

## **Inclusion of gender equality in monitoring and evaluation of climate services**

Tatiana Gumucio, Postdoctoral Research Scientist, International Research Institution for Climate and Society, (corresponding author)

61 Route 9W, 133D Monell

Palisades, NY 10964-8000 USA

Saroja Schwager, Master's Student, Columbia University

### 1 Introduction

Monitoring and evaluation (M&E) is important in order to measure change effected by development interventions and ensure that expected outcomes and impacts are being achieved. Recognizing that gender relations underlie key development concerns (such as “who gains access to resources” and “who benefits”), attention to gender-based influences and effects is critical to monitoring and evaluation of rural development projects and programs, including interventions focused on climate services. While climate services can be a promising means of empowerment and resilience-building for rural women, they risk reinforcing the gender-based inequalities that are prevalent in other institutional structures if they fail to understand and effectively target the needs of women.<sup>1, 2, 3</sup>

The present working paper seeks to identify guidelines and recommendations for gender-aware M&E best suited to climate services, with a focus on system design and indicator development. A gender aware monitoring system is like a conventional one, except that it will often require collecting additional information on how women and men participate in and are affected by the intervention.<sup>4</sup> For example, there may be questions on women’s and men’s specific constraints to access and benefit from a

---

<sup>1</sup> Carlos Perez et al., “How Resilient are Farming Households and Communities to a Changing Climate in Africa? A Gender-Based Perspective,” *Global Environmental Change* 34 (2015): 105-106, <https://doi.org/10.1016/j.gloenvcha.2015.06.003>.

<sup>2</sup> Edward R. Carr, and Kwame N. Owusu-Daaku, “The Shifting Epistemologies of Vulnerability in Climate Services for Development: The Case of Mali’s Agrometeorological Advisory Programme,” *Area* 48, no. 1 (2016), 12-13, <https://doi.org/10.1111/area.12179>

<sup>3</sup> Edward R. Carr, and Sheila N. Onzere, “Really Effective (for 15% of the Men): Lessons in Understanding and Addressing User Needs in Climate Services from Mali, *Climate Risk Management* (March 2017), 10-11, <https://doi.org/10.1016/j.crm.2017.03.002>

<sup>4</sup> Michael Bamberger, “Nuts and Bolts: Engendering Monitoring and Evaluation,” *The Nuts and Bolts of M&E Systems* 27, no. 4 (2013): 6-7.

program, and the services and resources facilitated to respond to these differing capacities. Additional differentiation of women and men according to other socio-economic characteristics, such as wealth category and life stage, can be necessary also. Some information, like on household resistance to women's participation in interventions, or women's lack of control over productive resources, will require different methods of data collection not commonly used in conventional M&E, such as focus group discussions, social mapping, or in-depth interviews. Furthermore, gender-aware M&E will require special institutional support, knowledge of standards for sex-disaggregated data collection and analysis, and post-intervention follow-up.

The paper first presents a review of the literature concerning guidelines, toolkits and recommendations for gender-aware monitoring and evaluation in rural development interventions, especially those targeting the agricultural sector, in order to discuss challenges identified and lessons learned from past research and rural development initiatives. The discussion also considers how challenges and good practices may vary according to the intervention's approach, as gender-responsive or as gender-transformative. 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. Drawing on the literature review and on the summary of key gender and climate services themes, 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.

## 2 Literature Review

This section reviews the current state of gender-aware monitoring and evaluation (M&E) in agricultural development. Literature from 2000 onward was analysed to better understand the strengths and drawbacks of the methods most commonly used in M&E. After highlighting the differences between gender-responsive and gender-transformative M&E, we recommend a mixed methods approach that incorporates participatory tools. The major challenges of effective M&E are addressed and we conclude with a list of recommended best practices to ensure more gender-responsive, and in some cases transformative, results.

## 2.1 Gender-responsive and gender-transformative M&E

Gender-aware M&E can differ in its level of consideration of gender equality objectives, varying from responsive to more transformative commitment. Gender-responsive M&E seeks to measure the extent to which an intervention meets and alleviates gender-differentiated needs and constraints, respectively. Gender-transformative M&E is more proactive in its work to change existing gender power structures and grant women greater access to and control over resources.<sup>5</sup> Both are considered a learning process that is evolving and flexible in nature.<sup>6</sup> Both types of M&E also recognize the need for more nuanced understanding of gender differences<sup>7</sup> and that the use of gender-inclusive language in policies and interventions can also legitimize women's sense of power.<sup>8</sup>

Due to its focus on changing the distribution of wealth and resources, gender-transformative M&E is highly political in nature, thus requiring more long-term strategy and commitment.<sup>9</sup> Because it addresses the underlying norms and structures that maintain and support gender inequalities, gender-transformative M&E needs to consider both the formal dimensions (law, politics, resources) and informal dimensions (social and cultural norms, practices and dynamics) where these inequalities occur.<sup>10</sup>

## 2.2 Methods for gender-aware M&E

Gender-aware data collection and analysis must reconcile with several methodological hindrances. First, gender roles and dynamics are heavily influenced by larger contextual factors that are often complex in nature. Furthermore, gender

---

<sup>5</sup> Naila Kabeer, and Ramya Subrahmanian, *Institutions, Relations and Outcomes: Framework and Tools for Gender-aware Planning* (Brighton, UK: Institute of Development Studies, 1996), 12.

<sup>6</sup> Srilatha Batliwala, *Strengthening Monitoring and Evaluation for Women's Rights: Thirteen Insights for Women's Organizations* (Toronto, CA: Association for Women's Rights in Development, 2011), 7.

<sup>7</sup> Bamberger, "Nuts and Bolts," 9.

<sup>8</sup> Tyagi, Niharika, and Smriti Das. "Assessing Gender Responsiveness of Forest Policies in India," *Forest Policy and Economics* 92 (2018): 164-6, <https://doi.org/10.1016/j.forpol.2018.05.004>.

<sup>9</sup> Emily Hillenbrand et al., *Measuring Gender-Transformative Change: A Review of Literature and Promising Practice* (CARE USA, October 2015), 47.

<sup>10</sup> Srilatha Batliwala, and Alexandra Pittman, *Capturing Change in Women's Realities: A Critical Overview of Current Monitoring & Evaluation Frameworks and Approaches* (Toronto, CA: Association for Women's Rights in Development, 2010), 20.

relations can include sensitive issues concerning power imbalances, gender-based violence, sexual activity and abuse, and significant disparities in asset ownership and control.<sup>11</sup> Because of such complexities, the success of M&E efforts can depend on the methods used.

Based on a review of past practices, we recommend a mixed methods approach in conducting gender-aware M&E. A combination of both quantitative and qualitative approaches, with participatory tools, can triangulate data collected<sup>12</sup> and gain a more holistic understanding of the larger gender context.<sup>13</sup> Quantitative methods provide more unbiased evidence of existing gender inequalities. But while quantitative methods can document whether change occurred, they are limited in conveying the reasons behind that change. Qualitative methods, by invoking the opinions and experiences of the participants directly, can better capture the mechanisms behind a change. However, such efforts often require more resources in terms of training, time and manpower. Participatory M&E can facilitate the identification of information that is important to the local community and the selection of highly relevant indicators.<sup>14</sup> By being included in the M&E process, the participants then feel a greater sense of ownership and empowerment.<sup>15</sup> Participatory methods are especially valuable because they can capture instances where people recognize change as it occurs<sup>16</sup> and identify the broader impact of an intervention project on existing gender and social norms.<sup>17</sup>

---

<sup>11</sup> Bamberger, "Nuts and Bolts," 2.

<sup>12</sup> Julia Behrman et al., *A Toolkit on Collecting Gender and Assets Data in Qualitative and Quantitative Program Evaluations* (Washington, D.C.: IFPRI, 2014): 24.

<sup>13</sup> Julia Espinosa, "Moving Towards Gender-sensitive Evaluation? Practices and Challenges in International-development Evaluation," *Evaluation* 19, no. 2 (2013): 178, <https://doi.org/10.1177/1356389013485195>

<sup>14</sup> Solomon Asfaw, and Giuseppe Maggio, *Gender Integration into Climate-Smart Agriculture: Tools for Data Collection and Analysis for Policy and Research* (Rome: Food and Agriculture Organization of the United Nations, January 2016): 6.

<sup>15</sup> Justina Demetriades, *Gender Indicators: What, Why and How?* (Brighton, UK: BRIDGE Institute of Development Studies, 2007), 2.

<sup>16</sup> Paola Perezniето, and Georgia Taylor, "A Review of Approaches and Methods to Measure Economic Empowerment of Women and Girls," *Gender & Development* 22, no. 2 (2014): 247, <https://doi.org/10.1080/13552074.2014.920976>

<sup>17</sup> Nancy Johnson et al., "Gender, Assets, and Agricultural Development: Lessons from Eight Projects," *World Development* 83 (2016): 295, <https://doi.org/10.1016/j.worlddev.2016.01.009>

### 2.3 Challenges of gender-aware M&E

Gender-aware M&E can face challenges at multiple levels or stages of the process. Issues can occur at the institutional level, concerning the actual organization carrying out the M&E. Furthermore, because effective M&E is highly dependent on strong design, gender considerations are important at this stage.

#### 2.3.1 Within funding support

Donor priorities can heavily influence M&E targets.<sup>18</sup> As a result, most evaluations can reflect the needs of the donor and not the project stakeholders.<sup>19</sup> Although gender equality and women's empowerment are increasingly being recognized as a priority for M&E, strong political will to promote gender-aware M&E can still be lacking. This then contributes to weaker institutional capabilities on the part of the organization or agency leading an intervention.<sup>20</sup>

#### 2.3.2 Within the institution

Many organizations may lack a strong M&E culture and when M&E is conducted, it may be carried out informally and lack sufficient planning.<sup>21</sup> An organization's capacity to gather and share collective knowledge with its staff, external partners and project stakeholders is then limited.<sup>22</sup>

Due to larger institutional and political disregard of complex gender dynamics, M&E staff can face pressure to compare different gender-aware projects to determine best practices. While gender inequality is nearly universal, broad comparisons can lose sight of the specific factors that contribute to such inequities and therefore result in more generalized understanding. Additionally, tension can develop between

---

<sup>18</sup> Demetriades, *Gender Indicators*, 4.

<sup>19</sup> Irene Guijt, "Critical Readings on Assessing and Learning for Social Change: A Review," *IDS Development Bibliography* 21 (Brighton, UK: Institute of Development Studies, 2008), 9.

<sup>20</sup> Espinosa, "Moving Towards," 179.

<sup>21</sup> Quisumbing, Agnes, and Lauren Pandolfelli, "Promising Approaches to Address the Needs of Poor Female Farmers: Resources, Constraints, and Interventions," *World Development* 38, no. 4 (2010): 589, <https://doi.org/10.1016/j.worlddev.2009.10.006>

<sup>22</sup> Batliwala, *Strengthening Monitoring and Evaluation*, 4-5.

communicating context-specific findings and making information broader and more accessible.<sup>23</sup>

While challenges can exist throughout these different levels of gender-aware M&E, they are most obvious and pressing in the design phase of its practice.

### 2.3.3 Within M&E design

Efforts to carry out gender-aware analysis can be hindered by data availability and budgetary constraints. The World Bank<sup>24</sup> found that local governments do not always collect and share gender-disaggregated data. The costs related to its collection can also affect the strength and accuracy of the data. Proxy responses -often the most inexpensive option- can be flawed because of inference errors and biased answers, especially considering that the respondent is usually a man. Household decision-making is a complex process to analyse. But while separate interviews with men and women can result in the most accurate and nuanced analysis, they also require the greatest time and financial commitment.<sup>25</sup>

Planners often do not fully consider the importance of gender issues during the M&E design stage and consequently leave it out of their preparations.<sup>26</sup> Even when gender is considered, the evaluation process may not consider different types of women and men.<sup>27</sup> M&E practitioners themselves can hold personal biases and misconceptions, as well<sup>28, 29,30</sup>

---

<sup>23</sup> Kimberly Bowman, and Caroline Sweetman, "Introduction to Gender, Monitoring, Evaluation and Learning," *Gender & Development* 22, no. 2 (2014): 209, <https://doi.org/10.1080/13552074.2014.934525>.

<sup>24</sup> World Bank, "Module 16: Gender Issues in Monitoring and Evaluation" In *Gender in Agriculture Sourcebook* (Washington, DC: World Bank, 2009), 678.

<sup>25</sup> C. Leigh Anderson, Travis W. Reynolds, and Mary Kay Gugerty, "Husband and Wife Perspectives on Farm Household Decision-making Authority and Evidence on Intra-household Accord in Rural Tanzania," *World Development* 90 (2017): 181, <https://doi.org/10.1016/j.worlddev.2016.09.005>.

<sup>26</sup> World Bank, "Module 16," 677.

<sup>27</sup> Perezniето and Taylor, "A Review of Approaches," 244.

<sup>28</sup> Jeffrey Alwang, Catherine Larochelle, and Victor Barrera, "Farm Decision-making and Gender: Results from a Randomized Experiment in Ecuador," *World Development* 92 (2017): 118, <https://doi.org/10.1016/j.worlddev.2016.11.015>.

<sup>29</sup> Perezniето and Taylor, "A Review of Approaches," 247.

<sup>30</sup> World Bank, "Module 16," 720.

The frameworks and tools used in M&E possess their own limitations. While they may be able to capture if change occurred, they can lack the ability to identify the reasons for that change.<sup>31</sup> Furthermore, difficulties remain in differentiating between temporary change and more long-term, sustainable change, making it challenging to decipher project impacts within a project's funding timeline.<sup>32</sup> Most M&E tools also rarely measure initial resistance towards an intervention. Or, if they do, simply deem it evidence of project failure.<sup>33</sup>

Finally, many specific components of gender inequality are difficult to measure. Women's empowerment and poverty are largely abstract concepts and some issues, like gender-based violence and gender dynamics in conflict situations, are highly sensitive.<sup>34</sup> There is still limited understanding of women's agency in a number of areas, including their: decision-making ability at various levels (household, community, institutional) of society; access to and control of productive resources; ability to participate in development projects; and limited access to and use of a project's benefits.<sup>35</sup> A prevailing use of the "unitary" household model can also create greater misunderstanding around gender differences in the access to and use of household assets.<sup>36</sup>

#### 2.4 Good practices and lessons learned

What follows are recommendations for different phases of the M&E process to make it more gender-aware. The greatest attention is given to the design phase due to the fact that gender-aware M&E is more successful when it is thoughtfully planned from a development project's onset. The recommendations below pertain mostly to gender-responsive M&E; however, where they may promote gender-transformation, this is indicated.

---

<sup>31</sup> Batliwala and Pittman, *Capturing Change*, 20.

<sup>32</sup> World Bank, "Module 16," 705.

<sup>33</sup> Radhika Govinda, "Mapping 'Gender Evaluation' in South Asia," *Indian Journal of Gender Studies* 19, no. 2 (2012): 197. <https://doi.org/10.1177/097152151201900202>.

<sup>34</sup> Annalise Moser, *Gender and Indicators: Overview Report* (Brighton, UK: BRIDGE Institute of Development Studies, 2007): 26.

<sup>35</sup> Bamberger, "Nuts and Bolts," 2.

<sup>36</sup> Behrman et al., "A Toolkit on Collecting," 10.

Level/stage of M&E	Gender-responsive action	Transformative?
At the institutional/donor level	Deploy incentives for staff to employ gender-aware approaches, for example: employing external evaluators or donor staff that require compliance with a Gender Action Plan; conducting performance evaluations; following up with publicity and/or awards to those who demonstrate strong gender awareness in their work <sup>37</sup>	
	Provide additional support to local statistics offices in order to generate more gender-aware data <sup>38</sup>	
When designing approaches	Include experts familiar with gender and economic empowerment initiatives in the M&E design and data analysis stages in order to ensure that an intervention incorporates gender concerns from the beginning <sup>39, 40</sup>	
	A clearly established framework and/or theory of change can help identify how and where change (in empowerment, gender inequalities) occurs because of an intervention, thereby enabling a more tailored evaluation to fit that change progression <sup>41</sup>	
	Collect sex-disaggregated data to more accurately capture gender differences in asset ownership/control, decision-making ability, access to resources, and impact of interventions. <sup>42, 43</sup> This is especially important in situations where men and women may disagree in their perceptions of power and control <sup>44</sup>	Yes
	Use mixed methods that combine quantitative data with qualitative evidence. Focus group discussions in particular are good opportunities to better identify the reasoning behind a certain belief, activity or decision. <sup>45</sup> Qualitative methods should also include open-ended questions and direct recordings of	Yes

<sup>37</sup> World Bank, "Module 16," 678.

<sup>38</sup> Demetriades, *Gender Indicators*, 9.

<sup>39</sup> Moser, *Gender and Indicators*, 44.

<sup>40</sup> Perezniето and Taylor, "A Review of Approaches," 246.

<sup>41</sup> Perezniето and Taylor, "A Review of Approaches," 240.

<sup>42</sup> Bamberger, "Nuts and Bolts," 5.

<sup>43</sup> Espinosa, "Moving Towards," 180.

<sup>44</sup> Anderson et al., "Husband and Wife Perspectives," 181.

<sup>45</sup> Johnson et al., "Gender, Assets," 303.

	women's experiences and voices to present women's perspectives and ensure accuracy <sup>46</sup>	
	<p>In particular, collect information on:</p> <ul style="list-style-type: none"> <li>- Gender division of labor, gender roles and power relations from the household to suprahousehold level<sup>47, 48</sup></li> <li>- Individual asset ownership in order to better understand unequal asset distribution<sup>49</sup></li> <li>- Decision-making authority regarding important household, family, and livelihood issues, including any conflicting views of husbands and wives.<sup>50</sup> It is also useful to measure changes in women's ability to make household decisions as evidence of shifting agency and power<sup>51</sup></li> </ul>	Yes
	<p>When collecting data, also:</p> <ul style="list-style-type: none"> <li>- Weigh single-person (or proxy) responses vs. surveys of every household member in order to determine which one will more effectively capture differing gender perspectives of household decision-making authority<sup>52</sup></li> <li>- Survey men and women separately, as multiple studies have shown it provides more honest and accurate answers<sup>53, 54</sup></li> <li>- Assign women roles as interviewers and/or provide M&amp;E staff with gender-aware training. This step can help reduce gender biases and assumptions, increase the comfort and openness of women participants, and better capture sensitive, gender-specific issues<sup>55, 56</sup></li> </ul>	

<sup>46</sup> Perezniето and Taylor, "A Review of Approaches," 245.

<sup>47</sup> Ibid, 240.

<sup>48</sup> Asfaw and Maggio, "Gender Integration," 7.

<sup>49</sup> Behrman et al., "A Toolkit," 10.

<sup>50</sup> Anderson et al., "Husband and Wife Perspectives," 172.

<sup>51</sup> Perezniето and Taylor, "A Review of Approaches," 242.

<sup>52</sup> Alwang et al., "Farm Decision-making," 118.

<sup>53</sup> Anderson et al., "Husband and Wife Perspectives," 172.

<sup>54</sup> Behrman et al., "A Toolkit on Collecting," 59.

<sup>55</sup> Paola Brambilla, *Gender and Monitoring: A Review of Practical Experiences* (Brighton, UK: Institute of Development Studies, BRIDGE, June 2001): 5.

<sup>56</sup> F. Graef et al., "Systemizing Gender Integration with Rural Stakeholders' Sustainability Impact Assessments: A Case Study with Three Low-input Grading Strategies," *Environmental Impact Assessment Review* 68 (2018): 87, <https://doi.org/10.1016/j.eiar.2017.10.004>

	Implement a self-monitoring system (using process monitoring and/or outcome monitoring <sup>57</sup> ) to further encourage women's empowerment <sup>58</sup>	Yes
<ul style="list-style-type: none"> <li>▪ Also relevant to indicator design</li> </ul>	<ul style="list-style-type: none"> <li>▪ Incorporate a strong contextual understanding, including analysis of the larger social, economic, political, market and institutional factors<sup>59</sup></li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Involve local women and men in a participatory design of indicators to encourage active contribution to and ownership of the intervention<sup>60</sup></li> </ul>	Yes
	<ul style="list-style-type: none"> <li>▪ Conduct a gender-aware baseline study to assess and record existing social, economic, political structures that contribute to gender inequalities<sup>61</sup></li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Establish mechanisms to track any potentially negative impacts such as backlash or resistance<sup>62</sup></li> </ul>	Yes
During analysis	Compare single-headed and dual-headed households <sup>63</sup> to determine gender differences in asset ownership <sup>64</sup>	
	Gender-transformative M&E is concerned with changing existing power structures and redistributing resources and can subsequently influence the rate of violence against women. Therefore, information on gender-based violence (change in frequency, occurrence, etc.) should be included. <sup>65</sup>	Yes

<sup>57</sup> Process monitoring involves performance measurements while a project is still ongoing in order to assess its functionality and enable any necessary adjustments. Outcome monitoring attempts to identify any changes as a result of a project, commonly around living conditions, empowerment or socioeconomic status (O'Leary, 2017, 29).

<sup>58</sup> Susan O'Leary, "Grassroots Accountability Promises in Rights-based Approaches to Development: The Role of Transformative Monitoring and Evaluation in NGOs," *Accounting, Organizations and Society* 63 (2017): 30, <https://doi.org/10.1016/j.aos.2016.06.002>

<sup>59</sup> Perezniето and Taylor, "A Review of Approaches," 240.

<sup>60</sup> Espinosa, "Moving Towards," 177-178.

<sup>61</sup> *World Bank, Gender Issues in Monitoring and Evaluation in Rural Development: A Tool Kit* (Washington, DC: World Bank, 2005): 2.

<sup>62</sup> Batliwala, *Strengthening Monitoring and Evaluation*, 5.

<sup>63</sup> Single-headed households contain only one adult with decision-making authority for the care and maintenance of the house and its members. A dual-headed household will have two adults in this position, most commonly spouses, who share control and responsibilities.

<sup>64</sup> Smriti Rao, "Indicators of Gendered Control Over Agricultural Resources: A Guide for Agricultural Policy and Research," *CGIAR Working Paper No. 1* (Cali, Colombia: CGIAR Gender and Agriculture Research Network, CGIAR Consortium Office & International Centre for Tropical Agriculture, 2016): 15.

<sup>65</sup> Hillenbrand et al., *Measuring Gender-Transformative*, 18.

Post-intervention	Create a communication plan to guarantee the distribution and accessibility of findings to relevant stakeholders, including practitioners and researchers <sup>66, 67</sup>	

### 3 Climate Services and Gender

The present section addresses how to include gender equality considerations in evaluation of climate services. It is important to consider how the good practices for gender-aware (gender-responsive and gender-transformative) monitoring and evaluation identified in the previous section apply to climate services. In particular, this section will focus on gender analysis necessary for the development of gender-aware indicators. Many times the development of gender-aware indicators for climate services will be straightforward and require the sex-disaggregation of those already being used. However, in other cases gender analysis will be necessary to help identify indicators that get at the root causes of gender inequalities. The following section gets at key gender-based challenges that can contribute to differences in how women and men farmers access and use climate services. It also includes research questions to address via quantitative and qualitative methods. Besides disaggregation of already existing indicators concerning access and use, it will be important to use mixed methods to critically evaluate women’s and men’s perspectives on accessibility of communication channels (3.1 and 3.2), usefulness of climate information products (3.3), and their capacities to act on and demand climate information (3.3). Section 3.4 indicates additional issues to analyse in order to develop more gender-transformative indicators, that address factors underlying gender inequalities.

#### 3.1 Access to group processes

Although the theme requires additional research, the differences in women’s and men’s networks and group processes available to them can have important implications for their access to climate information. The type and scope of men’s networks can be more advantageous for sharing and accessing agro-climatic information. For example, women may tend to interact with informal, local-level and family-based networks, while men’s networks may be more expansive, including

<sup>66</sup> Espinosa, “Moving Towards,” 179.

<sup>67</sup> World Bank, *Gender Issues in Monitoring*, 2.

formal institutions such as government agencies, extension services, and international NGOs.<sup>68, 69, 70</sup> Correspondingly, studies in Rwanda and Southeast Asia suggest that men might tend to share agro-climatic information learned via trainings beyond the family (i.e., with peers) slightly more than women do.<sup>71, 72, 73</sup> Other research shows that men tend to acquire climate information via their social groups more than women.<sup>74</sup>

Institutional biases and differential access to group processes, like farmers' groups, can influence women's and men's varying access to technical information, trainings, and planning processes related to agro-advisories and climate risk management. Group-based approaches can help farmers share knowledge and build resilience to climate risk<sup>75, 76</sup>; however, farmers' group membership requirements can limit women's access to agro-climatic information.<sup>77</sup> Land ownership and fee-based

---

<sup>68</sup> Perez et al., "How Resilient are Farming," 105.

<sup>69</sup> Cristina Manfre, and Caitlin Nordehn. *Exploring the Promise of Information and Communication Technologies for Women Farmers in Kenya* (Washington, D.C.: USAID, 2013), 4.

<sup>70</sup> Laura Cramer et al., "Connecting Women, Connecting Men: How Communities and Organizations Interact to Strengthen Adaptive Capacity and Food Security in the Face of Climate Change," *Gender, Technology and Development* 20, no. 2 (2016): 190, <https://doi.org/10.1177/0971852416639771>.

<sup>71</sup> Graham Clarkson et al., *Climate Services for Agriculture in Rwanda: Initial Findings from PICSA Monitoring and Evaluation*, (Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), October 2017), 4.

<sup>72</sup> Miguel Coulier, and James Wilderspin, *ACIS Project – Baseline Report Cambodia* (Wageningen, Netherlands, CGIAR Research Program on Climate Change, Agriculture and Food Security, November 2016), 37.

<sup>73</sup> Miguel Coulier, *ACIS Project – Baseline Survey Report Vietnam* (Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2016), 3.

<sup>74</sup> Marther W. Ngigi et al., "Gender Differences in Climate Change Adaptation Strategies and Participation in Group-Based Approaches: An Intra-Household Analysis from Rural Kenya," *Ecological Economics* 138 (2017): 103, <https://doi.org/10.1016/j.ecolecon.2017.03.019>

<sup>75</sup> Holger Meinke et al., "Actionable Climate Knowledge: From Analysis to Synthesis," *Climate Research* 33 (2006): 106, <https://doi.org/10.3354/cr033101>

<sup>76</sup> Ngigi et al., "Gender Differences in Climate," 101.

<sup>77</sup> Kalpana Venkatasubramanian et al., "Assessment of India's Integrated Agro-meteorological Advisory Service Program from a Farmer Perspective," *CCAFS Working Paper No. 54* (Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2014), 27.

criteria may tend to exclude women from membership-based groups such as producer associations or cooperatives. Notwithstanding, other studies show that community-based and female-dominated groups can allow women to access group processes important for climate information dissemination.<sup>78, 79, 80</sup>

Climate services can contribute to gender equality outcomes by promoting group processes that enable women to access weather and climate information. It is important for monitoring and evaluation to collect information concerning 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.

### 3.2 Other challenges to access communication channels

Women and men can also experience varied access to ICTs and media, particularly useful for communicating information at a weather timescale. Due to financial resource constraints and socio-cultural norms surrounding ownership of communication assets, women can tend to own radios less than men. For similar reasons, plus gaps in technical literacy, women are less likely to own or access ICTs than men. Consequently, women and men can have differing access to routine weather information and advisories.

For media and ICT services to be useful to women, they must be aligned with their livelihood goals and incorporate time-saving mechanisms.<sup>81</sup> For example, time poverty can inhibit women from listening to agricultural education programs on the

---

<sup>78</sup> Venkatasubramanian et al., "Assessment of India's Integrated," 32, 35, 36.

<sup>79</sup> R. Rengalakshmi et al., "Making Climate Information Gender Sensitive: Lessons from Tamil Nadu," *Economic and Political Weekly* 53, no. 17 (2018): 93.

<sup>80</sup> Coulier, *ACIS Project – Baseline*, 3-4.

<sup>81</sup> USAID, *Gender Mainstreaming in ICT for Agriculture* (Washington D.C.: USAID, November 2012), 3.

TV or radio as freely as men do.<sup>82, 83, 84, 85</sup> Nonetheless, other research shows that mobile phones can be a convenient means of accessing information for women, who are often limited from other channels due to both mobility and time constraints.<sup>86</sup>

Climate services depends upon transmitting information that is often new to farmers in formats that may be unfamiliar. Differences in levels of literacy and formal education can influence that women face challenges to understand and interpret the technical and probabilistic information that constitutes forecasts and climate data<sup>87, 88, 89</sup>; correspondingly, particular formats may be less useful to women, as well.<sup>90</sup>

---

<sup>82</sup> Elizabeth Poulsen et al., “Exploring Synergies Between Health and Climate Services: Assessing the Feasibility of Providing Climate Information to Women Farmers Through Health Posts in Kaffrine, Senegal,” *CCAFS Working Paper No. 131* (Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015), 12.

<sup>83</sup> Emma R.M. Archer, “Identifying Underserved End-User Groups in the Provision of Climate information,” *Bulletin of the American Meteorological Society* 84, no. 11 (November 2003): 1529, <https://doi.org/10.1175/BAMS-84-11-1525>

<sup>84</sup> Jennifer J. West et al., *Evaluating User Satisfaction with Climate Services in Tanzania 2014-2016: Summary Report to the Global Framework for Climate Services Adaptation Programme in Africa* (Oslo, Norway: CICERO, 2018), 27.

<sup>85</sup> Venkatasubramanian et al., “Assessment of India’s Integrated,” 28.

<sup>86</sup> Amanda Caine et al., “Review of Mobile Applications That Involve the Use of Weather and Climate information: Their Use and Potential for Smallholder Farmers,” *CCAFS Working Paper No. 150* (Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015), 28.

<sup>87</sup> Florence B. Kyazze et al., “Using a Gender Lens to Explore Farmers’ Adaptation Options in the Face of a Changing Climate: Results of a Pilot Study in Uganda,” *CCAFS Working Paper No. 26*. (Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2012), 12.

<sup>88</sup> Edward R. Carr et al., *USAID / Mali Climate Change Adaptation Activity (MCCAA) Behavioral Baseline Survey: Final Synthesis Report* (Washington, DC.: USAID, 2016): 42.

<sup>89</sup> Venkatasubramanian et al., “Assessment of India’s Integrated,” 34.

<sup>90</sup> Tuan M. Duong et al., *Gender Differences in Agro-Climate Information Services: Findings from ACIS Baseline Survey in Ha Tinh and Dien Bien provinces, Vietnam* (Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), September 2017), 4.

Finally, some studies suggest that men may tend to have greater awareness of weather and climate information than women<sup>91, 92, 93</sup>; additionally, when gender inequalities in awareness are minimized, there may be more equitable access to information.<sup>94</sup> With this in mind, it can be important for M&E to collect data on changes in information awareness among women and men.

Climate services can contribute to advancing gender equality by making available the channels and formats suited to women's needs. It is important for monitoring and evaluation to collect information on whether or not women and men access ICTs and other media (shared or individual ownership) and the extent to which they are learning weather information via ICTs and media. In particular, it is important to document what formats men and women are accessing in order to learn weather information, beyond formats used with ICTs.

### 3.3 Differences in climate information needs and capacity to act

Socio-cultural norms concerning labour 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. Women's and men's climate information needs can also vary according to seniority, ethnicity and other socio-economic aspects. For example, Tall, Kristjanson, Chaudhury, McKune, and Zougmore's study in Kaffrine, Senegal, shows that women farmers are more interested in information on droughts and rain cessation in that region than men because social norms dictate that they labour on men's plots before their own and must also wait to use men's farming equipment; consequently, women can tend to plant later.<sup>95</sup> Similarly, precipitation information may be minimally relevant to women groundnut producers in research in Mali, due to gender norms that limit women's

---

<sup>91</sup> Venkatasubramanian et al., "Assessment of India's Integrated," 44.

<sup>92</sup> Jeanne Coulibaly et al., "Climate Services for Agriculture in Rwanda: Baselines Survey Report," *CCAFS Working Paper No. 202* (Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2017), 27.

<sup>93</sup> Edward R. Carr, ed., *Assessing Mali's Direction Nationale de la Météorologie Agrometeorological Advisory Program: Preliminary Report on the Climate Science and Farmer Use of Advisories* (Washington, D.C.: USAID, 2014), 41.

<sup>94</sup> Coulibaly et al., "Climate Services for Agriculture," 28-29.

<sup>95</sup> Arame Tall et al., "Who Gets the Information? Gender, Power and Equity Considerations in the Design of Climate Services for Farmers," *CCAFS Working Paper No. 89* (Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2014), 46-47.

production and drive them to plant later.<sup>96</sup> Additional research in Ngetou Maleck, Senegal, suggests that varying access to farming equipment, secondary income and farm animals influences the type of climate information that is most useful for junior and senior women farmers.<sup>97</sup> Moreover, because they have fewer domestic obligations, senior women in Senegal can often cultivate sooner than their junior counterparts; correspondingly, climate information can be more relevant for the former.

In other cases, limited resource control and lack of opportunity to participate in agricultural decision-making can significantly restrict women's capacity to make full use of climate information. This also acts as a deterrent on women's demand for 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.<sup>98, 99, 100, 101, 102</sup> Furthermore, women's limited control of land and

---

<sup>96</sup> Carr et al., *USAID / Mali Climate*, 41.

<sup>97</sup> Carr et al., "Understanding Women's Needs for Weather and Climate Information in Agrarian Settings: The Case of Ngetou Maleck, Senegal," *Weather, Climate and Society* 8 (2016), 261-262, <https://doi.org/10.1175/WCAS-D-15-0075.1>

<sup>98</sup> Arame Tall et al., "Tanzania Summary of Baseline Studies: Country Report for the GFCS Adaptation Program in Africa," *CCAFS Working Paper No. 124* (Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015), 21.

<sup>99</sup> Poulsen et al., "Exploring Synergies," 13.

<sup>100</sup> Jeanne Y. Coulibaly et al., "What Climate Services Do Farmers and Pastoralists Need in Tanzania? Baseline Study for the GFCS Adaptation Program in Africa," *CCAFS Working Paper No. 110* (Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015), 31-32.

<sup>101</sup> Carr, *Assessing Mali's Direction*, 42-43.

<sup>102</sup> Carr et al., *USAID / Mali Climate*, 41.

limited involvement in decision-making over rain-fed crops (or agriculture in general) can make climate information irrelevant for women.<sup>103, 104, 105, 106, 107, 108, 109</sup>

Climate services can promote gender equality outcomes by providing information products relevant to women’s needs such that they can use them in their agricultural and livelihood management. It is important that monitoring and evaluation collect information on whether or not weather and climate information products are meeting women’s and men’s needs. Also, it is important to collect information on the extent to which women and men have the resources necessary to act on information; as well as the extent to which women and men have the opportunity to contribute to climate-sensitive decision-making. Here it is also important to document changes in women’s and men’s demand for climate services.

### 3.4 Considerations for gender-transformative M&E

Gender transformative M&E for climate services will go one step further, and collect information on factors and processes that underlie gender-based challenges, such as division of labour, asset control, and decision-making processes. For this purpose, Table 1 below presents sample priority questions to include in data collection instruments.

Table 1: Gender-transformative issues and sample questions for data collection and analysis

Gender-transformative challenges	Sample questions
Division of labor	Did you participate in [agricultural or livelihood activity] in the past 12 months?
	Do you participate in [care-work activity]?

<sup>103</sup> Renata Serra, and Sarah McKune, “Climate Information Services and Behavioral Change: The Case of Senegal,” *Sahel Research Group Working Paper No. 010* (University of Florida, June 2016), 11.

<sup>104</sup> Carla Roncoli et al., “From Accessing to Assessing Forecasts: An End-to-end Study of Participatory Climate Forecast Dissemination in Burkina Faso (West Africa),” *Climatic Change* 92, no. 3-4 (2009): 440. <https://doi.org/10.1007/s10584-008-9445-6>.

<sup>105</sup> Poulsen et al., “Exploring Synergies,” 12-13.

<sup>106</sup> Carr and Onzere, “Really Effective”, 7-8.

<sup>107</sup> Carr, *Assessing Mali’s Direction*, 9, 42.

<sup>108</sup> Carr et al., *USAID / Mali Climate*, 41-42.

<sup>109</sup> Carr and Owusu-Daaku, “The Shifting Epistemologies,” 13.

Asset control	Does anyone in the household currently have any [land/livestock/farm equipment]?
	Do you own any of the [land/livestock/farm equipment]? Solely or jointly?
Decision-making power	When decisions are made regarding [agricultural or livelihood activity] [care-work activity], who normally takes the decision?
	How much input do you have on decisions about [agricultural or livelihood activity] [care-work activity]?
	How much input do you have on the use of income generated from [agricultural or livelihood activity]?

#### 4 Case Studies

This next section builds on the findings of the literature review. In two case studies of current CCAFS projects, we consider the extent to which each project applies the good practices identified (in Section 2.4) to make climate services more gender-responsive and, ideally, transformative. Most of the information analysed in both projects concerns the design, approaches and indicators. Both projects are in progress, and there is currently minimal information on post intervention follow-up and communication plans. Neither project makes use of participatory M&E to a significant extent; however, the two cases provide helpful examples of the degree of gender awareness applied in climate services M&E.

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

The ACIS project, implemented in Vietnam and Cambodia, aims to improve the knowledge capacity of women and ethnic minorities by enhancing their access to and use of agro-climatic information services. It is particularly helpful for analysing ways to incorporate more gender-aware methods into the design and approach of the project. Furthermore, ACIS highlights women's empowerment as an expected project outcome, and it could be argued that its M&E approach is transformative to the extent that it seeks to monitor factors underlying gender inequalities.

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 targeted to women farmers and agricultural planners. The project also includes a Theory of Change that focuses on providing women and ethnic minority (WEM)

farmers with improved access to climate information to enhance their decision-making authority.

The strongest evidence of gender-responsiveness was found in the approaches 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. The focus group discussions included mixed gender and women-only groups, a helpful way of identifying nuances in gender roles and dynamics. Additionally, the survey sought to follow standards of data collection from 50% women and 50% men.

Data collection and indicator development focused on key issues underlying gender equality and women's empowerment. While indicators more conventional to climate services were disaggregated by sex, indicators specific for measurement of women's empowerment in climate services were also developed for the project. In particular, the household survey asked about gender differences in labour, household decision-making, mobility, as well as access to climate information and training. While information on ownership of household assets was not sex-disaggregated, the majority of issues relevant to gender relations was. The survey also included a module on women's empowerment, wherein women respondents were asked their opinions of their own decision-making authority, mobility and personal agency.<sup>110</sup> It included a caution to the enumerator to ensure that the respondent felt as comfortable and respected as possible. This tool could serve as an example for other projects to emulate when trying to capture women's personal opinions and thoughts.

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

The Climate Services for Agriculture project, supported by USAID, works to establish stronger climate services in Rwanda to increase the resilience of farmers, government officials and other agricultural actors. This project does not have the express goal of promoting women's empowerment and it might not be possible to classify its M&E approach as gender-transformative. However, based on its research design it could be argued that it is gender-responsive.

Gender-responsive practices that the project implements or plans to follow include sex-disaggregated data analysis and disaggregation of indicators by sex, where

---

<sup>110</sup> Coulier and Wilderspin, *ACIS project – Baseline*, 13.

possible. Efforts were made to sample 50% women and 50% men respondents in each of Rwanda's provinces for the initial baseline household survey carried out and for the evaluations of the Participatory Integrated Climate Services for Agriculture activity of the project. 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 incorporated into the project's theory of change. Relevant to indicator development, the project does purport to carrying out an assessment of the politico-institutional context, also.

Notwithstanding these good practices, in order to promote a more gender-transformative M&E approach, the project can implement a few additional actions. For example, while data collection for the baseline survey can allow for understanding of how socioeconomic standing influences the access to and use of climate services, collection of information concerning underlying causes of gender equality is key for achieving a stronger gender analysis. The baseline survey collected useful information concerning demographics, livelihoods, membership in associations, poverty status, communication assets (ownership and use), awareness/perception of climate change, climate risks, coping mechanisms and uncertainty. Gender transformative M&E would require collection of additional information concerning, for example, gendered division of labour, participation in decision-making, and control/use of assets (beyond communication assets).

## 5 Conclusions and recommendations

The review of lessons learned for gender-aware M&E in rural development interventions, analysis of gender-based challenges in climate services, and discussion of CCAFS case studies offer useful insights for good practices for gender-aware M&E for climate services. These are detailed below.

Clear incorporation of gender and social inclusion throughout the project's theory of change establishes a fundamental basis for gender-aware M&E. Gender equality considerations should be carefully considered and clearly articulated, throughout the project's intended outcomes, deliverables, and planned activities.

A principal initial step also involves coordination with government agencies to take stock of possible relevant gender information (sex-disaggregated data) in existing databases. During this preparatory stage, it can also be necessary to look to non-governmental sources of gender information, such as the World Food Program's

Comprehensive Food Security and Vulnerability Analysis (CFSVA) surveys and the USAID Demographic and Health Surveys (DHS).

It is critical to work with gender experts as early as possible, starting with the M&E design phase. If it is not possible to hire a gender specialist to work for the project, partnering with an organization with gender expertise can be key for providing the necessary gender support. Ideally, gender expertise should inform M&E design, implementation, analysis, write-up and communication.

Disaggregation of existing climate services indicators is a principal component of gender-responsive M&E. It is particularly critical to monitor gender-differentiated access to group processes, awareness of weather and climate information, sources/formats through which weather and climate information is accessed, and use of weather and climate information in farming and livelihood management. Sex disaggregation and gender analysis must be incorporated from the moment of the design of the baseline study. While disaggregation is important for gender-responsive M&E, interventions that seek gender transformation will need to collect additional information on those key factors underlying gender inequalities, such as the division of labour, asset control, and decision-making power.

Correspondingly, gender-aware M&E requires that a strong contextual understanding inform indicator design, particularly given the context-specific nature of gender dynamics. Where possible, participatory indicator development, including local women and men, can be helpful for ensuring that indicator design is locally relevant. Partnerships with local organizations can also facilitate helpful input on indicator design.

Sex-disaggregated data collection must be implemented to the extent possible, for M&E to be gender-aware. It is important that survey questions go beyond inquiry concerning the household and ask questions about women and men in order to collect information relevant for gender analysis. Furthermore, data should be collected from both women and men to accurately document how individual women and men are accessing, using and benefiting from climate services. It should be noted that collecting information from women and men household heads will not allow for gender analysis. Women commonly are not household heads, but rather spouses of the household head; consequently, household head data collection disregards a significant group of women.

Mixed methods for data collection and analysis are necessary to ensure accurate understanding of where and how changes in gender inequalities occur. Incorporation of qualitative methods can be particularly important, for eliciting women's and men's responses concerning sensitive gender issues, for understanding the quality of services perceived by women and men, and for documenting the processes influencing gender-based access and use of climate services.

Finally, a gender-aware M&E system for climate services will ensure mechanisms for communication of findings with and solicitation of feedback from key stakeholders, over the course of the project's duration. It will be particularly important to meaningfully include representatives of local women and men farmers' interests in communication and feedback mechanisms.

## References

- Archer, Emma R.M. "Identifying Underserved End-User Groups in the Provision of Climate information." *Bulletin of the American Meteorological Society* 84, no. 11 (November 2003): 1525-1532. <https://doi.org/10.1175/BAMS-84-11-1525>
- Alwang, Jeffrey, Catherine Larochelle, and Victor Barrera. "Farm Decision-making and Gender: Results from a Randomized Experiment in Ecuador." *World Development* 92 (2017): 117-129. <https://doi.org/10.1016/j.worlddev.2016.11.015>.
- Anderson, C. Leigh, Travis W. Reynolds, and Mary Kay Gugerty. "Husband and Wife Perspectives on Farm Household Decision-making Authority and Evidence on Intra-household Accord in Rural Tanzania." *World Development* 90 (2017): 169-183. <https://doi.org/10.1016/j.worlddev.2016.09.005>
- Asfaw, Solomon, and Giuseppe Maggio. *Gender Integration into Climate-Smart Agriculture: Tools for Data Collection and Analysis for Policy and Research*. Rome: Food and Agriculture Organization of the United Nations (January 2016), 1-12.
- Bamberger, Michael. "Nuts and Bolts: Engendering Monitoring and Evaluation." *The Nuts and Bolts of M&E Systems* 27, no. 4 (2013), 1-10.
- Batliwala, Srilatha. *Strengthening Monitoring and Evaluation for Women's Rights: Thirteen Insights for Women's Organizations*. Toronto, CA: Association for Women's Rights in Development, 2011.
- Batliwala, Srilatha, and Alexandra Pittman. *Capturing Change in Women's Realities: A Critical Overview of Current Monitoring & Evaluation Frameworks and Approaches*. Toronto, CA: Association for Women's Rights in Development, 2010.

- Behrman, Julia, Zhenya Karelina, Amber Peterman, Shalini Roy, and Amelia Goh. *A Toolkit on Collecting Gender and Assets Data in Qualitative and Quantitative Program Evaluations*. Washington, D.C.: IFPRI, 2014.
- Brambilla, Paola. *Gender and Monitoring: A Review of Practical Experiences*. Paper prepared for the Swiss Agency for Development and Co-operation (SDC). Brighton, UK: BRIDGE Institute of Development Studies, June 2001.
- Bowman, Kimberly, and Caroline Sweetman. "Introduction to Gender, Monitoring, Evaluation and Learning." *Gender & Development* 22, no. 2 (2014): 201-12. <https://doi.org/10.1080/13552074.2014.934525>.
- Caine, Amanda, Peter Dorward, Graham Clarkson, Nicholas Evans, Claudia Canales, David Stern, and Roger Stern. "Review of Mobile Applications That Involve the Use of Weather and Climate information: Their Use and Potential for Smallholder Farmers." *CCAFS Working Paper No. 150*. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015.
- Carr, Edward R., ed. *Assessing Mali's Direction Nationale de la Météorologie Agrometeorological Advisory Program: Preliminary Report on the Climate Science and Farmer Use of Advisories*. Washington, D.C.: USAID, 2014.
- Carr, Edward R., Grant Fleming, and Tshibangu Kalala. "Understanding Women's Needs for Weather and Climate Information in Agrarian Settings: The Case of Ngetou Maleck, Senegal." *Weather, Climate and Society* 8 (2016): 247-264. <https://doi.org/10.1175/WCAS-D-15-0075.1>
- Carr, Edward R., Sheila N. Onzere, Tshibangu Kalala, T., Helen M. Rosko, and Janae Davis. *USAID / Mali Climate Change Adaptation Activity (MCCAA) Behavioral Baseline Survey: Final Synthesis Report*. Washington, DC.: USAID, 2016.
- Carr, Edward R., and Kwame N. Owusu-Daaku. "The Shifting Epistemologies of Vulnerability in Climate Services for Development: The Case of Mali's Agrometeorological Advisory Programme." *Area* 48, no. 1 (2016), 7-17. <https://doi.org/10.1111/area.12179>
- Carr, Edward R., and Sheila N. Onzere. "Really Effective (for 15% of the Men): Lessons in Understanding and Addressing User Needs in Climate Services from Mali." *Climate Risk Management* (March 2017): 1-14. <https://doi.org/10.1016/j.crm.2017.03.002>
- Clarkson, Graham, Peter Dorward, Desire M. Kagabo, and Gloriose Nsengiyumva. *Climate Services for Agriculture in Rwanda: Initial Findings from PICSA Monitoring and Evaluation*. Wageningen, Netherlands: CGIAR Research

- Program on Climate Change, Agriculture and Food Security (CCAFS), October 2017.
- Coulibaly, Jeanne Y., Joash Mango, M. Swamila, Arame Tall, Harneet Kaur, and James Hansen. "What Climate Services Do Farmers and Pastoralists Need in Tanzania? Baseline Study for the GFCS Adaptation Program in Africa." *CCAFS Working Paper No. 110*. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015.
- Coulibaly, Jeanne Y., Eliud A. Birachi, Desire M. Kagabo, and Mercy Mutua. "Climate Services for Agriculture in Rwanda: Baselines Survey Report." *CCAFS Working Paper No. 202*. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2017.
- Coulier, Miguel. *ACIS Project – Baseline Survey Report Vietnam*. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2016.
- Coulier, Miguel, and James Wilderspin. *ACIS Project – Baseline Report Cambodia*. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), November 2016.
- Cramer, Laura, Wiebke Forch, Inetta Mutie, and Philip Thornton. "Connecting Women, Connecting Men: How Communities and Organizations Interact to Strengthen Adaptive Capacity and Food Security in the Face of Climate Change." *Gender, Technology and Development* 20, no. 2 (2016):1-31. <https://doi.org/10.1177/0971852416639771>.
- Demetriades, Justina. *Gender Indicators: What, Why and How?* Paper prepared for OECD DAC Network on Gender Equality. Brighton, UK: BRIDGE Institute of Development Studies, 2007.
- Duong, Tuan M., Abigail Smith, Tam T. Le, Elisabeth Simelton, and Miguel Coulier. *Gender Differences in Agro-Climate Information Services: Findings from ACIS Baseline Survey in Ha Tinh and Dien Bien provinces, Vietnam*. Wageningen Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), September 2017.
- Espinosa, Julia. "Moving Towards Gender-sensitive Evaluation? Practices and Challenges in International-development Evaluation." *Evaluation* 19, no. 2 (2013): 171-82. <https://doi.org/10.1177/1356389013485195>.
- Govinda, Radhika. "Mapping 'Gender Evaluation' in South Asia." *Indian Journal of Gender Studies* 19, no. 2 (2012): 187-209. <https://doi.org/10.1177/097152151201900202>
- Graef, F., L.E. Hernandez, H.J. König, G. Uckert, and M.T. Mnimbo. "Systemizing

- Gender Integration with Rural Stakeholders' Sustainability Impact Assessments: A Case Study with Three Low-input Grading Strategies." *Environmental Impact Assessment Review* 68 (2018): 81-89.  
<https://doi.org/10.1016/j.eiar.2017.10.004>
- Guijt, Irene. "Critical Readings on Assessing and Learning for Social Change: A Review." *IDS Development Bibliography* 21. Brighton, UK: Institute of Development Studies, 2008.
- Hillenbrand, Emily, Nidal Karim, Pranati Mohanraj, and Diana Wu. *Measuring Gender-transformative Change: A Review of Literature and Promising Practice*. CARE USA, October 2015.
- Huyer, Sophia. *Gender Mainstreaming in ICT for Agriculture*. Washington D.C.: USAID, November 2012.
- Johnson, Nancy, Chiara Kovarik, Ruth Meinzen-Dick, Jemimah Njuki, and Agnes Quisumbing. "Gender, Assets, and Agricultural Development: Lessons from Eight Projects." *World Development* 83 (2016): 295-311.  
<https://doi.org/10.1016/j.worlddev.2016.01.009>
- Kabeer, Naila, and Ramya Subrahmanian. *Institutions, Relations and Outcomes: Framework and Tools for Gender-aware Planning*. Brighton, UK: Institute of Development Studies, 1996.
- Kyazze, Florence B., Brian Owoyesigire, Patti Kristjanson, and Moushumi Chaudhury. "Using a Gender Lens to Explore Farmers' Adaptation Options in the Face of a Changing Climate: Results of a Pilot Study in Uganda." *CCAFS Working Paper No. 26*. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2012.
- Manfre, Cristina, and Caitlin Nordehn. *Exploring the Promise of Information and Communication Technologies for Women Farmers in Kenya*. Washington, D.C.: USAID, 2013.
- Marther W. Ngigi, Ulrike Mueller, and Regina Birner. "Gender Differences in Climate Change Adaptation Strategies and Participation in Group-Based Approaches: An Intra-Household Analysis from Rural Kenya." *Ecological Economics* 138 (2017): 99-108. <https://doi.org/10.1016/j.ecolecon.2017.03.019>
- Meinke, Holger, Rohan Nelson, Phil Kokic, Roger Stone, Ramasamy Selvaraju, and Walter Baethgen. "Actionable Climate Knowledge: From Analysis to Synthesis." *Climate Research* 33 (2006): 101-110.  
<https://doi.org/10.3354/cr033101>
- Moser, Annalise. *Gender and Indicators: Overview Report*. Brighton, UK: BRIDGE Institute of Development Studies, 2007.
- O'Leary, Susan. "Grassroots Accountability Promises in Rights-based Approaches to

- Development: The Role of Transformative Monitoring and Evaluation in NGOs." *Accounting, Organizations and Society* 63 (2017): 21-41.  
<https://doi.org/10.1016/j.aos.2016.06.002>.
- Perez, Carlos, Elinor Jones, Patti Kristjanson, Laura Cramer, Philip K. Thornton, Wiebke Förch, and Carlos Barahona. "How Resilient are Farming Households and Communities to a Changing Climate in Africa? A Gender-Based Perspective." *Global Environmental Change* 34 (2015): 95–107.  
<https://doi.org/10.1016/j.gloenvcha.2015.06.003>.
- Pereznieto, Paola, and Georgia Taylor. "A Review of Approaches and Methods to Measure Economic Empowerment of Women and Girls." *Gender & Development* 22, no. 2 (2014): 233-251.  
<https://doi.org/10.1080/13552074.2014.920976>.
- Poulsen, Elizabeth, Maguette Sakho, Sarah McKune, Sandra Russo, and Ousmane Ndiaye. "Exploring Synergies Between Health and Climate Services: Assessing the Feasibility of Providing Climate Information to Women Farmers Through Health Posts in Kaffrine, Senegal." *CCAFS Working Paper No. 131*. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015.
- Quisumbing, Agnes, and Lauren Pandolfelli. "Promising Approaches to Address the Needs of Poor Female Farmers: Resources, Constraints, and Interventions." *World Development* 38, no. 4 (2010): 581-592.  
<https://doi.org/10.1016/j.worlddev.2009.10.006>.
- Rao, Smriti. "Indicators of Gendered Control Over Agricultural Resources: A Guide for Agricultural Policy and Research." *CGIAR Working Paper No. 1*. Cali, Colombia: CGIAR Gender and Agriculture Research Network, CGIAR Consortium Office and International Centre for Tropical Agriculture (CAIT), 2016.
- Rengalakshmi, R., M. Manjula, and M. Devaraj. "Making Climate Information Gender Sensitive: Lessons from Tamil Nadu." *Economic and Political Weekly* 53, no. 17 (2018): 87-95.
- Roncoli, Carla, Christine Jost, Paul Kirshen, Moussa Sanon, Keith T. Ingram, Mark Woodin, Leopold Some, et al. "From Accessing to Assessing Forecasts: An End-to-end Study of Participatory Climate Forecast Dissemination in Burkina Faso (West Africa)." *Climatic Change* 92, no. 3-4 (2009): 433-460.  
<https://doi.org/10.1007/s10584-008-9445-6>
- Serra, Renata, and Sarah McKune. "Climate Information Services and Behavioral Change: The Case of Senegal." *Sahel Research Group Working Paper No. 010*. University of Florida, June 2016.

- Tall, Arame, Patti Kristjanson, Moushumi Chaudhury, Sarah McKune, and Robert Zougmore. "Who Gets the Information? Gender, Power and Equity Considerations in the Design of Climate Services for Farmers." *CCAFS Working Paper No. 89*. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2014.
- Tall, Arame, Harneet Kaur, James Hansen, and Mea Halperin. "Malawi Summary of Baseline Studies: Country Report for the GFCS Adaptation Program in Africa." *CCAFS Working Paper No. 123*. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015.
- Tall, Arame, Harneet Kaur, James Hansen, and Mea Halperin. "Tanzania Summary of Baseline Studies: Country Report for the GFCS Adaptation Program in Africa." *CCAFS Working Paper No. 124*. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015.
- Tyagi, Niharika, and Smriti Das. "Assessing Gender Responsiveness of Forest Policies in India." *Forest Policy and Economics* 92 (2018): 160-168.  
<https://doi.org/10.1016/j.forpol.2018.05.004>.
- Venkatasubramanian, Kalpana, Arame Tall, James Hansen, and Pramod K. Aggarwal. "Assessment of India's Integrated Agro-meteorological Advisory Service Program from a Farmer Perspective." *CCAFS Working Paper No. 54*. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2014.
- West, Jennifer J., Meaghan E. Daly, and Pius Z. Yanda. *Evaluating User Satisfaction with Climate Services in Tanzania 2014-2016: Summary Report to the Global Framework for Climate Services Adaptation Programme in Africa*. Oslo, Norway: CICERO, 2018.
- World Bank. *Gender Issues in Monitoring and Evaluation in Rural Development: A Tool Kit*. Washington, DC: World Bank, 2005.
- World Bank. "Module 16: Gender Issues in Monitoring and Evaluation." In *Gender in Agriculture Sourcebook*, 675-727. Washington, DC: World Bank, 2009.