Program of Mali	23
Conclusions and recommendations.....	25
Appendix 1: Quantitative survey questions	27
Appendix 2: Qualitative survey questions	33
Access to sources and formats	33
Group participation	33
Information relevance and use of information.....	34
Participation in decision-making	34
Changes in decision-making	35
References.....	36
Glossary	44

Acronyms

ACIS	agro-climatic information systems
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CCRD	Climate Change Resilient Development project
CSA	climate smart agriculture
ICTs	Information and Communication Technologies
LIG	Livelihoods as Intimate Government approach
M&E	Monitoring and Evaluation
PSP	Participatory Scenario Planning
USAID	U.S. Agency for International Development
W&EM	women and ethnic minorities
WEIA	Women's Empowerment in Agriculture Index

Introduction

Men and women confront varying opportunities and challenges to access and implement climate information and agricultural innovation, particularly in a context of climate variability and change (Kristjanson et al., 2017; Jost et al., 2016). While climate services can provide smallholder farmers an important tool for resiliency-building, they risk reinforcing the gender-based inequalities that are prevalent in other institutional structures (Perez et al., 2015; Carr & Owusu-Daaku, 2016; Carr & Onzere, 2017) if they fail to understand and effectively target the needs of both women and men. Due to gender-related factors, women and men can face differing challenges and opportunities to access climate-related information, to use it to improve management, and to benefit from improved management decisions. While addressing inequalities is critical to promote enhanced impacts (Kantor, Morgan & Chaudhury, 2015), promoting women's empowerment can also contribute to more effective household livelihood planning and implementation of climate-smart agricultural (CSA) practices, in some cases (Farnworth et al., 2018; Huyer et al., Forthcoming).

Recognizing gender equality as a sustainable development goal, food security and climate-resilience initiatives increasingly highlight gender equality and women's empowerment as necessary expected outcomes (World Bank, 2009). Nonetheless, concrete guidelines for how to assess progress towards gender equality outcomes through rural climate services may be lacking and thus critically necessary.

The present working paper seeks to identify guidelines and recommendations for gender-aware M&E of rural climate services, with a focus on system design and indicator development. The discussion largely targets project planners and emphasizes the M&E design phase. Findings highlight the importance of collecting datasets representative of key factors and processes underlying gender inequalities in access to and use of climate information. Furthermore, it can be necessary to assess the effects of climate services on indicators of women's empowerment, such as participation in agricultural decision-making.

The paper first presents a discussion of lessons learned for gender-aware M&E in rural development interventions, especially those targeting the agricultural sector. Subsequently,

the paper identifies key themes related to gender and climate services, with a focus on access and use, as they concern data collection for the development of gender-aware indicators. The paper then presents a series of case studies of gender-aware M&E for climate services, taken from the experiences of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and its partners. The paper concludes by presenting recommendations for gender-aware M&E for climate services.

Lessons on gender-aware M&E in other contexts

A review of literature on gender inclusion in M&E was carried out, with a focus on rural development initiatives and the agricultural sector, in order to identify lessons learned and key guidance for project leaders. The broader scope of the review, encompassing rural development initiatives and not specifically climate services, was necessary given the limited amount of literature related to climate services M&E with a gender equality focus at the moment.

The literature points to issues that consistently present challenges for the development of gender-aware M&E in rural development interventions. These have to do largely with i) the difficulties of measuring the factors and processes underlying gender inequalities and empowerment; ii) a general lack of attention to gender considerations in M&E design; and iii) the tendency to conceptualize the household as a unified entity. The existing research, manuals and tools also highlight lessons learned for good practices. These are summarized and grouped according to each challenge in Table 1.

Table 1: Good practices for gender-aware M&E

Obstacles to gender-aware M&E	Good practices
Factors and processes underlying gender inequalities can be difficult to measure	Apply frameworks for measuring empowerment
	Incorporate mixed methods
	Use participatory tools
	Follow gender-aware interview practices
Lack of attention to gender considerations in M&E design	Clearly incorporate gender equality objectives in theory of change
	Facilitate gender support to M&E team
	Include gender analysis in socio-economic assessment
Conceptions of the unitary household hide intra-household gender differences	Meet minimum standards for sex-disaggregated data collection

The first four good practices respond to the challenge of measuring change related to gender equality.

Apply frameworks for measuring empowerment

Difficulties can arise due to the fact that the factors and processes underlying gender inequalities can be difficult to measure. In particular, women’s empowerment and agency can be abstract issues for conventional M&E systems to capture (Bamberger, 2013). Indices and frameworks like the Women’s Empowerment in Agriculture Index (WEIA) (Alkire et al., 2013) and the Gender Transformation in CSA framework (Huyer et al., Forthcoming) can be critical reference tools. These highlight ii) the ability to make decisions and ii) the resources and technology necessary to take those decisions, as important foundations of empowerment.

For example, the WEIA identifies five domains of empowerment: production, resources, income, leadership and time (Alkire et al., 2013). While the production domain addresses the actor’s capacity to participate in decision-making on agricultural production, the resources domain concerns control over resources necessary to act on those agricultural decisions. In order to assess the degree to which an individual benefits from her efforts, the income domain analyses income control and the time domain analyses time allocation to leisure and production, as well as satisfaction with the time distribution. Finally, the leadership domain measures aspects of inclusion, participation, and organizational capacity.

Use mixed methods

While conventional M&E frameworks and tools may be able to assess if change occurs, they can be limited in conveying the reasons for changes in gender inequalities (e.g., concerning

gender relations, decision-making roles, control of productive resources) (Batliwala & Pittman, 2010). A combination of both quantitative and qualitative methods can triangulate data collected (Behrman et al., 2014) and help provide a more complete understanding of gender equality and social change processes (Espinosa, 2013; Tall, Davis & Agrawal, 2014). Quantitative methods provide helpful, representative information on the state of gender inequalities and can establish causation. Qualitative methods can measure change processes as well, but can be particularly valuable for going beyond assessment of whether or not change occurs to identify underlying reasons.

Use participatory tools

Empowerment depends upon long-term processes that can often exceed a project's funding timeline. Establishing indicators that accurately capture meaningful progress on short time-scale can be difficult (World Bank, 2009). Furthermore, it is important that a strong contextual understanding inform indicator design, given the context-specific nature of gender dynamics (Tall, Davis & Agrawal, 2014). Participatory M&E that involves local women and men can facilitate the identification of information that is important to the local community and the selection of highly relevant indicators (Asfaw & Maggio, 2016; Espinosa, 2013). Participatory methods are especially valuable because they can capture instances where people recognize change as it occurs (Pereznieto & Taylor, 2014) and identify the broader impact of an intervention on existing gender and social norms (Johnson et al., 2016).

Follow gender-aware interview practices

Other good practices for data collection include using same-gender interviewers and allowing women to respond to questions outside of the presence of men; this can often be an important safeguard and can help women to have a better opportunity to share their opinions more freely and honestly (Anderson et al., 2017; Behrman et al., 2014). Similarly, it is helpful to provide all interviewers with gender-aware training. These steps can help prevent harmful gender biases from influencing interviewer-respondent interactions, increase the comfort and openness of women participants, and allow for more accurate data collection concerning sensitive, gender-related issues (Brambilla, 2001; Graef et al., 2018).

Carrying out the good practices mentioned above requires careful planning from the onset of M&E design. Yet, there may often be a general disregard of gender considerations when designing the M&E system. The following three good practices address this challenge.

Establish a theory of change that tracks gender inequalities

Without critical consideration of gender from the project's initial design, projects can neglect to monitor whether or not positive effects are equally distributed and fail to ensure that inequalities are not exacerbated. A clearly established theory of change can help identify how and where change in gender and social inequalities occurs because of an intervention, thereby enabling a more tailored evaluation to fit that change progression (Pereznieto & Taylor, 2014). The theory of change will highlight gender dimensions of project outcomes; changes in knowledge, awareness and skills necessary to achieve them; and activities and deliverables to support this. For instance, a useful theory of change for an intervention seeking to advance women's economic empowerment in Rwanda identified that engagement with the male partners of women beneficiaries would be requisite, recognizing the possibility of male resistance to women's changing role and status (Pereznieto & Taylor, 2014).

Work with gender experts

One particular challenge to gender-aware M&E lies in that M&E specialists themselves may not have gender expertise (Pereznieto & Taylor, 2014; World Bank, 2009). For this reason, working with gender experts is important to ensure that M&E incorporates gender equality considerations from the design stage (Pereznieto & Taylor, 2014; Moser, 2007). Similarly, it is valuable to facilitate that at least one member of the evaluation team is trained in basic gender concepts and analysis (World Bank, 2009).

Socio-economic assessment that includes gender analysis

A key practice for the development of relevant indicators is assessment of the social-institutional environment (Pereznieto & Taylor, 2014); gender analysis should be an integral component of this in order to ensure a solid understanding of possible impacts on women and men (World Bank, 2005). Tools like the CCAFS Gender and Inclusion Toolbox (2014) can be helpful for gathering initial gender information related to climate-resilient agriculture, climate services and local definitions of empowerment, at the beginning of a project. Additionally,

baseline assessments should at the least collect sex-disaggregated data, in order to provide information on gender differences and trends, prior to interventions (World Bank, 2005).

Meet standards for sex-disaggregated data collection and gender analysis

This last good practice responds to the tendency to conceptualize the household as a unified entity in M&E. The use of the “unitary” household model in M&E can inadvertently mask important intra-household gender differences in household asset control and the complexities of household decision-making processes, among other issues (Behrman et al., 2014). Sex-disaggregated data collection can be key to more accurate assessment of gender differences in asset ownership/control, decision-making capacity, access to resources, and benefits from interventions (Bamberger, 2013; Espinosa, 2013). This requires i) including questions that inquire as to women’s and men’s ownership, decision-making role, access, etc. and not simply the household’s and ii) collecting information from both women and men (Doss & Kieran, 2014). Furthermore, it is important to recognize that household headship analysis does not permit accurate gender analysis. Because women commonly are not household heads but rather their spouses, household head data collection can disregard the situation of a significant group of women (Doss & Kieran, 2014). Correspondingly, it can be important to consider whether household (concerning one household member) vs. intra-household survey design is better suited for the intervention’s M&E of expected outcomes (Alwang et al., 2017). It is also critical that questionnaires recognize that more than one household member may be involved in household decision-making and that agricultural and household responsibilities can be shared. Similarly, data collection should be based in a strong understanding of the context, recognizing the context-specific nature of gender dynamics (Doss & Kieran, 2014).

M&E of gender-based challenges in climate services

The present section addresses how to include gender equality considerations in evaluation of climate services. Oftentimes the development of gender-aware indicators for climate services will be straightforward and require the sex-disaggregation of those already being used for M&E of access, use and benefit from climate services. However, in other cases gender analysis will be necessary to help identify indicators that get at the root causes of gender

inequalities. Correspondingly, the section emphasizes monitoring and evaluation of key factors that influence gender inequalities in access to and use of climate information. These concern accessibility of communication channels (Sections 2.1 and 2.2), usefulness of climate information products (Section 2.3), and women's and men's capacities to act on climate information (Section 2.3). The paper also provides suggestions for datasets that ought to be collected in order to evaluate the extent that climate services can contribute to gender-specific benefits, for example, women's enhanced role in agricultural decision-making and other aspects of empowerment (Section 2.4). Table 2 summarizes the datasets necessary for gender-aware monitoring and evaluation.

2.1 Access to group processes

It is important to assess at the initiation of a project the extent of gender inequalities in access to group processes and to monitor any changes in disparities over the course of the intervention. Groups can be important means for accessing climate information and trainings (Meinke et al., 2006; Ngigi et al., 2017); however, important gender differences in access to group processes can exist. For example, women are often limited from participating in trainings and meetings where climate-based advisories are shared and discussed due to norms that associate public meeting participation with men and restrict cross-gender interaction in public spaces (CICERO, 2018; Roncoli et al., 2009; Roncoli, Ingram, Kirshen, & Jost, 2003). Additionally, women's capacity to access agro-meteorological advisories and weather and climate information is enhanced when services and information sources are located within the village, where women's childcare and household responsibilities tend to take place (Venkatasubramanian et al., 2014; Zamasiya, Nyikahadzoi, & Mukamuri, 2017; Rengalakshmi et al., 2018). Specific membership requirements (i.e. membership fees, land ownership, head of household, etc.) can also prevent women from participating in farmers' groups and cooperatives (Venkatasubramanian et al., 2014; Manfre et al., 2013). Nonetheless, studies suggest that community-based and female-dominated groups can often allow women to access group processes important for climate information dissemination (Venkatasubramanian et al., 2014; Rengalakshmi et al., 2018; Coulier, 2016).

Given the significance of gender differences in access to group processes, it is paramount that M&E assess whether or not women and men belong to groups, what types of groups these may be, and the extent to which they are accessing weather and climate information through

these groups over the course of an intervention. Furthermore, to be truly gender-aware M&E will include qualitative and quantitative methods to analyse reasons for gender-based differences in access to group processes and any changes as a result of interventions. In particular, upon the project's conclusion, the extent to which interventions have promoted group processes that enable both women and men to access weather and climate information should be evaluated. Sample quantitative and qualitative questions to use for data collection on access to group processes are given in Appendices 1 and 2, respectively.

Table 2: Datasets necessary for gender-aware M&E of rural climate services

Gender-based challenge	Monitor	Evaluate
Access to group processes	Whether or not women and men belong to groups What types of groups Extent of access to weather and climate information through them	Promotion of group processes that enable women and men to access weather and climate information
Access to local sources and formats	Gender inequalities in access to local sources and formats of weather and climate information Sources and formats that women and men use the most for accessing weather and climate-related information	Availability of channels and formats that permit women's and men's access to weather and climate information Gender inequalities in awareness of weather and climate information
Information relevance and capacity to act on information	Gender differences in demand for weather and climate information products Gender differences in participation in agricultural decision-making Gender differences in access to productive resources necessary to act on information	Gender differences in usefulness of weather and climate information content for livelihoods decision-making.
Participation in decision-making		Gender differences in participation in agricultural decision-making

2.2 Access to sources and formats

It is critical at the onset of the project to assess gender inequalities in access to key local sources of information and formats and to analyse those sources and formats that women and men report using most significantly for accessing weather and climate information. For example, Information and Communication Technologies (ICTs) and radio can be useful

channels for information at a weather time-scale; however, there can exist gender-based constraints to access information transmitted via ICTs and other media, due to differences in access to those channels and differences in capacity to read and interpret certain information formats (Coulibaly et al., 2017; Kyazze, Owoyesigire, Kristjanson, & Chaudhury, 2012; Hampson et al., 2014; Owusu, Yankson & Frimpong, 2017; Tall et al., 2015a; Tall et al., 2015b; Stats4SD, 2017; Partey et al., 2018; CICERO, 2018; GSMA, 2012; Caine et al., 2015; Scott et al., 2004). Limited finances can often inhibit women from owning radios and cellular phones, although they may often share phones with others and/or rely on friends and family to provide access to communication assets (Wong, 2012; GSMA, 2012; Scott, McKemyey & Batchelor, 2004; Hampson et al., 2014; Blumenstock & Eagle, 2012; Stats4SD, 2017). Also, due to differences in schooling levels, men can have more familiarity with formats commonly used to present forecasts and climate data (Gumucio et al., 2018b; Duong et al., 2017). Household labor responsibilities can limit women's time available to listen to radio programs, as well (Venkatasubramanian et al., 2014; Poulsen, Sakho, McKune, Russo, & Ndiaye, 2015; Tall et al. 2015a; Archer, 2003; CICERO, 2018).

Consequently, gender differences in access to communication channels should be monitored over the course of an intervention. In particular, it is important to document what sources and formats men and women are accessing in order to learn weather and climate information. Qualitative and quantitative methods should be used to analyse reasons for gender inequalities in access to sources and formats. For instance, an important theme for analysis is women's and men's ownership of key communication assets, shared and individual. An issue for evaluation is the extent to which an intervention makes available the channels and formats that advance women's access to weather and climate information. An important area for evaluation is also the extent of gender inequalities in awareness of weather and climate information, as greater gender equality in awareness can be indicative of more gender-equal access to information (Gumucio et al., 2018a). Interventions should contribute to enhanced awareness, without disadvantaging women or men. Sample quantitative and qualitative questions to use for data collection on access to sources and formats are given in Appendices 1 and 2, respectively.

2.3 Differences in climate information relevance and capacity to act

Recognizing gender-specific information needs, it is important to assess how useful women and men find the content of weather and climate information products delivered, at the onset and over the course of the project. Socio-cultural norms concerning labor roles can influence the resources and decisions under women's and men's control; this in turn affects the types of weather and climate information that are useful to women and men (Tall et al., 2014; Carr et al., 2016b; Carr & Owusu-Daaku, 2016; Carr, Fleming & Kalala, 2016a). Consequently, it is essential that climate services provide information that is relevant to farmers' needs, without disregarding women or men. If there exist gender differences in usefulness of the array of weather and climate information available, it is important that these be diminished to both women's and men's benefit by the intervention's end. Correspondingly, an important indicator of relevance of the information can be demand for it. It can be key to monitor gender differences in demand over the course of the project, seeking to increase demand for both women and men. Sample quantitative and qualitative questions to use for data collection on information relevance are given in Appendices 1 and 2, respectively.

It is important to monitor not just relevance of content but also capacities to act on the information. Women can have less access to the financial capital and productive assets (e.g., farming equipment and seeds) needed to be able to act on climate-based advisories (Carr, 2014; Carr et al., 2016b; Poulsen et al., 2015; Coulibaly et al., 2015; Tall et al., 2015b). Furthermore, women's limited control of land and restricted involvement in decision-making over rain-fed crops (or agriculture in general) can make climate information for agriculture irrelevant for women (Carr & Onzere, 2017; Carr et al., 2016b; Roncoli et al., 2009; Poulsen et al., 2015; Serra & McKune, 2016; Carr, 2014; Carr & Owusu-Daaku, 2016). For these reasons, interventions from the onset will need to assess resource constraints and participation in agricultural decision-making to identify capacities to act on climate information. Sample quantitative and qualitative questions are given in Appendices 1 and 2, respectively, to use for data collection on the extent that access to productive resources and participation in decision-making are a factor of capacity to act.

2.4 Influence of climate services on women's participation in decision-making.

In some cases, climate services may help local actors challenge limiting gender roles (Mittal, 2016; Rengalakshmi et al., 2018). For example, access to weather forecasts has helped women to make informed agricultural decisions in cases in India – and their increased role in decision-making has influenced a shift in gender roles, wherein men are no longer the sole decision-makers and women are seen as more than farm laborers (Rengalakshmi et al., 2018). Such findings are critical, considering that capacity to make decisions is key to empowerment (Kabeer, 1999; Alkire et al., 2013). While participation in decision-making can be monitored in order to understand gender differences in capacities to act on weather and climate information, it is also important to evaluate the extent that access to climate information can contribute to women's enhanced role in agricultural and livelihood decision-making. Sample quantitative and qualitative questions are given in Appendices 1 and 2, respectively, to use for evaluation purposes.

In general, the datasets discussed coincide with those recommended by a CCAFS framework for participatory impact assessment of climate services (Tall, Davis & Agrawal, 2014). For example, the framework recommends data collection on men's and women's agricultural activities and decision-making roles, in order to assess capacities to act on information. It also emphasizes the importance of understanding which communication channels are most relevant to women and men, as well as the types of information women and men use for agricultural decision-making.

Despite coincidences, it is important to highlight that the CCAFS framework prioritizes detailed gender data collection as part of an initial assessment of the local context. In contrast, while recognizing the importance of understanding contextual specificities, the datasets recommended by the present paper capture the most prevalent gender-related challenges to access, use and consequently, benefit from climate services in order to regularly assess gender inequalities over the course of a project. It also includes datasets not noted in the pre-assessment (such as access to group processes) and emphasizes the importance of assessing impacts on decision-making.

Case Studies

Building on the previous discussions, we present three case studies of gender awareness applied in climate services M&E. Each of the studies concerns projects and programs still in progress. Most of the information analysed for the case studies are related to the design, approaches and indicators used in the M&E. The examples are helpful for considering how to incorporate good practices for gender-aware M&E, depending on a project's objectives and scope.

3.1 Climate services for agriculture: empowering farmers to manage risk and adapt to a changing climate in Rwanda

The Climate Services for Agriculture project, funded by USAID, works to establish stronger climate services in Rwanda to increase the resilience of farmers to climate change (https://ccafs.cgiar.org/building-climate-services-capacity-rwanda#.XBKr2_ZFxXI; Coulibaly et al., 2017). Gender-responsive practices that the project implements or plans to follow include sex-disaggregated data analysis and disaggregation of indicators by sex, where possible. Efforts were made to sample 50% women and 50% men respondents in each of Rwanda's provinces for the initial baseline household survey. The survey also asks questions about individual household members (e.g., the household head and spouse of household head) intermittently. Furthermore, while up until now largely quantitative data collection and analysis has been reported on, the project intends to incorporate qualitative methods, as well, as part of upcoming project evaluations. Gender equality outcomes are also incorporated into the project's theory of change.

Datasets collected through the baseline survey highlight that the project will assess and evaluate rates of access and use of climate services, disaggregated by sex (Coulibaly et al., 2017). Concerning access, the project assesses ownership, access and use of communication assets by women and men. It also assesses women's and men's awareness of general types of climate information and, if aware, whether or not women and men have received the information. With respect to access to specific types of climate information products and early warning, the project assesses what types of information women and men are receiving, and through which sources and formats they are receiving them.

The project also evaluates to what extent women and men found useful the specific climate information received and to what extent women and men were able to use the information (Coulibaly et al., 2017). Correspondingly, reasons that women and men give for not using the information are assessed, as well as the extent to which women and men are responsible for decisions on adapting farm activities. Recognizing that advisories on how to use the information for farm management can be an important influence on use, the project assesses whether or not the information that women and men received was accompanied with agricultural advisories, the extent to which women and men used them, and their reasons for not using them, as well. The project also assesses if women and men actively sought the specific types of information products. Additionally, the project assesses what weather and climate information products were used to inform which agricultural decisions, for those women and men who had reported using information received.

Because agricultural education programs and climate services trainings are key interventions of the project, the baseline survey also assesses women's and men's access to agricultural radio programs and access to trainings on climate information (Coulibaly et al., 2017).

Indicators required by the donor are gender-aware in that they require sex-disaggregation: number of people (women and men) using climate information to improve resilience to climate change; number of people (women and men) supported to adapt to climate change effects; number of people (women and men) trained in climate change adaptation (Coulibaly et al., 2017: 11).

3.2 Enhancing adaptive capacity of women and ethnic minority smallholder farmers through improved agro-climate information (ACIS) in South East Asia

The ACIS project, implemented in Vietnam, Laos and Cambodia, aims to improve the knowledge capacity of women and ethnic minorities by enhancing their access to and use of agro-climate information services (Simelton et al., 2018). Furthermore, ACIS highlights women's empowerment as an expected project outcome.

In terms of design, the project employs gender expertise, in that one of the main partners is CARE International, an organization with experience in interventions promoting gender equality. In particular, CARE participated in the design of the project M&E. The project also includes a Theory of Change that incorporates a focus on providing women and ethnic

minority (W&EM) farmers with improved access to climate information to enhance their decision-making authority (Coulier, 2016).

Gender-aware practices were used for data collection for the baseline study. Among the mixed methods employed, the project used a household survey, focus groups, direct observations, institutional stakeholder workshops, and key informant interviews (Coulier, 2016; Coulier & Wilderspin, 2016). The focus group discussions included mixed and single gender groups. Additionally, the household survey sought to follow standards of data collection from 50% women and 50% men. The survey included questions that inquired as to the women and men of the household. A recent evaluation has used a mixed methods approach, including single-gender focus groups discussions, as well (Simelton, Gammelgaard & Le, 2018).

In contrast to the Rwanda project discussed above, datasets from the ACIS baseline focus particularly on channels used by women and men to access climate information in general, rather than rates of access to particular types of climate information (Simelton et al., 2018; Coulier, 2016; Coulier & Wilderspin, 2016). For example, the sources used to access “forecasts and weather information” are assessed. The baseline also assesses sources used to access farming advice, as in the Rwanda project; however, the focus is not limited to farming advice that accompanies weather information. Baseline datasets highlight aspects of actionability (Simelton et al., 2018), rather than rates of use of information. For instance, the baseline assesses whether or not women and men found the information accessed i) timely, ii) understandable and iii) useful. Furthermore, the baseline assesses with whom women and men share information, after accessing it, in recognition of the capacity for social networks to serve as communication channels (Coulier & Wilderspin, 2016). A subsequent survey carried out in the context of a Participatory Scenario Planning (PSP) meeting collected follow-up information from women and men farmers concerning the understandability, usefulness, and relevance of the agro-advisories made available to them, as well as the time required to read them (Duong et al., 2017).

While the baseline survey might not collect as much detailed information concerning access and use as the instrument used in the Rwanda Climate Services for Agriculture project, it does collect additional information concerning household gender relations and women’s empowerment. For example, the baseline assesses to what extent responsibilities related to

homecare, farming, and meeting participation pertain to women or men in the household (Coulier & Wilderspin, 2016). It also examines what decision-making roles women and men assume concerning household finance and farming practices. Furthermore, the baseline assesses women's empowerment, collecting information on women's time available for leisure activities, whether they feel constrained to circulate freely and participate in community meetings, and whether they are satisfied with the household division of labor and with their participation in farm decision-making. Addressing the theme of women's and men's participation in group processes, the baseline also collects information on the types of community organizations in which women and men participate and whether they access information on weather and similar farming and livelihoods hazards through them.

3.3 Agrometeorological Advisory Program of Mali

The Agrometeorological Advisory Program of Mali began in the early 1980s and has had the purpose of promoting increased production of key staple and cash crops for enhanced food security through agro-meteorological advisories. In 2011, the Climate Change Resilient Development (CCRD) project, funded by USAID, led an assessment of the program (Carr, 2014). A follow-up assessment focusing on farmer use of the advisories was carried out in 2014 (Carr & Onzere, 2017).

The principal methodology used for the program assessments is based on the Livelihoods as Intimate Government (LIG) approach. LIG uses qualitative methods to analyse smallholders' vulnerability context, as conditioned by their livelihoods activities; from this understanding, the LIG then assesses the key agricultural practices and decisions for which farmers are responsible and determines behaviour changes and decisions that may have been influenced by the advisories (Carr, 2014; Carr & Onzere, 2017). The qualitative methods used consist of focus group discussions, structured and semi-structured interviews, and participant observation. Although the methodology may not expressly assess progress towards gender equality objectives, it is particularly useful for identifying groups or categories of farmers according to their vulnerability context. In this way, it can effectively evaluate diverse information needs and preferences, according to gender and other locally relevant social differences.

The assessment of the Mali Agrometeorological Advisory Program followed gender-aware, socially inclusive practices for data collection. For example, all data collection activities

sought to equally represent responses from women and men, taking into consideration seniority, a salient socio-economic attribute in Mali (Carr, 2014). Focus group discussions were also stratified according to gender and seniority, and respondents were paired with same-sex interviewers. Information collected through focus group discussions targeted livelihoods, particularly agricultural practices, and challenges and hazards perceived, in order of prioritization. Individual interviews collected more detailed information on livelihoods, including agricultural decisions and changes made in the past agricultural season. Consequently, the datasets sought to capture information that can explain the relevance of weather and climate information to different types of farmers' livelihoods activities and agricultural decisions and, according to this, evaluate how effectively the climate information products disseminated to farmers through the program meet their needs (Carr & Onzere, 2017).

In summary, the case studies help to consider how gender-aware M&E approaches may be consistent across projects but also vary according to project objectives. All of the case studies follow most of the good practices for ensuring that gender considerations are taken into account from the onset of M&E design. For example, they incorporate gender equality objectives into the theory of change and make sure to include gender analysis in baseline socio-economic assessments. While information may be lacking concerning the extent to which the projects sought out gender expertise for M&E design, the ACIS project did rely on CARE for development of a gender-aware M&E system. The case studies also give varied examples of mixed and qualitative methodologies designed for monitoring and evaluating gender and social inequalities in access to and use of climate information. In particular, the Mali assessment demonstrates how qualitative methods can be used to gain a deep understanding of the relevance of weather and climate information products to the livelihoods activities and agricultural decision-making of farmers, according to gender and other socioeconomic attributes. Depending on the significance of women's empowerment to the project's outcomes, the case studies collect information related to empowerment indicators. This explains why the ACIS project collects significant information related to women's empowerment and household gender relations, as empowerment of women and ethnic minorities is a primary expected outcome. Concerning standards for sex-disaggregated data collection, all of the case studies seek to equally represent women and men in data collection samples. They also varyingly include information that inquires about women and men, for

example, asking about women and men of the household in general, or members of the household besides the respondent or household head.

Conclusions and recommendations

Incorporation of gender equality outcomes in the M&E system is important in order to ensure that rural climate services do not exacerbate gender inequalities, but rather reduce them.

While additional research and piloting of methodologies specific to climate services is necessary, the working paper draws from ongoing interventions and the knowledge base from related sectors to identify good practices and guidelines for gender-aware M&E for climate services.

Literature from the rural development sector highlights that drawing upon existing empowerment frameworks, using mixed methods and participatory tools, and following gender-aware interview practices are important good practices for effectively measuring change related to gender inequalities. Furthermore, practices related to incorporating gender equality objectives in the theory of change, providing gender support to M&E staff, and making sure to include gender analysis in preliminary socio-economic assessments are key to ensuring that gender considerations are taken into account in M&E design as early as possible. It is also critical to meet minimum standards of sex disaggregated data collection and analysis, in order to ensure accurate gender analysis.

The paper also discusses key datasets to be collected for gender-aware rural climate services M&E. These focus on gender-based factors that influence inequalities in access and use of climate information, specifically: i) access to group processes, ii) access to sources and formats, iii) relevance of weather and climate information, and iv) capacities to act on information. Concerning impacts, it is particularly critical to evaluate the contributions of rural climate services to women's participation in agricultural decision-making.

The three case studies demonstrate the application of several key good practices of gender-aware M&E in climate services. They also illustrate how M&E approaches can vary, depending on the project's objectives.

Together, the review of lessons learned, assessment of gender-based challenges, and case studies indicate the following key insights for gender-aware climate services M&E.

Collect information on key gender differences and trends that influence inequalities in access and use

It is important that baseline assessments collect information on key gender differences and trends that can influence inequalities in access and use, specifically: access to group processes, access to local sources and formats, relevance of information products, and capacities to act on information. The case studies for the most part adhere to this, collecting information to varying degrees for each theme, except for the Mali evaluation, which was not involved in early stages of the intervention. Making sure to incorporate gender analysis in preliminary and baseline socio-economic assessments can help ensure that gender considerations are taken into account from the onset of M&E design.

Use mixed methods to monitor and evaluate gender and social inequalities in access and use

While it can be challenging to measure changes related to gender inequalities, mixed methods data collection and analysis can help promote an accurate and complete assessment of changes in the factors influencing inequalities in access and use.

Include women's empowerment indicators according to the project's expected outcomes

It is important to include indicators related to gender equal access and use of weather and climate information; however, depending on the significance of women's empowerment to the project's outcomes, it is also necessary that indicators targeting aspects of women's empowerment be used. Existing frameworks for measuring women's empowerment in agriculture (e.g., WEIA and gender transformative CSA) can be drawn upon for the development of appropriate indicators. Furthermore, comparing women's degree of empowerment with men's can help evaluate changes across women's and men's tasks, roles and behaviours.

Assess impacts on women’s participation in agricultural decision-making

Despite variations across projects’ expected outcomes, the aspect of empowerment that gender-aware climate services should be sure to include in evaluation of benefits is changes in women’s and men’s participation in agricultural decision-making.

Collect information from women and men, about women and men

To permit accurate gender analysis, it is also paramount that surveys include questions that ask about women and men (“who” questions) and that information is collected from both women and men. The appendices give examples of questions to include in data collection instruments for the key factors influencing gender inequalities in access and use and for assessment of changes in women’s empowerment (participation in decision-making) due to climate services.

The paper particularly emphasizes the importance of collecting datasets that capture key factors underlying gender inequalities in access and use of climate services. In this way, M&E for rural climate services can help ensure that both women and men benefit and identify opportunities for climate services to contribute to aspects of women’s empowerment. Gender equality is key to sustainable rural development; correspondingly, gender-aware M&E is critical to ensure that climate services truly serves as a tool for smallholder resiliency in the face of climate variability and change.

Appendix 1: Quantitative survey questions¹

1. Group participation

	Are you a member of [group]? 1-Yes 2-No	If yes, do you talk about how weather and hazards affect your farming practices or livelihoods and what you can do about it in [group]? 1-Yes 2-No
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¹ The tables draw from baseline survey questions used for the CCAFS projects, “Climate services for agriculture in Rwanda” and “Enhancing adaptive capacity of women and ethnic minority smallholder farmers through improved agro-climate information in South East Asia (ACIS).”

Farmer or livelihood-based group		
Cooperative		
Savings and loan group		
Disaster preparedness or search and rescue team		
Women's group		
Other (please specify):		

	<p>If you are not a member of a community group, what are the reasons?</p> <p>1-Yes</p> <p>2-No</p>
There are no such groups in my village	
I have no time	
The meeting place is too far away	
I don't speak the language	
I do not have permission from my husband/wife to go	
I'm not interested	
I don't know	

2. Access to sources and formats

Climate information	Have you heard of [information]? 1-Yes 2-No	Did you receive [information]? 1-Yes 2-No	If yes, from which source(s) have you been receiving [information]? 1-radio 2-television 3-extension 4-NGO project officers 5-neighbors 6-relatives 7-community group (mentioned above) 8-cel phone 9-village meetings 10-village elders 11-internet 12-other (specify)	If yes, under which format(s) did you receive [information]? 1-phone calling 2-SMS 3-face-to-face individual 4-face-to-face group 5-audio 6-audio-visual 7-newspaper 8-poster 9-fliers 10-online 11-graphs 12-other (specify)	Did you actively seek [information]? 1-yes 2-no
Forecast of an extreme event					
Forecast of the start of the rains					
Forecast of the rains for the following 2-3 months					
Forecast for today's weather and next 2-3 days					
Forecast for parasites or plant/animal diseases					
Early warning for a flood					
Early warning for a drought					
Early warning for a severe storm					
Historical information					

	Does anyone in your household own [asset]? 1-yes 2-no	If yes, who owns [asset]? (use IDs)	If yes, who accesses [asset]? (use IDs)
Radio			
Cell phone			
TV			
Computer			

3. Information relevance and capacity to act on information

Climate information received	If you received [information], how would you rate its usefulness to support your agricultural activities and livelihood? 1-very useful 2-useful 3-neither useful nor useless 4-not useful 5-not useful at all	To what extent were you able to use [information]? 1-very large extent 2-large extent 3-medium extent 4-small extent 5-not at all	To what extent were you the one to decide how to adapt your farm activities and livelihood based on [information]? 1-very large extent 2-large extent 3-medium extent 4-small extent 5-not at all	If you do not use [information] to a large extent, can you tell us why? 1-information was too general, not specific to our village 2-information was too complicated to understand 3-did not trust in the information provided 4-information not accurate 5-did not understand the language 6-there was no advice provided to support our agricultural decisions 7-lack of farm inputs 8-lack of labor 9-lack of land access/ownership 10-lack of financial capital
Forecast of an extreme event				
Forecast of the start of the rains				
Forecast of the rains for the following 2-3 months				

Forecast for today's weather and next 2-3 days				
Forecast for parasites or plant/animal diseases				
Early warning for a flood				
Early warning for a drought				
Early warning for a severe storm				
Historical information				

4. Participation in decision-making

	In your household who (use IDs):
Decides what to plant as major crops?	
Decides when to plant the major crops?	
Decides when to harvest the major crops?	
Decides on what agricultural inputs such as seed/fertilizer/tools are needed?	
Buys agricultural inputs such as seed/fertilizer/tools?	
Sells agricultural produce (crops, livestock, fish) at markets?	
Hires outside labor to work on the farm?	
Negotiates with middlemen or companies buying agriculture products?	
Decides what to do with the household income?	
Decides on getting a loan?	
Decides when to sell household assets?	
Attends farmer groups or cooperatives?	
Attends government or community meetings?	

5. Changes in decision-making

	<p>After accessing weather and climate information (through the program or intervention), how has your participation in [decision] changed?</p> <p>Much better Better The same Worse Much worse</p>
What to plant as major crops	
When to plant the major crops	
When to harvest the major crops	
What agricultural inputs are needed, such as seed/fertilizer/tools	

Appendix 2: Qualitative survey questions²

Access to sources and formats

(Please note that it can be important to discuss the concepts of weather and climate, prior to the below questions.)

1. Do you receive or access information about the weather?
2. What channels do you use to access information about the weather?
 - a. Please list all of them. (If not mentioned, ask for source of information and format used).
 - b. (For each channel listed) what particular information did you access the last time you used this channel?
3. Are there any channels you would like to be able to use? Which are these?
 - a. Why would you like to use them?
 - b. Why don't you use them now?
4. Repeat questions 1-3 for climate.

Group participation

(Use if the theme of groups does not come up significantly in the above)

1. Do there exist groups or organizations in your community where weather or climate information is shared?
2. Do you participate in these groups?
 - a. If yes, which ones? What is the purpose of the group(s)? How long have you been participating? How often do you attend? Do you hold any leadership positions?
 - b. If not, why?

² These questions are derived from survey questions used for the CCAFS projects, "Climate services for agriculture in Rwanda" and "Enhancing adaptive capacity of women and ethnic minority smallholder farmers through improved agro-climate information in South East Asia (ACIS)."

Information relevance and use of information

1. What are your main livelihood activities? How do you support yourself and your family?
2. What crops do you grow? What animals do you raise?
3. Describe to me a typical day you worked on the farm and at home (e.g., yesterday).
4. (For each weather and climate information mentioned above) Is the information that you receive useful? In particular, do you use it to make farm management or livelihood decisions?
 - a. If yes, which ones?
 - b. If no, why not?

Participation in decision-making

1. How are decisions made in your household on the use of land? In particular:
 - a. Who participates in making the decisions, and how?
 - b. If more than 1 person participates in making the decisions, is there a conversation?
 - c. (If the respondent does not make the decisions, ask) Do you provide any suggestions? How are those suggestions accepted by other members of your family?
2. How are decisions made on what agricultural inputs are needed? In particular:
 - a. Who participates in making the decisions, and how?
 - b. If more than 1 person participates in making the decisions, is there a conversation?
 - c. (If the respondent does not make the decisions, ask) Do you provide any suggestions? How are those suggestions accepted by other members of your family?
3. Repeat questions 2a and 2b for:
 - a. What to do with the household income
 - b. Getting a loan
 - c. When to sell household assets

Changes in decision-making

1. After accessing weather and climate information (through the program or intervention), how has your participation in decision-making on household land use changed?
 - a. Who participates in making the decisions now?
 - b. (If the respondent does not make the decisions, ask) Do you provide any suggestions now? How are those suggestions accepted by other members of your family?
2. Repeat questions 1a and 1b for what agricultural inputs are needed.

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Glossary³

Empowerment (women's)

An individual's increased freedom and capacity to act and make decisions for herself, especially in areas that had previously been restricted. This can occur through a greater sense of agency, decision-making authority, access to/control of resources, and institutional change, (whether in the form of official laws and policies and/or sociocultural norms).

Gender analysis

Assessment of existing gender inequalities, particularly important to document a project's impact on existing gender roles, responsibilities and relations over time. It also considers any interactions between gender and other factors (class, race, ethnicity, etc.)

Gender aware M&E

Acknowledging the differences between men and women, this type of M&E collects data on both genders to better understand their participation in an intervention as well as its impact on them.

Gender equality

Women and men receiving fair treatment with respect to their needs. Their rights -especially regarding decision-making authority, economic power, land rights, mobility, political or community engagement, and access to/use of resources and assets- should not differ depending on whether they are female or male. Commonly intersects with other forms of (in-)equality (based on age, class, ethnicity, religion, etc.).

Gender responsive M&E

Also known as gender-specific, attempts to measure the degree in which a project addresses the needs and interests of women and men.

³ Source: terms are adapted from Batliwala and Pittman, 2010; Kabeer and Subrahmanian, 1996; Hillenbrand et al, 2015; Demetriades, 2007; Espinosa, 2013; Brambilla, 2001; Bamberger 2011; World Bank, 2005; World Bank, 2009; Aguilar et al, 2006, as cited in Aguilar, 2009

Gender-sensitive indicator

Measures changes related to status and gender roles over time to determine whether/how a project has met its gender equality objectives. Assesses qualitative and/or quantitative changes, often based on sex-disaggregated data.



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