



## Participatory Monitoring and Evaluation Practices for Enhancing Climate Change Adaptation, and their Limitations: A Case of Coffee Farming Households in Southwestern Uganda

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**ABSTRACT:** Effectiveness of Climate change adaptation programmes and projects is anchored in Participatory Monitoring and Evaluation (PM&E) approaches. A Qualitative study was therefore conducted in Ntungamo district, southwestern Uganda to: i) establish the PM&E practices used by the district Local Government (LG) on programs in enhancing climate change adaptation among coffee farming households, ii) identify the bottle necks in PM&E practices for interventions focused on improving climate change adaptations among coffee farming households in the district. The study was guided by Citizen's theory of Involvement. A Key Informant guide was administered to 12 key informants from LG Administration and Agriculture Departments. Data were analyzed thematically. Results showed that Ntungamo LG was using participatory planning, monitoring and evaluation as the PM&E practices to enhance climate change adaptation among coffee farming households. The study also identified several challenges facing PM&E at LG level, including: - lack of an M&E Department, lack of training in M&E, data accuracy issues, poor dissemination of findings, limited extension support, insufficient funding and low farmer participation. LG's should therefore develop strategies to address these challenges in order to adequately enhance climate change adaptation among coffee farming households.

**KEY WORDS:** Data, dissemination, farmer-involvement, funding, Local-Government, technical-capacity, training

### 1.0 INTRODUCTION

Coffee is the second largest traded commodity globally (Slavova and Georgieva, 2019; Pancsira, 2022). In Uganda, coffee is one of the most important export commodities (NCP, 2013; NPA, 2024) and in the 12-months period (June 2024-May 2025), the country exported 7.43 million 60 kg bags worth US\$ 2.09 billion (MAAIF, 2025). The crop is grown by over 1.8 million households on an estimated 583,000 hectares of land, with more than 12 million people deriving their livelihood from coffee-related activities (UCDA, 2020).

Despite its importance, production and productivity of coffee in Uganda is still below the potential (Wang et al., 2015). For example, the yield of Robusta coffee averages at 0.55 kg ha<sup>-1</sup> of green coffee beans (Bakema and Schluter, 2019; Nakyagaba et al., 2024) compared to 3.5 kg ha<sup>-1</sup> reported in well-managed large Robusta coffee plantations (Van der Vossen, 2005) or ≥2.3 t ha<sup>-1</sup> reported in other major Robusta coffee growing countries such as Vietnam (ICO, 2019). This is due to a number of constraints, with climate variability and low adaptation capacity of the farmers being paramount (Jassogne et al., 2013; Mulinde et al., 2019; Mulinde, 2021; Twesigye et al., 2025).

Ntungamo district, located in southwestern Uganda is one of the district where majority of the population derive its livelihood from coffee (Kanyamurwa et al., 2013; Magala et al., 2018a,b; Oumo, 2024), but at the same time, the district is also highly vulnerable to climate change variability (HRV, 2016; Kalibwani, 2020). This is due to the fact that it lies in the cattle corridor, making it prone to dry spells and droughts (HRV, 2016; Ntakyo et al., 2020; Nakiguli et al., 2023). In response, public and private actors developed several adaptation and mitigation interventions aimed at reducing the impacts of climate change in the district, though adoption of these practices remain low (Mukasa et al., 2025; Twesigye et al., 2025). This low adoption is likely to negatively impact coffee



yields, leading to reduced food security and household economic status (Jassogne et al., 2013; Mekonen et al., 2021; Obsi Gemedu et al., 2023). Climate adaptation measures have therefore become more urgent and essential to reverse the effects of climate variability that threatens the livelihood and food security worldwide (Measham et al., 2011).

On the other hand, there is increasing recognition of the need to track climate change adaptation, but countries and development partners' ability to do the tracking is constrained by the complex nature of adaptation and the absence of measurable outcomes or indicators (Ford et al., 2013). Indicators are tools by which to judge if and how adaptation is occurring and its effects on overall development of a country (Kabesiime et al., 2015). This would therefore result into better accountability of Government policies and programs (Goldman et al., 2018). Measham et al. (2011) agrees that data and information are essential in tracking climate forecasts and projections for the farming communities, however, these M&E data are lacking at LG levels. Villanueva (2011) argues that M&E tends to measure progress against set targets. Thapa et al. (2017) argues that farmers should collect the data against which they can measure their progress however, this is seldom done. Bours et al. (2013) and Thapa et al. (2017) revealed that farmers who are supposed to use adaptation practices are seldom involved in planning the implementations of the M&E tools rather than external evaluators.

Moreso, research studies further reveal that participatory monitoring and evaluation (PM&E) practices play a major role in enhancing the adoption of these climate adaptation measures (Mgoba and Kabote, 2020; Luján Soto et al., 2021; Twesigye et al., 2025). However, PM&E practices among stakeholders usually experience several challenges in adoption of these measures (Dinshaw et al., 2014; STAP, 2017; Mohamed and Okumu, 2025). For instance, Bours et al. (2013) argues that it is hard to have an effective M&E system that is participatory in nature because communities are not conversant with these systems whereas, Ssekamatte (2018) and Mohamed and Okumu (2025) acknowledge that M&E is not fully utilized in developing countries.

Basing on this backdrop, we therefore conducted a study in Ntungamo district, south-western Uganda to establish i) the Participatory Monitoring and Evaluation (PM&E) practices used by the Local Government programmes to enhance climate change adaptation among coffee farming households, and ii) the gaps and challenges in PM&E practices that affect climate change adaptations among coffee farming households. The study was guided by Citizen Theory of Participation (Burns et al., 1994; ISER, 2018).

## 2.0 MATERIALS AND METHODS

### 2.1 Description of Study Area

The study was conducted in Ntungamo district Local Government (LG) which is located in south-western Uganda, between latitudes 0°35' and 1°15' south and longitudes 30°05' East (HRV, 2016) at an elevation of 1300-1560 m.a.s.l (Okech et al., 2005). It borders with Kabale district in the south, Rukungiri district in the west, Shema and Mitooma districts in the north, Mbarara district in the northeast, Isingiro district in the east, the Republic of Tanzania and Rwanda in the southeast (HRV, 2016). Ntungamo receives 800-1500 mm of rainfall between March-mid-May and September-December with a mean annual temperature of 26°C (Okech et al., 2005; HRV, 2016), It has 15 sub-counties, three (3) town councils, and one (1) municipality with three (3) divisions (HRV, 2016).

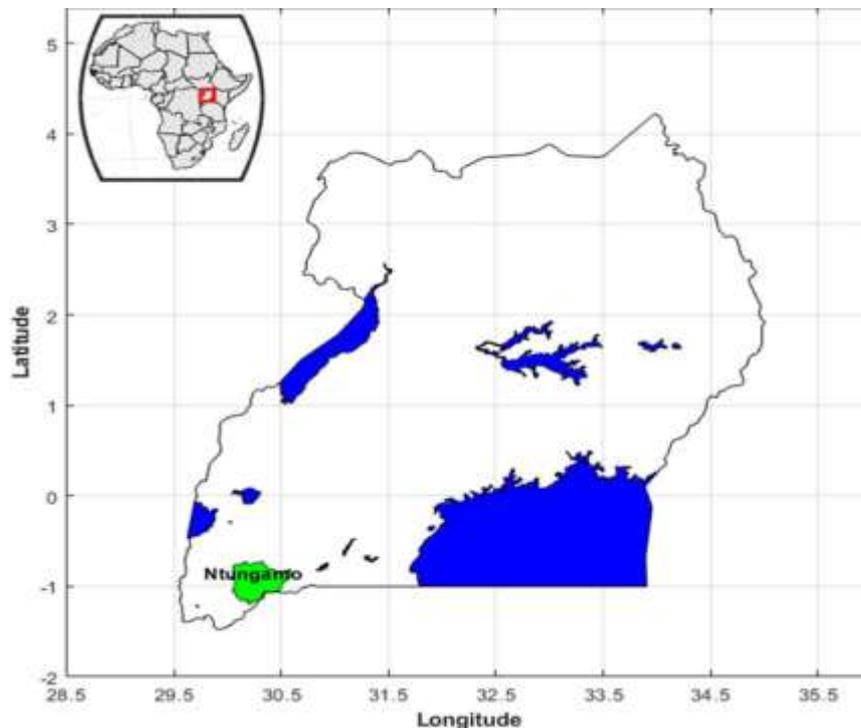


Figure 1: Location of Ntungamo district in southwestern Uganda (Twesigye et al., 2025)

## 2.2 Data Collection

### 2.2.1 Study Population

The study population was sampled from Ntungamo LG, including: the District and Sub-county staff, belonging to the Planning, Agriculture and Administration sections. Sample size determination for qualitative research is an ongoing discussion with several scholars and there is no clear formula, when non probability approaches are intended to be used (Sim et al., 2018). Thus, a sample size of 12 participants was estimated for this study. This number falls between the 2-12 participants recommended by Parse (1990) in interview studies to achieve saturation and 10-20 knowledgeable people recommended by Benard (2013) who are sufficient to provide information on the core categories.

### 2.2.2 Key Informant Interviews

Key Informant interview is a qualitative method of data collection where an unstructured set of questions are administered to key stakeholders and experts on the subject of interest in the community (Allen, 2017). The scientific justification for employing this method was that in-depth understanding of the issues can be attained with this approach when they cannot be attained from representative survey respondents (Nirmalya, 1993). Interviewees were more knowledgeable by virtual of their social status and positions in LG's (Golfshini et al., 2013). The questionnaire was therefore administered to LG staff at the district and sub-county levels because these people often conduct M&E of Government programmes. This methodology was appropriate for this study for understanding more profoundly and elaborately from the people with first-hand information willing to communicate about issues being researched (Nirmalya, 1993; Allen, 2017). Prior to conducting the exercise, the research team introduced itself to the district and the intention of their research activity. The interviews were conducted on voluntarily basis and the key informants had to consent to the interview. The interview was audio recorded, however, in case the respondent did not want to be recorded, his or her privacy was respected.

## 2.3 Data Analysis

The qualitative data collected were analyzed using thematic analysis by systematically organizing them into meaningful patterns across a data set (Ahmed et al., 2025). This was suitable to make sense of collective meanings and experiences, hence, obtaining a clear and rich description of the data set (Braun and Clarke, 2012). In order to do the thematic analysis, the interviews were audio-



recorded, data transcribed and initial codes to describe the content generated. Themes that respond to the research questions were then generated and reviewed in line with the coded data. The generated themes were defined according to the research questions and objectives in order to ensure singular focus and avoid repetition. Thematic analysis was done concurrently with the write up of the results in order not to omit any valuable information while reporting the findings (Braun and Clarke, 2012).

**3.0 RESULTS AND DISCUSSION**

**3.1 Participatory Monitoring and Evaluation (PM&E) practices used by Local Government of Ntungamo district to enhance climate change adaptation among coffee farming households**

Project monitoring and evaluation (M&E) is an important components of LG Councils’ functions in developing countries including Uganda (Igbokwe-Ibeto, 2012). The thematic analysis of the Participatory Monitoring and Evaluation (PM&E) practices used by the Ntungamo LG programmes that enhance climate change adaptation among coffee farming households is summarized in box 1 below.

Box 1: Thematic analysis of the Participatory Monitoring and Evaluation practices used by the Ntungamo Local Government programmes that enhance climate change adaptation among coffee farming households

<p>What are PM&amp;E practices used by the district Ntungamo Local Government programmes that enhance climate change adaptation among coffee farming households?</p>	<p>Theme 1: Participatory monitoring and evaluation practices used by local government in enhancing climate change adaptations.</p> <p>Sub-theme 1.1: Participatory planning</p> <ul style="list-style-type: none"> <li>▪ Stakeholder engagements</li> <li>▪ Farmer consultative approach</li> </ul> <p>Sub theme 1.2: Participatory monitoring</p> <p>Sub theme 1.3: Participatory evaluation</p> <ul style="list-style-type: none"> <li>• Farmer assessments</li> <li>• Assessment of Local Government programmes</li> </ul>
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Results showed that these stakeholders' engagements were conducted through several forums and platforms including: - district meetings, coffee show planning meetings, farmer consultations (UCP, 2015; Magala et al., 2018a,b; Ssebunya et al., 2018; UCDA (2020). In collaboration with Café Africa, Uganda (CAU) and the Uganda Coffee Development (UCDA), LG’s play a key role in organizing, coordinating and facilitating the annual district coffee shows in Uganda (CAU, 2011; GCP, 2016; Magala et al., 2018a,b). These coffee shows are good platforms for multi-sectorial stakeholder engagements (CAU, 2011; UCP, 2015; UCDA, 2020).

**Sub-theme 1.1: Participatory planning**

Participatory planning is believed to be a good practice to the LG’s for achieving a common goal and addressing specific challenges that affect the district as a whole and affect farmer incomes and livelihoods (Oketayot, 2008; Friis-Hansen et al., 2015; ACODE, 2023). The Interviewees mentioned that participatory planning in conducted through stakeholder engagement and farmer consultative approach as described below.

**Stakeholder engagement in planning**

Stakeholder engagement and participation in M&E activities including planning, increase project sustainability (Kajaga, 2016). Our study captured some of the views about stakeholder engagements in planning at the LG’s and how they yield into the participatory planning process. One of the interviewee shared this;

*“I was invited to the district for a stakeholder meeting. I participated and shared my views which, I noticed my view (on visiting coffee farmers) had been included in the district plan. It brought me joy” (Community-Based Facilitator, Interviewee 2).*

Another interviewee shared his opinions, about participatory planning and had this to say;

*“During the coffee show programme, stakeholders from each of these Departments of Uganda Coffee Development Authority, NGO representative, Farmer representative and women representative are invited*



*to plan for the coffee show and exhibit some of the climate technologies like, soil and water conservation.”*  
**(Local Government Officer, Interviewee 12).**

Both quotes mentioned above, demonstrate the deliberate efforts by LG's to practice inclusiveness in their activities with the implementing partners, especially in the areas of climate change adaptations. Our finding is in line with Magala et al. (2018b), who reported that in Uganda, the coffee shows are planned by the district steering committee (DSC) which is composed of representatives of actors in the coffee sector (LG leaders, extension service providers, nursery operators, agro-input dealers, processors and traders, farmers, farmer organizations as well as youth and women groups). A typical coffee show brings farmers together with representatives from Central and LG, nursery operators, agro-input dealers, agro-processors, traders, projects, SACCO's and banks, to share latest knowledge, ideas, successes and challenges in the coffee sector (CAU, 2011; GCP, 2016). A study conducted in 2011 showed that a total 8,142 farmers had attended the 13 shows (on average, 626 farmers per show) with, most of them acknowledging that the shows increased their knowledge on Good Agricultural Practices (GAP's) including, pest and disease control, pruning and stumping, as well as fertilizer and manure use (CAU, 2011).

The quote further shows that the stakeholder whose submissions were taken into account, appreciated the participatory planning process. There is therefore a need for an inclusive and participatory approach, ensuring that all relevant parties are involved in the planning and implementation of climate change adaptation measures (Alinda et al., 2020; Bishwokarma et al., 2021; Warouw et al., 2023). Adams and Garbutt (2008) and Ford et al. (2013), urge that stakeholders should participate in the planning process in order to generate tangible and sustainable results and deliverables for local and national levels in climate change adaptations. Also, Tye and Suarez (2021), urge that, locally-led adaptation, in which local actors have decision-making power in planning, implementing, and M&E, can play an essential role in achieving successful and sustainable adaptation. In fact, nowadays donors require a considerable amount of involvement of local beneficiaries in planning, designing projects, M&E to ensure effective decision making and problem solving (Kajaga, 2016; Twesigye et al., 2025). However, involvement of stakeholders in PM&E requires a lot of negotiation, prioritization of issues and strategic collection of data for PM&E (Njuki et al., 2016).

All in all, the principal goal of stakeholder engagement in climate adaptation is to build a common understanding of the nature and scope of climate risks, as well as to align appropriate adaptation strategies that are both economically feasible and compatible with local needs and customs (Coffee and Climate Initiative, 2015).

### ***Farmer consultative approach***

The study further revealed that farmers are consulted on their needs and interests in coffee production as also reported by Vernooij et al. (2006) and Twesigye *et al.* (2025). Several dialogues are conducted to discuss salient issues affecting them as one of the interviewees affirmed that;

*“We formed village farmer committees like at a party, I can ask what I do want and everyone says what they need. Same here with the village committees, farmers tell us their needs. I plan according to the available resource in my envelope.”* **(Local Government Officer, Interviewee 3).**

The above quote implies that farmers provided their views and Extension Officer's role is to deliver the information to the district. The views are later incorporated into the district plans according to the designated budget. Similarly, OECD (2023), urges that local authorities are well placed to collect data on adaptation measures implemented at the local level and to record local climate impacts, which in turn serves to improve national climate models. According to the Agriculture Extension Strategy of Uganda, the district is tasked with collecting and analyzing agriculture-related data, planning for the agricultural sector as well as conducting M&E of the performance of the Agricultural programs, among others (Mushemeza, 2023).

Furthermore, farmers play a significant role in planning, implementing, and evaluating activities of development (Aref, 2011). This is considered to be a very effective tool for enhancing adoption of new ideas and information (Hamasalih and Mohammad, 2022) including, climate change adaptation. However, in our study, one interviewee had this to say about farmer's participation in the planning process of LG's at the district level;

*“Farmers are not involved in planning, like 90% are not involved. Only in the 5 year development plan. We move from village to village getting their views but, majorly we plan for them.”* **(Local Government Officer,**



## Interviewee 5).

From the above quote, it is noted that farmer consultations happen after 5 years during drafting of development plan. The interviewee clearly states that planning is done on the farmers' behalf. Our finding is in agreement with a similar study conducted in Malawi which reported that farmers in Ntcheu district admitted that the decisions were made without consulting them and programmes were just imposed on them (Namondwe and Ukpere, 2014). Low participation of farmers in the planning, implementation, and monitoring process of agricultural projects at the district level was also reported in Rwanda (Transparency International Rwanda, 2022). Similarly, International Alert (2018) also found that both local leaders and sample farmers acknowledged limited participation of farmers in the selection of priority crops for enhancing the national economy and nutrition.

Transparency International Rwanda (2022) thus, urges that citizen participation is very beneficial and worth investing in because of its advantage of increasing farmers' ownership of agriculture programs. The same author also urges that citizen participation helps Government to make good and realistic plans which are effectively implemented by farmers through collective actions, leading to improvement of livelihoods. LG's therefore need to encourage farmers to participate in the planning, decision making as well as M&E of Government ventures for their effective implementation (Namondwe and Ukpere, 2014).

## Sub theme 1.2: Participatory Monitoring

Participatory monitoring has been reported to play a major role in enhancing climate change adaptation (Ssekamatte, 2018; Twesigye et al., 2025). The interviewees affirmed that monitoring is one of the practices that enables them to attain more practical knowledge on the climate change interventions and adaptation. One of the interviewees had this to say;

*"Farmers are involved in daily monitoring in their coffee shambas and report any disease invasion, farmers spread the information on any advice and train their fellow farmers. Every sub-county has a focal person on small-scale irrigation to support the farmers on this cause". (Local Government Officer, Interviewee 4).*

The above quote shows that farmers are involved in participatory monitoring and they also report disease outbreaks to the technical team. This finding is in line with research studies by Kobusinge et al. (2018), who reported that coffee farmers in the coffee-banana agroforestry systems of Uganda have knowledge of pests and diseases damaging their coffee. In addition, the interviewee also highlighted that farmers share information and train each other. Farmer-to-farmer exchange of information has been reported to be an effective approach to peer learning and information dissemination among farmers and other value chain actors (Ssemakula and Mutimba, 2011; Franzel et al., 2015; Simpson et al., 2015; Sharma, 2017). The farmer-to-farmer extension providers are not highly technically trained but have practical experiences being practicing farmers and are committed to serving their peers (Ssemakula and Mutimba, 2011).

The interviewee also highlighted that the focal person provides additional support in the aspects of climate change adaptation. Kisambira et al. (2025) urge that the Uganda Government public service designated the District Natural Resources Officer (DNRO) as the Climate Change Focal Person within LG's and is supposed to ensure that climate change issues are fully integrated into the district development plans and with the district environmental committee, provide a mechanism to ensure cross-sectoral coordination.

The quote also emphasize collaboration and teamwork on demonstration activity among the farmers. Our finding agrees with Kekirunga (2024) who reported that collaborative learning including peer to peer improved understanding of climate change and its impacts in Kiboga district, central Uganda. Similarly, Adamaagashi et al., (2023), highlighted the importance of farmer-to-farmer communication networks in Africa in promoting knowledge sharing and the adoption of sustainable agricultural practices. Rozzo et al. (2024) further urge that interaction and collaboration among farmers facilitate the exchange of knowledge and mutual learning whereas, Nakano et al. (2018) urge that farmer-to-farmer extension program is a cost effective alternative to the conventional farmer training approach. Policymakers should therefore encourage knowledge sharing and collaboration among farmers to facilitate mutual learning and the dissemination of practical information (Rozzo et al., 2024).

The interviewee also explained that farmers appreciate participatory monitoring (Soto et al., 2021) and one of the LG Officers had this to say;



*“Farmers understand the concept of participation monitoring and evaluation using the demonstrations approach and work in groups. The technical team just steps into backstop with the District Officer.” (Local Government Officer, Interviewee 10).*

The above quote highlights that participatory evaluations are also done through assessment of farmer progress on the different demonstration plots to enable them to learn better. Our finding agrees with Thapa et al. (2017), who reported that farmers learn better from their counterparts. PM&E can be used as a research tool, with farmers monitoring their own experiments and sharing the data with researchers (Vernooy et al., 2006). It is a tool for making farmer groups function better (Thapa et al., 2017). Earlier studies agree that limited understanding of M&E affects implementation of the proper climate adaptation measures (Measham et al., 2011). Measham et al. (2011) and Thapa et al. (2017), recognize the relevancy of farmers appreciating the concept of collaborative efforts. In fact, Magala (2007) reported that farmers in Kasawo sub-county, Mukono district, central Uganda appreciated the PM&E process in general, and recommended that the PM&E process be continued mainly because it was the only way their ‘voices’ as farmers could be captured.

The study results further revealed that participatory monitoring was also political and ended up drifting away from the main objective of focusing on climate change adaptations. This finding concurs with Hassan and Nhemachena, (2008) and Baker et al. (2012) who also reported that climate change interventions are often politicked by the Governments in place. Similarly, Thapa et al. (2017) reported that top-down M&E was prevailing in the local Government administrative operations. In addition, Muiga (2015), concluded that politics has an influence on M&E and that the inputs of politicians are not necessarily positive. In fact, political interference opens doors to incompetent people who do not understand the parameters used in M&E (Jamaal, 2018). However, Muiga (2015) noted that much as it was known that political interference influences the implementation of M&E, there exists limited measures to ensure that this is stopped. All in all, all these scholars agree that with top-down M&E, farmers never achieve the intended goal.

### **Sub-theme 1.3: Participatory Evaluation**

Participatory evaluation practices play a major role in enhancing the adoption of climate adaptation measures among coffee farmers (Twesigye et al., 2025). Our study results generated aspects of participatory evaluation among coffee farming communities in Ntungamo district, southwestern Uganda, some of which are explained below.

#### ***Self-assessment***

Self-assessment in M&E for climate adaptation is when farmers assess their own practices and performance or skills in order to make desired improvements in adapting to climate change impacts (Schrader, 2010; Mume, 2021). Our study results revealed that farmers were doing M&E in their own way. For example, an increment or decline in coffee yields and quality could be attributed to either climate variability or agronomic practices, as also reported by Jassogne et al. (2013) and Tariku et al. (2023). One of the interviewees had this to share;

*“Some of the farmers conduct the self-assessment, though majority of farmers don’t keep records of their progress. They can relate their loss to any climate interventions and agronomic practices. Though they can have an estimate of their yield progress”.* (Community-Based Facilitator, Interviewee 2).

The above quote indicates that, neither do farmers keep records nor do they document their findings. This finding is in line with other studies which show that most farmers were not keeping production records in Uganda (Gidoi et al. 2015; Owiny, 2019; Jjagwe et al., 2022) and in other developing countries (Guido et al., 2020).

However, the quote indicated that farmers had a rough estimate figure of their yields. Paliwal and Jain (2020) urge that farmers can estimate crop yields but, there are concerns regarding the reliability of self-reported data (Baumeister et al., 2007), with previous studies reporting that farmers’ estimations of yield are highly subjective and can be misleading (Carletto et al., 2015).

The quote also elaborates that majority of the farmers do not even conduct the self-assessment. Similarly, Michaelis et al. (2024), urge that most farmers did not fully document their self-assessment. Contrary to our finding, however, results from a study conducted by Le Goff et al. (2022) showed that farmers in Uganda and Switzerland were to some extent able to assess their own household resilience to climate change. Nevertheless, self-assessment helps to assess farmers’ current state of resilience to climate change, while at the same time allowing for reflection on experiences to help tailor actions and interventions aimed at increasing their resilience (Choptiany et al., 2015).

## *Evaluation of Local Government programmes*

Mainstreaming climate change at LG level is important since the impacts on development are best observed and understood at the local level and thus, for most options for adaptation to be effective, they require to be pioneered at the local level for ease of replication and scaling up (MAAIF, 2018). LG's are therefore supposed to monitor the implementation and evaluate the efficacy of Government development programs as stipulated by the Local Government Act, including climate change adaptation (NUCAFE, 2008; MLG, 2013; Kabesiime et al., 2015; Namawejeje and Sekiswa, 2025). This was reflected in our results since they revealed that LG's are engaged in evaluation of coffee programs and one of the interviewee had this to say;

*"We often use the political wing all the time, RDC, LC V, technical team members of production department. We also monitor the coffee programmes ourselves. To check how many have adopted the technologies and for example, in case of coffee seedlings have been brought. I monitor those who have planted coffee seedlings after the distribution. I monitor the farmers myself"* (Local Government Officer, Interview 7).

Where: RDC=Resident District Commissioner, LC=Local Council

In response to evaluation of the climate change adaptations programs, another interviewee shared this;

*"Farmers tend to ignore Government projects. Therefore, we also go to visit so as provide proper accountability of the funds that were released to carry out the climate interventions especially those on irrigation".* (Local Government Officer, Interviewee 9).

The above quote also reveals that farmers tend to ignore Government programs hence, the need for constant evaluation. This could in part be attributed to the top-down development of these programs, with lack of engagement with intended users which results into failure to adequately consider and account for farmers' context-specific requirements (Etwire et al., 2013; Clarkson et al., 2022). Akpan and Udoh (2016) urge that farmers' participation is critical, in realizing the objective of any agricultural base programs but most Government programs in developing countries are designed following the political ideology of the ruling class and farmers have mixed responses regarding participation. Nevertheless, development experts are advocating for agricultural programs that focus on bottom-up approach which views the beneficiaries as partners, utilize local experience and endeavor to empower target beneficiary (Kumba, 2003).

The interviewee also emphasizes the need for accountability especially when farmers ignore Government ventures due to high level of corruption inside the government entities. Similarly, Kazaara et al. (2023) and Balinda (2024) urge that corruption within Uganda's public institutions remain a persistent and pervasive challenge, undermining the effective delivery of public services, eroding public trust, and impeding socio-economic development. Tacconi and Williams (2020) also urge that corruption also affects the agriculture-climate change nexus as demonstrated by the case of southern Benin, where small farmers' mistrust of LG, due in part to perceptions of corruption, led to challenges in implementing Government-led climate change adaptation measures.

The above quote further indicates that the primary needs of the farmers are not fully met and therefore they are not bothered about Government projects. Nambassa and Qodir (2024) urge that a country's development is fundamentally influenced by how strategic its policies are in addressing citizens' pressing needs.

More findings from our study highlighted the need to document and report periodically as one of the interviewee had this to say;

*"The small-scale irrigation Focal Person often reports to the Local Government and Ministry of Agriculture. Therefore, the progress of the activities are documented in the report quarterly."* (Local Government Officer, Interviewee 1).

Our findings also show that participatory evaluations were through the assessment of climate change adaptations such as small-scale irrigation ventures, supported by LG programs to provide data on the performance of the intervention. These programs were supported by the Ministry of Agriculture Animal Industry and Fisheries (MAAIF) which necessitates quarterly reports on the progress of the adaptation interventions. These findings are in tandem with Bours et al. (2013), whose study advocated for periodic assessment of programs in the context of climate change to take corrective action in complex situations. Ssekamatte (2018) also argues that valid data provide grounds for organizations to develop better strategic planning and also inform policy.

The quote also indicates that reporting on climate change issues in the district is done quarterly. This is in line with Kabesiime et al. (2015) who urge that in Uganda, various Ministries, Departments and Agencies are identified with the indicative climate change programmes which are expected to report on a quarterly and semi-annual basis on their progress. Furthermore, the Local Government Ministry assesses all LG's of the agreed indicators in order to ensure



that mainstreaming of climate change is being done. LG's in turn, are expected to report on a quarterly and semi-annual basis on the progress in implementing their respective tasks as well as attainment of their expected results and performance targets, based on the detailed M&E Framework (Winthrop et al., 2018).

**3.2 Gaps and challenges in Participatory Monitoring and Evaluation (PME) practices that affect climate change adaptations among coffee farming households**

Local Governments (LG's) are constitutionally mandated to carry out projects to improve the welfare and well-being of people in their jurisdiction (Mthethwa and Jili, 2016). However, there are usually a myriad of constraints that hamper Participatory Monitoring and Evaluation (PM&E) of these projects at a LG level (Mthethwa and Jili, 2016). In our study, respondents shared their views and perspectives regarding the challenges in PM&E practices of climate change adaptation interventions in their areas. These included: - lack of M&E Department, lack of training in M&E, data accuracy issues, poor dissemination of findings, limited extension support, insufficient funding and low farmer participation (Box 2). Each of the challenges is detailed as shown below:

Box 2: Thematic analysis of the gaps and challenges in Participatory Monitoring and Evaluation (PM&E) practices that affect climate change adaptations among coffee farming households of Ntungamo district, southwestern Uganda

<p><b>Research questions</b></p> <p>How do the gaps and challenges in PM&amp;E practices affect climate change adaptations among coffee farming households?</p>	<p><b>Theme 2: Gaps and challenges in PM&amp;E practices affect climate change adaptations among coffee farming households?</b></p> <ul style="list-style-type: none"> <li>• Lack of an M&amp;E Department</li> <li>• Lack of training in M&amp;E</li> <li>• Data accuracy issues</li> <li>• Poor dissemination of findings</li> <li>• Limited extension support</li> <li>• Insufficient funding</li> <li>• Low farmer participation</li> </ul>
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**Lack of a Monitoring and Evaluation (M&E) Department**

An M&E Department at the LG level is crucial for assessing the effectiveness and impact of programs and policies (Mabizela and Zwane, 2023). However, our study results showed that the respondents reported that there was no M&E Department at Ntungamo LG and one of them had this to say:

*“Yes we do feel challenged by lack of an M&E Department and now even the M&E was under district statistician but the office was abolished for us we collect and cannot analyse well. M&E can be facilitated to collect data and manage it in a professional way”.* (Local Government Officer, Interviewee 4).

The quote above explained by the interviewee affirms how M&E data for the climate adaptation requires its own Department. Our findings agree with Peter (2023) who reported that there was no M&E Department in Hai district, Kilimanjaro Tanzania and this makes it difficult to implement M&E system in an organization. Similarly, Mthethwa and Jili (2016) urge that many Local Government authorities have no M&E department in their structures. This results into many officials failing to understand the importance of M&E at this level as well as developing an institutional and effective M&E system including M&E plans, indicators and tools (Measham et al., 2011; Mthethwa and Jili, 2016).

The interviewee further clarified more on how the office of the data statistician had been abolished, hence indicating even a big problem of data analysis and generating the right information. Our finding supports Akena (2021) who urges that in many LG's in Uganda, there is no substantive statistician to specifically deal with data analysis.

Results further showed that M&E data on the climate change adaptation practices, could not be linked to a particular department. The Production Unit, Natural Resource as well as Planning Department claimed to be the custodians of these data, though not consolidated M& E database. However, according to Uganda Government Public Service, climate change issues are supposed to be handled by the District Natural Resources (Kisambira et al., 2025).

**Limited trainings in Monitoring and Evaluation (M&E)**

Capacity building and training are important aspects of effective adaptation to climate change at the LG level (Shemdoe et al.,



2015) and Susskind and Kim (2021) urge that LG's around the world will not be able to cope with climate change impacts until they enhance their capacity to adapt. Scott and Moloney (2021) also argue that, for effective adaptation planning and learning, greater attention needs to be paid to building evaluative capacity of local governments to complete the adaptation planning cycle. However, in our study, one of the interviewees shared this;

*“Some Extension Officers are handpicked and taken for training though the training is often in agriculture and not specifically monitoring and evaluation” (Local Government Officer, Interviewee 5).*

The quotation above explains that training is selectively done for the Extension Officers, that the training conducted is not holistic and only conducted in agriculture. Results further evidenced lack of technical competence in M&E as a profession in LG, with the Agricultural Officers (AO's) being responsible for collecting M&E data on climate change adaptation measures without skills in M&E. These officers therefore often face a lot of challenges in managing M&E issues. Our finding supports Mpofu et al. (2014) who urge that an organization without the right people with the right training is as good as dead. Furthermore, Engela and Ajam (2010), Mthethwa and Jili (2016) and Yekani et al. (2024) urge that, lack of M&E training opportunities and networks for M&E personnel in most Government institutions and ministries is one of the main drawbacks to achieving an effective M&E system. Maimula (2017) also stated that many LG's are faced with challenges of weak management team in M&E practice due to lack of technical staffs as many of them are usually unqualified and untrained. Similarly, Ngwakwe (2020) also urges that implementing the M&E process was not effectively done in Botswana due to lack of expertise, lack of partnerships, and a poor culture for M&E, among other reasons.

Villanueva (2011) also agrees with Kabesiime et al. (2015) on the relevance of technical capacity to develop meaningful indicators specific to the climate change issues, further supporting the findings of this study conducted in Ntungamo District. Technical gaps in climate adaptations remain a challenge and our observation corresponds with Kabesiime et al. (2015) findings which established that the technical capacity of M&E officers can negatively or positively affect the adaptation of climate intervention. Therefore, it is worth noting that, without technical competence in PM&E, corrective action by the farming households and Government officials on climate change adaptation is impossible.

### **Data accuracy challenges**

Good quality M&E data or information is necessary for any improvement to take place at any LG setting (Baguma, 2017). Otundo (2024) also urges that "investing in better data management systems helps in maintaining data quality and making informed decisions based on reliable information." However, results of our study showed that Ntungamo LG faced challenges of data accuracy. This is evident by one of the LG personnel who shared this;

*“We collect the data from the potential coffee farmers, however, the data they give us are somehow false and deceive us because they think that they be charged more tax”. (Local Government Officer, Interviewee 10).*

The response in the above quote indicates that data are collected from the potential coffee farmers, though sometimes they may be inaccurate. This therefore, indicates validity issues of the generated data. Farmers are not fully aware of the reasons for data collection, though, Antonioli et al. (2024) urge that increasing farmers' understanding of the purpose and benefits of data collection is crucial for motivating farmers. Due to this, the data collected by farmers are usually compromised. This finding is in agreement with Baguma (2017) who reported poor quality M&E information as one of the major challenge for M&E in Mpigi district, central Uganda. Similarly, Wanjiku (2015), found that many organizations do not have any data quality improvement strategy or even data quality assessment frameworks and this may lead to compromised M&E process (Atwiine, 2019). Nevertheless, Ngatia (2015) noted that data quality was important for performance measurement and effective decision-making. He also added that measuring management's perspective of data quality was an effective way of learning about users' expectations that were associated with the intended uses of the data. Additional resources are therefore needed to improve data quality through system investments that support consistent data reporting (Yourkavitch et al., 2019).

### **Poor dissemination of findings/Feedback sessions**

Data dissemination practice in PM&E refers to the intentional and systematic process of sharing and communicating data, findings, and results with stakeholders, particularly those involved in the M&E process in order to facilitate collective understanding, accountability, and informed decision-making (Thompson and Mertens, 2021). Sharing of the findings from the generated data has been underscored as vital for learning in M&E for climate adaptations (Otundo, 2024). However, our results showed that there was poor dissemination of findings and one of the interviewees had this to say;



*“We do not receive feedback because if the farmers received there was feedback it would be documented and even us would be fully aware. However, what is received is a general perspective on the coffee production” (Local Government Officer, Interviewee 5).*

The above quote spells out the outcry of documentation of findings by the interviewee. Feedback sessions are not conducted and this makes learning process difficult. Failure to share findings affects the farmers’ responsiveness to participate fully in climate adaptations. Therefore, this calls for proper dissemination pathways of the information to achieve climate change adaptations. Our study findings established that, there is a gap in the sharing and dissemination of the M&E findings to the beneficiaries. Similarly, Baguma (2017) reported that limited utilisation of M&E findings was a major challenge for M&E in Mpigi district, central Uganda. Ssekaamate (2018) also agrees with this finding that data on M&E is often underutilized to make improvements at LG level. These findings agree with Makate et al. (2019) who stipulate the need to generate learning concepts from feedback. Several studies have reported that data dissemination practices have a significant positive impact on project outcomes whereby, poor data dissemination practices are associated with poor project performance (Komba et al., 2017; Kabanda et al., 2018; Akwei et al., 2019). This suggests that improving data dissemination practices can lead to a significant increase in participatory monitoring and evaluation practices (Otundo, 2024).

#### **Limited extension support for data collection**

Extension officers must be involved in the M&E of the performance of farmers in development of agricultural programs (Igodan, 1996). Extension support is an important prerequisite for climate change adaptations (Maponya and Mpandeli, 2013; Ferdousi et al., 2024). However, one of the respondents had this to say;

*“We are still insufficient with one extension worker to 8000 farmers, even the whole year we cannot collect the data. We budget for fuel and have logistics and 50% have motorcycles”.* (Local Government Officer, Interviewee 7).

The interviewee in the quotation above explains that the Extension Worker to farmer ratio is very big and presents a challenge in collecting data on climate change adaptations. This finding agrees with studies by Kuteesa et al. (2018) in Uganda which reported a high extension to farmer ratio of 1:1,800 instead of the ration recommended by the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) of 1:500. Similarly, such ratios have been reported in other African countries such as Tanzania (Busungu et al., 2019), Ghana (Fosu et al., 2018) and Nigeria (Davis et al., 2019).

The interviewee also explained that only 50% of the staff have motor cycles which is definitely inadequate to carry out their work. Limited availability of transportation means by LG Extension Officers has also been reported by Kuteesa et al., (2018) and Ledermann et al. (2024). All in all, the limited human resource for the M&E reported in our study has also been observed LG’s in Uganda, such as Nakapiripirit district, Karamoja region (Maruk, 2024) and Mpigi district, central Uganda (Baguma, 2017). This shortage of skills in M&E contributes to ineffectiveness of M&E systems in LG (Uys 2010; Mthethwa and Jili, 2016; Kariuki and Reddy, 2017; Bogere et al., 2021).

#### **Insufficient funds for Monitoring and Evaluation (M&E)**

Nkoana et al. (2018) underlines the relevance of sufficient funding to enable the execution of M&E in a participatory approach. However, our study results showed that Ntungamo district experienced challenges in financial aspects to conduct M&E activities. One of the interviewee affirmed this;

*“The facilitation is limited and I stop at the sub-county level when monitoring yet this activity requires a lot of intensity. Under ACDP, Extension grant under the Ministry, the funds are available, though insufficient”.* (Local Government Officer, Interviewee 4).

The above quote indicates that the LG’s usually struggle to implement M&E the activities throughout the district because the budget allocated to these activities is inadequate. Inadequate funding of M&E activities at LG level has also been reported in the districts of Mpigi (Baguma, 2017) and Isingiro (Atwiine, 2019) of Uganda as well as Gaasabo district of Rwanda (Nyirarukundo et al., 2017). However, the respondents reported that resources are usually solicited from the production sector like agriculture extension grants. These findings are in agreement with the study by Bours et al. (2013) and Ssekamate (2018) which emphasized the need for adequate resources to support M&E processes in climate change adaptation. Mthethwa and Jili (2016) urge that shortage financial resources contribute to the ineffectiveness of M&E systems in LG’s. Ssali (2016), therefore recommends that the Government of Uganda should prioritize the M&E function by allocating adequate funds to the function and providing clear M&E structures across all Ministries, Departments, Agencies and LG’s. To stress this point, Atwiine (2019), suggests that the M&E budget should be about



5-10% of total projects' budget which will give the M&E unit adequate resources to ensure its effectiveness.

### **Low farmer participation**

Community-based monitoring, in which community members participate in monitoring initiatives is a key strategy increasingly used to detect, monitor and respond to climate change impacts (Kipp et al., 2019). For any participatory venture to be successful, the beneficiaries must be fully involved in Government programs (Bandé et al., 2024). However that is not the case in Ntungamo LG as one of the interviewees affirmed;

*“Coffee farmers are not at all involved at the district level (facial expression of disappointment) not even at the sub-county level. Farmers are only involved in their own farmer groups and co-operatives which is often at parish level”*  
**(Community-Based Facilitator, Interviewee 2).**

Another interviewee affirmed the low participation and is what he shared;

*“Farmers are not involved like 90% only in the 5 year Development Plan we move from village to village collecting their views we just plan for them”.* **(Local Government Officer Interviewee 5).**

One of the above quotes indicates that farmers are majorly involved in their farmer groups at parish level but not at district level and this results to neglecting Government programmes. Our finding is in line with Uganda's Parish Development Model (PDM) which adopts the Parish as the lowest reference unit for planning, budgeting and delivery of interventions to drive socio-economic transformation and also encourages farmers to form groups at this level (MLG, 2021).

The other interviewee affirms how the district always plans for the farmers and this clearly shows that farmers are merely consulted and thus, are more passive participants in the planning process. This finding is in line with Ministry of Agriculture Strategies which show that at LG level, planning for farmers is done by the District Production and Marketing Departments (MAAIF, 2016).

Results from our study further highlighted that farmer participation and representation were quite low during planning meetings. Farmers were only consulted on views and ideas but felt they could not influence any decision at the higher levels, apart from maybe just at parish level. Similarly, Wanjiku (2015), reported that the majority of the community was not involved in M&E at all and this low participation affects the climate adaptation interventions because farmers feel they are not valued, This therefore calls for full beneficiary participation at all levels of the Local Government (Nkoana et al., 2018).

All in all, our findings exposed the multiple loopholes, bottlenecks and, gaps in the PM&E practices. These interact with each other, generating a complex and challenging processes of climate change adaptation (Villanueva, 2011; FAO and UNDP, 2023).

## **CONCLUSIONS**

In conclusion, our study established that Ntungamo Local Government employs three (3) Participatory Monitoring and Evaluation (PM&E) approaches to enhance climate change adaptation among coffee farming households. These include, i) participatory planning which involves stakeholder engagements and farmer consultative approach, ii) participatory monitoring, and, iii) participatory evaluation which involves farmer self-assessments and assessment of Local Government programmes. The study also identified seven (7) challenges in PM&E practices that affect climate change adaptations among the coffee farming households. These included: - lack of an M&E Department, lack of training in M&E, data accuracy issues, poor dissemination of findings, limited extension support, insufficient funding and low farmer participation. We therefore recommend that Local Governments should develop strategies to address the challenges in their PM&E practices in order to adequately enhance climate change adaptation among coffee farming households.

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