

Participatory Monitoring and Evaluation for Stakeholder Engagement, Assessment of Project Impacts, and for Institutional and Community Learning and Change

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Abstract

Participatory monitoring and evaluation (PM&E) offers new ways for strengthening learning and change both at community, project and institutional level. PM&E can and has been used for various purposes, including project planning and management, organizational strengthening and learning, understanding and negotiating stakeholder interests, and the assessment of project outcomes and impacts. For example, at community level, PM&E systems can serve as a tool for strengthening the local capacity to track changes, assess the effectiveness, environmental sustainability and livelihood impacts of their projects. The process involves scientists and communities negotiating and agreeing on what changes they expect from projects; what they need to do to achieve these changes; what local and scientific indicators will track these changes; and which success and failure factors need to be monitored to ensure that the projects are on track. This research project seeks to investigate whether PM&E systems can contribute to improving project performance, ownership, and success; strengthen local decision-making processes; and enhance accountability of formal R&D organizations to communities, thereby improving the delivery of outputs and outcomes. The paper presents lessons and experiences from establishing and applying PM&E systems at both the community and project levels within the Kenya Agricultural Research Institute (KARI). It details the process of establishing the PM&E systems, including strategies for stakeholder involvement, identification of community indicators for empowerment, enhanced capacity, and differences in local indicators for men and women.

Preliminary results from this study indicate that scientists are beginning to apply the PM&E process to engage their stakeholders in joint planning, developing common objectives and vision, and in collectively assessing progress. Scientists are paying more attention to issues and concerns of stakeholders and are adjusting project outcomes, outputs, and indicators based on stakeholder priorities. At the community level, PM&E data is being applied to adjust project activities, reflect and make decisions on various aspects of community initiatives, and to plan and monitor the implementation of activities. Additionally, communities are using these systems to hold R&D institutions accountable to their priorities, through effective communication and feedback mechanisms.

These results demonstrate that integrating local indicators with project level indicators provides a more holistic view of the benefits and impacts strengthens information feedback process between communities and R&D systems. This process also provides indicators for measuring the often hard to measure process level outcomes such as empowerment from the perspectives of the communities. Developing indicators and negotiating them with different stakeholders allows for the impact to be measured from the perspectives of different project stakeholders including women, the marginalized and the resource poor.

1. Background and Introduction

Why the Focus on Evaluation

The earliest evaluations was applied in the field of education as a means of evaluating performance in schools and the personnel when human capital was identified as a key factor in industrial production process. (Guba and Lincoln 1989). This later led to the development of programme evaluation as a distinct filed of professional practice aimed at evaluating large scale development programmes. This was aimed at identifying what was working and what was worth funding. While early evaluation purposes primarily focused on supporting funding decisions, and the generation of knowledge concerning effective human action, a new role gradually emerged: Evaluators were called for not only to offer definitive judgments, but also to provide feedback and to help in improving programmes during their implementation (Patton, 1997). Freire argued that evaluation was based on the belief in the emancipatory potential of an explicit process of reflecting on and learning from one's actions (Freire 1970; Fals Borda 1979, 1982, 1987). By the mid-1970s, interest in evaluation had grown to the point where professional organizations were formed in various countries (Patton, 1997). In the USA, growing concerns about federal budget deficits and the rising neo-liberal ideology in the late 1980s and early 1990s, cut backs were made to both government programming and development programmes.

The interest in reducing government interventions and making remaining projects more effective and accountable, gave new impetus to evaluation, and was the predominant theme during the first International Evaluation Conference in 1995. Today the role of evaluation extends beyond accounting processes in the public sector, as many organizations in the private and independent sectors face similar challenges relating to reputation, legitimacy, quality management, organizational effectiveness etc. (Raynard 1998). A feedback loop is a circular arrangement of causally connected elements, in which an initial cause propagates around the links of the loop, so that each element has an effect on the next, until the last 'feeds back' the effect into the first element of the cycle. In a broader sense, feedback has come to mean the conveying of information about the outcome of any process or activity to its source (Capra, 1996).

The earliest evaluations focused largely on quantitative measurement of clear and specific goals and objectives. The methodology employed to date has been almost exclusively scientific, grounded in the positivist assumption that the evaluator can stand outside the arena of the observed and generate objective information about the state of affairs. Evaluators and researchers took the position that their task was merely to design studies, collect data and provide the results to decision-makers, without any responsibility for the use of the evaluation findings. By the late 1970s, the alternative qualitative / naturalistic paradigm became a major focus of evaluation discussion and debate (Guba 1978; Patton 1980), and concern about the non-use or under-utilization of evaluation findings became predominant (Patton 1978).

Among the multitude of existing approaches there are three innovative perspectives that have emerged among evaluation professionals are reviewed:

- (i.) **Fourth Generation Evaluation** which was proposed by Guba and Lincoln (1989) as a methodology that moves beyond previously existing conventional measurement-, description-, and judgment-oriented evaluation techniques. The authors argue that evaluation has a social, political and value-oriented character, and findings are not ‘true facts’ but constructions. As a consequence, fourth generation evaluation is grounded in a constructivist inquiry paradigm, and requires an involvement of various stakeholders in determining what questions are to be asked and what information is to be collected. The outcome of evaluations is an agenda for negotiation rather than a set of conclusions, recommendations or value judgments.
- (ii.) **Empowerment Evaluation**, which was put forward by David Fetterman, AEA president in 1993. Fetterman defined empowerment evaluation as the use of evaluation concepts and techniques to foster self-determination. Through self-assessment and a group’s knowledge of itself, it achieves accountability onto itself as well as to others (Fetterman 1994; Fetterman et al. 1996). The use of evaluation to mobilize for social action and empower participants certainly draws from the action research tradition of Freire and Fals-Borda. As the term ‘empowerment’ carries an activist connotation, it frequently provokes negative reactions among formal researchers and evaluators.
- (iii.) **Utilization-focused Evaluation** takes a more pragmatic stance (Patton 1978, 1986, 1997). Utilization-focused evaluation begins with the premise that evaluations should be judged by their utility and actual use, i.e. the focus is on intended use by intended users. The evaluator facilitates judgment and decision-making by the intended users rather than acting as a distant, independent judge. It is acknowledged that no evaluation is value-free, and therefore it has to be clarified whose values will frame the evaluation. Utilization-focused evaluation does not advocate any particular evaluation content, model, method, theory, or even use. Rather it is a process for making decisions about these issues in collaboration with an identified group of primary users. Intended users are more likely to use evaluation findings if they understand and feel ownership of the evaluation process and findings, and if they are actively involved. Using evaluation to empower participants is seen as one of its many possible purposes (Patton, 1997).
- (iv.) **Participatory monitoring and evaluation** which incorporates beneficiary involvement in monitoring and evaluation, participatory M&E, is viewed as a logical extension of the other dimensions of participation (e.g. Uphoff 1991; Germann et. al. 1996; UNDP 1997; Abbot and Guijt 1998; Estrella and Gaventa 1998; Estrella et al. 2000)

Participatory Monitoring and Evaluation

PM&E draws from 20 years of participatory research traditions including participatory action research (PAR), participatory learning and action (PLA), Participatory Rural Appraisal (PRA), and farming systems research (FSR) and farming participatory research (FPR). By the 1980s, concepts of participatory monitoring and evaluation had already entered the policy making domain of larger donor agencies and development

organizations most notably the Food and Agriculture Organization (FAO), the United States Agency for International Development (USAID), the Danish International Development Agency (DANIDA), and the UK Department for International Development (DFID), the Swedish International Development Authority (SIDA), the Norwegian Agency for International Development (NORAD) and the World Bank. (Howes 1992). Outside the field of development, PM&E can also trace its beginnings in the private sector where there has been growing appreciation for individual and organizational learning (Raynard 1998).

PM&E involves stakeholders including local people in deciding how progress should be measured, in defining criteria for success and in determining how results should be acted upon (Guijt & Gaventa, 1998). PME strives to be an internal learning process that enables people to reflect on past experience, examine present realities, revisit objectives and define future strategies by recognizing differential stakeholders' priorities and negotiating their diverse claims and interests (Estrella et al., 2000). In these processes the local people are involved in developing indicators to measure change, in collecting and analyzing the data, and making a decision as to how to adjust the activities. PM&E is not a tool but a diverse constellation of approaches, methodologies and techniques. PM&E is not just a matter of using participatory techniques within a conventional monitoring and evaluation setting. It is about radically rethinking who initiates and undertakes the process, and who learns or benefits from the findings (IDS, 1998).

PM&E systems provide a framework for collaborative learning and for involving project clients, participants and partners in the M&E process. PM&E produces important benefits including valid, timely and relevant information for management decision-making and project improvement within R&D institutions. It leads to improved accountability; examines assumptions on what is progress; can lead to contradictions and conflict; but can also be empowering by putting local people in charge, it helps in developing skills, and showing all stakeholders that their views count.

At the heart of PM&E are four broad principles: (1) 'Participation' - which means opening up the design of the process to include those most directly affected, and agreeing to analyze data together;(2) the inclusiveness of PM&E requires 'negotiation' to reach agreement about what will be monitored or evaluated, how and when data will be collected and analyzed, what the data actually means, and how findings will be shared, and action taken;(3) which leads to 'learning' that becomes the basis for subsequent improvement and corrective action; and (4) since the number, role, and skills of stakeholders, the external environment, and other factors change over time, 'flexibility' is essential.

Participatory Monitoring and Evaluation can be summarized as a continuum of observations, information gathering, analysis, documentation, and assessment for tracking changes and critical learning at different stages of the research and development process, conducted by and for the various stakeholders of the project. The goals are to adapt M&E tools to make them more accessible and relevant to local stakeholders; to develop an appropriate PM & E system at the community level that can improve the

decision-making capacity of local communities; to involve local communities in monitoring and evaluating progress and impacts of project -- assessment of achievements/ impacts over a longer period; to enhance the flow of information and provide feedback to different levels (such as, group, community, project managers, between farmers and R&D systems).

PM&E has also been defined as a process of self-assessment, knowledge generation and collective action in which stakeholders in a program or intervention collaboratively define the evaluation issues, collect and analyze data and take action as a result of what they learn through this process. Philosophically, participatory monitoring and evaluation seeks to honour the perspectives, voices, preferences and decisions of the least powerful and most affected stakeholders and local beneficiaries. Guijt and Gaventa (1998) have defined PM&E as an approach which involves local people, development agencies, and policy makers in deciding together how progress should be measured and results acted upon while McAllister and Vernooy (1999) say that it is the systematic collection of information pertinent to the orientation and results analysis of the project that allows for a self-critical view and facilitates the reformulation of activities during their course. In defining PM&E the World Bank (2002) indicates that it is a radical new way of assessing and learning.

Estrella and Gaventa (1998) and Guijt and Gaventa, (1998) write that the issues which affect the interest in PM&E include the trend in management circles towards performance based accountability, the growing scarcity of funds, the shift towards decentralization and devolution of central government responsibilities and authority to lower levels of government, necessitating new forms of oversight to ensure transparency and to improve support to constituency-responsive initiatives and stronger capacities and experiences of NGOs and CBOs as decision makers and implementers in the development process.

CIAT's Approaches to developing a PM&E Systems

Community-Driven PM&E Systems:

The CD-PM&E approach builds on the concepts and ideas developed by the Institute of Development Studies at the University of Sussex (Estrella et al., 2000; Guijt & Gaventa, 1998), the PIM concept developed by Germann et al. (1996), and more recently by Probst (2002). Probst's work focused on using PM&E as an instrument to support systematic reflection, learning, the generation of knowledge and process-oriented management at the community level. In community driven PM&E, community members themselves identify their own objectives and initiate activities to achieve these objectives. They develop their indicators for measuring progress towards achievement of the objectives; indicators to assess change, are in charge of the data collection and analysis, and finally use the PM&E results to adjust their activities. Community indicators are based on local experiences, perceptions and knowledge. The purpose of the community driven PM&E is to empower the local community to initiate control and take corrective action and to basically empower them to improve their social well-being. This type of PM&E approach is unique because of the emphasis on developing a system that is managed and supported by local communities, for their own purposes.

Community driven helps capture differences and different viewpoints from different groups within a community who may have different perspectives, aims and objectives. These differences may be due to their experiences, their social and cultural situations such as their wealth, gender among other things. By promoting participatory approaches, it gives the rural people a voice in their community. It is an important vehicle for increasing participation and improving accountability. Appropriate forms of PM&E help the local people manage their own affairs better, take more control of the projects and their aspirations and increase the likelihood that project-supported activities will continue after the project ends. It enables the community to look systematically at what they want to achieve by deciding their own goals, what they have done in that they reflect on their achievements, what they still need to do i.e. what action has to be taken and what changes they have seen by capturing differences and different viewpoints on their indicators. The amount of local control over the process can be assessed by considering who makes decisions (researchers or local people, and which local people or groups), who implements the activities, who analyses the information, and who is the research ultimately for- who will use the results of the research and how (McAllister, 1999).

Institutional level

At institutional level, different stakeholders involved in research and development projects including communities are involved in defining project objectives and activities, in deciding what should be monitored and evaluated. They contribute to the development of indicators to measure the achievement of objectives and the successful completion of activities. Roles for data collection and analysis are shared between the different stakeholders. Data and information collected is shared systematically by the stakeholders leading to learning and adjustment of activities and approaches and to the documentation of best practices. Within this institutional PM&E, communities or local stakeholders can be involved in various ways including during the
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, implementation stage, data analysis, use and sharing of information.

This paper analyses experience with establishing project / institutional level and community-based PM&E in three countries; Uganda, Malawi, and Kenya and gives the results and changes that have been achieved at institutional and community level as a result of these systems. The objectives of this work were;

- To strengthen PM&E systems within R&D projects to critically analyze and understand the institutional learning and change process, to increase self-learning, cross learning, and to evaluate impacts;
- To establish an appropriate PM&E system at the community level that allows local people analyze and interpret change, to learn from their own experiences, to adjust strategies accordingly and to systematically evaluate progress and
- To develop strategies for the institutionalization of PM&E in R&D organizations

2. Methodology: The PM&E process

Figure 1 shows the steps that are involved in establishing PM&E both at community level and institutional level. The back and forward arrows between the two systems are steps were the two interface or feed into each other. Although the process is drawn as though it were linear, it is cyclical and the use of PM&E results lead into the planning process and into another cycle of monitoring. The reflection process occurs at most of the different stages of the PM&E process. As teams develop and agree on what to monitor, they are reflecting on past experiences and deciding what is achievable and what is not. Reflection at the end of the PM&E cycle enables the team to look at the key achievements and to plan a way forward. These steps are briefly described below.

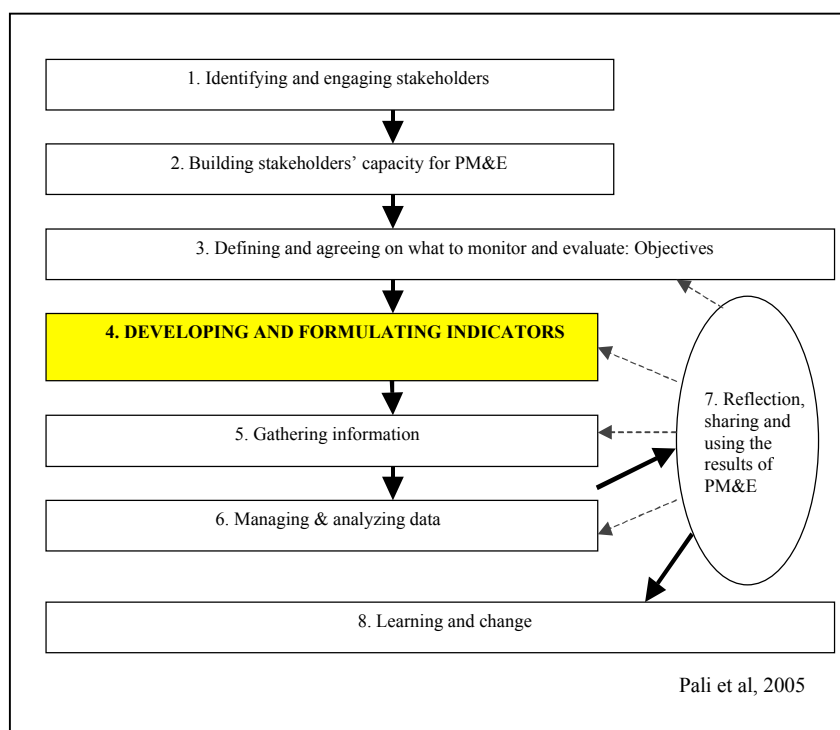


Figure 1: Steps in the PM&E

2.1 Engaging stakeholders and deciding the objective of the PM&E

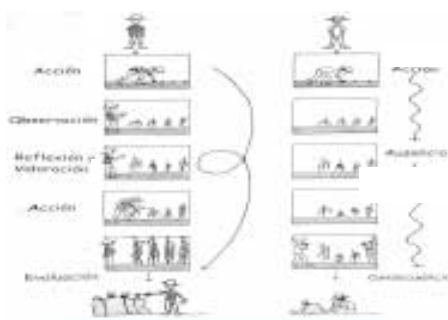
Stakeholder or multi-stakeholder analysis is the approach and procedure for gaining an understanding of a system by means of identifying the key actors or stakeholders in the system and assessing their respective interests in that system (Grimble and Chan, 1995). Stakeholders include all those who affect, and/or are affected by the policies, decisions, and actions of a system. Involving all stakeholders is critical to developing successful PM&E systems, integrating different perspectives from those within the community, R&D systems and project participants, and creating ownership in the process. A stakeholder analysis (for further details see Rietbergen-McCracken, J. and D. Narayan, 1998.) is used to identify stakeholders' interests, their roles and responsibilities and the participation strategy necessary to involve them in the process. A PM&E stakeholder

analysis ensures that key stakeholders are not left out in the PM&E process and is also an important step in the sharing of roles and responsibilities for PM&E. An example of the results of a PM&E stakeholder analysis is given below.

2.2 Building capacity for understanding of PM&E concepts and principles

This process aims to develop a common understanding (and local vocabulary) of the concepts and principles of participation, monitoring, evaluation and indicators, using a variety of tools and methods (including formal workshops). It employs methods that encourage participation of all individuals in the group. Capacity development involves various aspects: (i) Developing a common understanding PM&E concepts and goals. (ii) Identifying local vocabulary and local terms that are equivalent to technical terms (Monitoring, evaluation, participation and indicators). (iii) Using of methods and tools that encourage participation of all individuals in the group, such as graphics, role-plays, graphics using scenes from the farmers' daily lives, or planting and cropping seasons and management. (iv) Discussion on why PM&E is important to their lives and their projects.

Figure 2: PM&E Graphic



Germann et al 1996

Figure 2 shows an example of one of the graphics that was developed by a community and used to collectively develop a common understanding of what monitoring and evaluation is, and why it is important to the community. In many instances communities will chose to draw another more appropriate graphic, depicting their farming systems or their specific cultural context.

2.3 Deciding what to monitor

Stakeholders begin implementation of the PM&E process by developing a common vision and agreeing on measurable results and processes that need to be monitored and evaluated. A systematic process for developing results can apply an 'impact chain' (which includes impacts, outcomes, outputs, processes and activities of the project). In the impact chain, several activities contribute to an output, several outputs contribute to an outcome, and several outcomes contribute to an impact. The impact chain also includes processes, such as approaches, strategies, and methodologies that are applied to achieve results, and describes what is happening to (and between) stakeholders while the project is being implemented.

Visualization tools (such as force-field analysis and the river code) are used to enable communities to develop shared goals and a common vision on what to monitor. The river code is a role-play (acted out by the community members) that enables them to analyze their current situation (one side of the river), their desired future situation (the other side

of the river), what they need to do to move from the current to the desired situation (steps to cross the river) and the strategies they need to employ (how to cross the river). In force field analysis the community uses a diagram to think about and record their opportunities, and the constraining factors, in reaching their goals (for more on these tools see Hope and Timmel, 1996).

2.4 Developing indicators

Indicators are pieces of information that help you understand where you are, which way you are going, and how far you are from where you want to be (Hart 1995; McSweeney 1996). They are a means to track progress towards achievement of results over time as and compared to targets, to measure beneficiary or client satisfaction and communicate results to stake holders, and to measure actual results against planned or expected results in terms of quality, quantity and time lines. Selecting the best indicators is not always easy because it is a balancing act between choosing locally-relevant factors, and those that can be applied more widely and the more stakeholders that are involved. Additionally, indicators should capture intangible as well as tangible changes particularly in participatory projects that value factors such as personal and social development.

The concept of indicators for community driven M&E is discussed using graphics and familiar stories from the farmers’ lives (such as signposts to the market, for example). Community indicators for measuring change are developed during a brainstorming session of groups of farmers for each result or objective. Small group sessions ensure that there are contributions from the majority of the members of the community, representing its diversity. Different members have different perspectives on the indicators, influenced by their involvement in the project, their gender, wealth status or their expectations of a particular activity.

2.5 Organizing for PM&E

At project level, the PM&E plan as shown in Table 1 synthesizes the results and their indicators and include information requirements, baselines and targets for indicators, the frequencies and responsibilities for data collection, analysis and reporting. Roles and responsibilities are guided by PM&E interests, type of data, source of data, and ease of data collection. Special emphasis is placed on developing targeted baselines that provide a starting point from which to measure change, to develop realistic targets, and to assess whether change has occurred or not.

Table 1: A PM&E Plan / Framework

Results/ processes, activities	Indicators	Information requirements	Baseline	Targets	Data source	Who collects? Analyses? Reports?	How often? When?	Tools
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Integrated NRM options evaluated with male and female farmers	Proportion of men and women participating in evaluation	Number of men Number of women	Baseline is 0/0	Men to women ratio of 70:30 by year 1 Men to women ratio of 50:50 by year 2	Farmers	Participating farmers collect the primary data Field officer facilitates compilation and analysis of the data	Participating farmers record during each activity Every 3 months the field facilitator compiles and analyses	Attendance lists Facilitator's field journal Data presented in trend lines or graphs
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At community level, a committee is elected by the group and charged with the responsibility of data collection, analysis and providing regular feedback to the community. This process involves a) the development of criteria for the selection of committee members; b) facilitating the development of simple tools for data collection, and c) training the committee on how to manage the PM&E processes (for example, when to collect data on the indicators, how to analyze, when to report).

2.6 Data collection and analysis

A range of different tools is used to collect, analyze and document data, which includes both qualitative and quantitative tools such as focus group discussion, participatory impact diagrams, resource maps, social maps, and institutional maps. Simple registers, records, questionnaire surveys, and process journals can also be used. Stakeholders decide which tools should be used to collect information on which indicators, how sampling will be done, who should collect and analyze information on which indicators, how frequently this will be done and how the information will be shared.

Communities manage the process of M&E using simple tools for collecting and analyzing data. Some common data collection tools include resource maps to collect baseline data and registers to record participation in community activities, visitors' books to record linkages with others, and input, output and account registers to record enterprise profitability. The community performs simple analyses on their data (for example attendance levels data to demonstrate trends) with the assistance of the facilitator.

2.7 Reflection and learning from PM&E

This is a process that helps the teams and the community to analyze what is working, what is not working and why. Reflection allows members to reflect on the progress of the project towards achieving its goals and to adjust activities as required. It provides a forum for exchanging and evaluating information; and it allows community members to systematically review their activities. Reflections need to be carried out for each result (or activity or process) and its indicators, one at a time. This can be done using simple graphics or questions to examine the results of any data analysis. Some useful four questions to use in reflection are

- What have we achieved this season/ this year etc?
- What worked well?

- What did not work well?
- What do we need to change?

Decisions are made within the group about the implications of the analyzed information for stakeholders and on decision-making within the project. The results of the reflection are used to make decisions and to adjust activities if and when need be so that monitoring and evaluation is a learning process. At community level, the committee charged with the responsibility of data collection analyses the information with the facilitation of the community facilitators and shares it with the rest of the community (those collecting information and keeping records).

3 Results and Discussion: Using the data from PM&E for Enhanced Decision-making Stakeholder participation: Inclusion of different stakeholder perspectives in monitoring and evaluation

Through a direct participation in the monitoring and evaluation process, the PM&E process has allowed the different stakeholders involved in the projects project to better understand each other’s views and values, and to design ways to resolve competing or conflicting views and interests. Scientists especially have benefited from getting community perspectives and contributions in terms of what their objectives and desired expectations are as well as providing more qualitative indicators for measuring progress to supplement the usually very quantitative measures that they use for monitoring.

Through this process, differences in indicators have emerged between the different stakeholders, between farmers and scientists and amongst farmers themselves especially between men and women (see Table 2), youth and the elderly, between different wealth levels and cultural backgrounds. For example, in Kitale, Kenya where communities are relatively well off with larger land sizes and large numbers of livestock, the indicators of improved food security are diversity of foods available for consumption and quantity food that households have in storage. On the other hand, in Mtwapa, Kenya where households are relatively poorer, the indicators for improved food security are increase in number of meals per day from one to three and availability of food throughout the year (no emphasis is made on quality). Although these indicators are related, their expressions reflect differences in well being of the different communities.

Table 2: Differences in indicators between men and women

Result: Increased incomes from sale of beans	
Indicators from Men	Indicators from Women
<ul style="list-style-type: none"> • Income generating activities initiated • Increased ceremonies in the village • Good clothing –<i>Men wearing suits</i> • Good housing with iron sheet roof 	<ul style="list-style-type: none"> • More children being sent to secondary school • Good food (breakfast, good quality tea) • Women going to market weekly • Better clothing -- <i>women wearing new khangas, kodokodo,</i> • Increase in women membership in merry go-rounds (group savings and credit)

Some indicators are very specific to ethnic groups reflecting differences in culture and beliefs. For example, increased ceremonies are a common indicator of increased food availability among the Kenya coastal communities where ceremonies are part and parcel of their culture while this does not come up as an indicator with other communities. There were however still a lot of similarities in community expectations and indicators

across different communities which provides an opportunity for a comparison of indicators across different sites and communities. Some of the most common expectations and indicators are given in Table 3.

Table 3: Examples of common community indicators across communities and countries

Result/Process	Indicators
Food security	<ul style="list-style-type: none"> • Availability of food throughout the year • Increase in number of meals eaten per day from 1 to 3 • Amount of food stored in granary • Good health: shiny faces; reduced skin diseases; cases of kwashiorkor reduced • Presence of food leftovers in homesteads • Healthy dogs and chicken • Presence of dish racks with clean utensils • Un-harvested fruits (papaw and bananas) ripening in farms
Increased incomes	<ul style="list-style-type: none"> • Children going to secondary school • Good food (breakfast, good quality tea) • Women going to market weekly • Better clothing -- women wearing new khangas (fabric), kodokodo (high heels), • Increase in livestock numbers • Hire of labor
Empowerment	<ul style="list-style-type: none"> • Farmers and group members seeking services independently from other service providers • Ability to apply skills learnt • Ability to make decisions • Women buying things without asking for permission • Women having own bank accounts
Participation	<ul style="list-style-type: none"> • Level of sharing information • Contributing during discussions • Number of participants by gender • High and regular attendance to meetings • Men and women members involved in decision making

Some of the differences in indicators between scientists and communities are that communities tend to focus more on the outcomes versus the specific outputs. For example, community indicators for improved soil fertility tend to differ significantly from scientists', whilst community indicators are more often related to increased yields rather than the nature of the soil itself. Community indicators combine both qualitative and quantitative measures while scientists' indicators are more quantitative and generic as the examples given in Table 4 show.

Table 4; Differences in indicators between scientists and farmers

Outcome	Indicators
Improved soil fertility	<p>Quantitative Nutrient levels (carbon, phosphorus, macronutrients) Increase in yields</p> <p>Qualitative <i>Perception of farmers on change in soil quality (-colour, -type & presence of weeds, -texture)</i></p>
Increased food security	<p>Quantitative Amount of food stored and number of months with food / <i>Having Food throughout the year</i> Increased production (acreage and yields)</p> <p>Qualitative <i>Perception of men and women farmers of food availability and composition(e.g. Number of meals per day , -Quantity of meals, Composition of meals, Maize purchases, Amount of relief, Farmers looking for casual for casual labour)</i></p>

Given all these differences in perspectives and expectations, one of the key roles of facilitation in the PM&E process has been to ensure that all these differences are not conflicting and do not lead to parallel monitoring systems by ensuring that they are negotiated, understood and integrated in the monitoring and evaluation process.

3.2 Community organization and learning

The path from knowledge generation to knowledge utilization is direct in CD-PM&E



Figure 3: A group register as a data collection tool-Galana FFS, Kenya

because the same actors are involved in all activities. Once PM&E information is collected and analyzed the next step is reflection process that enables the community to discuss and communicate their PME results; provide a forum for exchanging and evaluating information; allow community members to systematically review and look back to the start of their activities, comparing it with where they are currently and to understand what has changed; and to allow all members to reflect

on the progress of the project and to adjust it as required. Different tools have been used in the data analysis and presentation. Simple graphs, tables, role plays help to enhance the community understanding of the progress made their achievements and what needs to be adjusted. Figure 3 shows a group register as a data collection tool while figure 4 shows a monitoring and evaluation committee at a farmer field school in Mtwapa, Kenya presenting a graph showing the trends in attendance by the group members.



Figure 4: A PM&E committee of Galana FFS presenting results to group




Through the data analysis and reflection process, communities are:

- Using the PM&E information to calculate costs and profits from production activities,
- Improving participation in group activities because the information shows who is and who is not participating in group meetings and activities
- Keep group members active: In instances where indicators for results are measured across farms/households, the PM&E process acts to exert peer pressure to push other group members to meet the same goals. For example, farmers visiting each other will have the urge to improve what they are doing to compare with others.
- Reorienting how a project is being implemented: During a reflection meeting in Malawi, Chisewu Village of Kasungu realized that not all community members would benefit from the project in one year. After the reflection meeting community members who had benefited decided to contribute an additional seed to the community to ensure that other members of the community would also benefit.
- Recognizing/acknowledging achievements by group.
- Finally, through failure and success factors identify the process aspects that can strengthen or weaken the project. Indicators for success and failure factors bring

out some negative aspects such as lack of transparency, gossiping, and other negative group aspects. So the group starts taking account of these aspects as the group is managed.

- Taking corrective measures at opportune moments, especially in relation to how the groups' funds are managed. For example, during a reflection exercise a farmer field school in Mtwapa Kenya realized that some officials of the group were mismanaging funds from a group income generating activity. This led to the group putting in measures to ensure accountability. The results of a reflection process, by the group and some of the recommendations made are shown in Figure 5.

Figure 5: Community reflection process

Indicator / Activity	What do we feel? Are we satisfied with progress in this activity / indicator			What is going well	What is not going well/ Why?	What should we change, how and who will do it
						
Attendance during group activities				18 members consistent in attendance	Reduction in membership 30 to 22 to 18 Drop outs had other expectations No transparency in the group	18 members consistent-to be maintained Revisit constitution and make objectives clear Committee to presenting records for discussion
Sale of bananas and suckers				Group has made some money	Records kept have not been shown to farmers	Periodic analysis and review of record by farmers every end of the month
					Lack of transparency in money matters	As above Use of receipts for purchases and sales 6 monthly audit of group finances

3.3 Institutional organization and learning

PM&E at the project and institutional level has led to increased learning and better organization in the way the institution manages the research-development process and in the monitoring and evaluation. Scientists identified several aspects in the way in which they are engaging with communities: (1) An important change noted was that before the initiation of the PM&E system, scientists would develop a project and then take it to the farmers for implementation, however, now scientists are discussing and prioritizing issues with communities. The scientists feel they are now more practical and realistic and are better addressing the needs of the farmers they work with. This is also reflected in the level of community understanding of what the scientists are doing with them. (2) Through the development of the 'impact chain' the projects have become more impact

oriented especially within the adaptive research projects. Scientists are beginning to use questions such as ‘so what?’ as a strategy of orienting projects towards impacts. (3)The sharing of roles and responsibilities in the process is creating openness and reducing the suspicion that sometimes exists between scientists and communities. (4) A systematic process for generating, managing, collecting and analyzing data has led to a more robust PM&E system at the project level, which has improved project management. For example in KARI Mtwapa, a similar activity reporting format has been developed which is currently being applied across 5 projects. This format ensures that a comparative analysis can be conducted across projects and information on progress of activities can be collated and aggregated in a systematic manner.

3.4 Targeting and improving the project implementation process

As a result of the reflection process and the use of PM&E information, project activities and outputs are reviewed periodically and adjusted where and when necessary. Our results indicate that the PM&E systems have led to changes in the project implementation process. These changes vary from aspects such as better targeting of the beneficiaries or stakeholders, to more complex changes such as the addition of activities, adjustment of methodologies, as well as revision of the project objectives. For example in a Soya bean project in Kitale, Kenya, an activity on community multiplication and bulking was included after the team including research, extension and the farmers realized that the activity was crucial to the achievement of the results (increased incomes from sale of soya beans and improved nutrition) during a reflection meeting. They realized that the activity was crucial to the achievement of results although it had not been planned for during the project development. As farmers define future objectives they are able to bring in new activities that help them achieve these expected results. They are able develop a strategy and a sequence of activities that are required to realize these objective.

3.5 Identifying indicators to Measure Empowerment

While it has been very easy and straightforward to develop indicators and measure benefits from technological options, the development of indicators for benefits of participatory approaches has not been always easy. One of the key results of participatory processes is empowerment. There have been some attempts to measure empowerment especially in studies that want to demonstrate the impacts of an intervention on empowerment (Kabeer, 1999). Through the results from our work in Malawi and Uganda, communities have identified different indicators to measure empowerment from their own perspective: Empowerment entails a process of change from the inability to make a choice to a situation where persons can make choices. Different types of empowerment stand out: social and cultural empowerment, economic empowerment and political empowerment. Another distinction is between choices that have to do with allocation of resources (both physical and the rules and norms that govern the allocations), and choices to do with the freedom of action, bargaining, or negotiation and capacity to define their life choices. These choices may be strategic choices or non strategic choices.

Rural agro-enterprises geared towards increasing household and especially women’s incomes have led to women’s economic empowerment. Women have access and

sometimes have control over money that they can use at their discretion. The economic empowerment also sometimes creates empowerment in terms of negotiation and bargaining power by the women and a break from cultural traditions that are demeaning to women. For example, a woman in Malawi said:

“Before when I did not make any money of my own, I had to kneel down several metres away from my husband and beg for money. Now he recognizes that I have some money of my own and we can now negotiate on equal terms. I use the money to buy things that I need for myself and the family. I can buy some lotion for my body, clothes for me and my family. I do not have to ask him for money every time I need a small item like a matchbox”

The choice to make decisions is not only reflected between men and women but also between traditional and political authority and the people. As one young man in Malawi put it:

“The village headman makes all the decisions to do with the village, even sometimes to do with our households. I would like to see everyone participating in making decisions on issues to do with our village and people making decisions on their household issues”

The indicators vary across sites and countries and depend largely on several factors

- levels of poverty

Disempowerment is very linked to poverty. When people are poor, the choices they have are limited and their indicators of empowerment are linked to these limited choices. In Western Kenya, where poverty levels are relatively high women gave indicators of economic empowerment as having money to take care of basic necessities without having to ask from their husbands such as toiletries, match boxes et. In Kitale, Kenya which is relatively better off, one of the indicators was that women would have their own bank accounts in their names.

- cultural traditions, religion and status of women in the society

Empowerment is linked to cultural values, religion and beliefs which in turn define the status of women in that particular society. In Malawi where cultural beliefs dictates that women do not speak out in front of men and have to kneel down when they talk to the men, indicators of socio-political empowerment included the ability of women to speak and negotiate their ideas with men without having to kneel down, women speaking out during meetings and sharing their ideas and women being involved in the decision making processes in the community.

Table 6 gives some indications of indicators from men and women for different types of empowerment.

Table 6: Types of empowerment and their indicators from communities

Type of empowerment	Common indicators across communities
Economic empowerment	<ul style="list-style-type: none"> ▪ Women have small business of their own from which they can use money to fulfil their own needs (basic necessities such as matchbox without having to borrow) ▪ Acquire personal bank accounts for their money in their names ▪ Women can organise and establish revolving funds

Socio-Political empowerment	<p>Internal (household and community)</p> <ul style="list-style-type: none"> ▪ Equal representation in committees – having women who are active and effective in major committees in the community ▪ Women have the capacity to buy clothes or use their money without requesting for permission from their husbands ▪ Women being able to contribute and say their ideas in community meetings ▪ Women and the youth are involved in decision making processes at the household and in the community. Decisions are not only made by the elderly men and the village authority <p>Links with others</p> <ul style="list-style-type: none"> ▪ Capacity to approach the extension worker ▪ Capacity to negotiate for higher prices ▪ Self reliance in looking for services that the community members require e.g finding seed, market, and services from other organization ▪ Women and youth are to be found in key decision making bodies in the communities and outside
Access to physical resources and the rules and norms that govern them	<ul style="list-style-type: none"> ▪ Women to have their own plots which they can decide how to use. ▪ Ability to use their own money
Freedom of action, bargaining, or negotiation and capacity to define life choices	<ul style="list-style-type: none"> ▪ Girls will be going to school and not for early marriages ▪ Women to be self reliant ▪ Women can go out to distance markets buy goods and come to sell in the community without any restrictions (freedom of movement)

3.6 Linking PM&E to impact assessment

Impact assessment is the systematic analysis of the lasting or significant changes-positive or negative, intended or not-in people’s lives brought about by a given action or series of actions. It is an evaluation of how, and to what extent, change had occurred. Monitoring and Evaluation are essential parts of impact assessment, especially if the focus is on learning and change. The three processes overlap and are, in fact, interrelated activities as part of a continuous learning process. As you monitor you also evaluate by making judgment, reflecting and correcting. It is difficult to carry out impact assessment activities successfully if the more basic task of monitoring and evaluation and their immediate effects are not done properly. Our rationale and the results for linking PM&E to impact assessment are;

Impact of K132 by a mixed group of farmers, Nabongo Parish, Uganda (redrawn from original diagram)

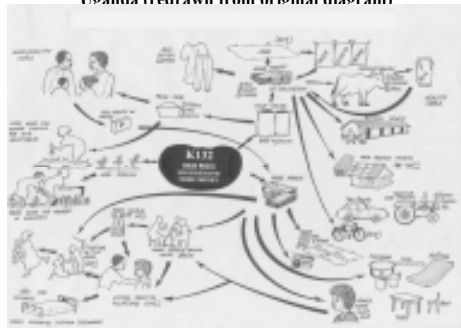


Figure 6. A Participatory Impact diagram (David, 2000)

- To establish causal linkages between project interventions and their outcomes

This is been achieved through continuous follow up of the activities, the effect these activities and the changes that occur as a result. Participatory impact diagrams have also been used to establish causal linkages between activities and their outcomes. An example of an impact diagram is shown in Fig. 6.

- Incorporate participatory tools and user perspectives in impact assessment
- The desired results are developed using participatory tools such as the river code during the PM&E process. Indicators for these results are developed with all stakeholders and

are used to determine the progress made towards the achievement of these results. Other participatory tools such as the Participatory impact diagrams mentioned above are used to get use perspectives of the changes both positive and negative.

- Emphasis on different types of changes

By linking PM&E to impact assessment and incorporating participatory tools, different types of impacts are captured, subjective as well as objective changes, tangible as well as intangible changes, negative as well as positive changes and changes on different categories of participants and the community such as the men, the women, children and the youth.

- Learning from impact assessment

A reflection process is integrated into the impact assessment to allow for learning and making adjustments based on the results. Impact assessment does not therefore become and end in itself. By discussing or interpreting the participatory tools such as the impact diagram, participants ask questions such as why is this result happening? Who is it happening to? What should we do about it?

4 Key issues, challenges and lessons

The PM&E process has shown that when stakeholders such as farmers and the extension are involved in all stages including the development of the results and activities to be monitored, the indicators that will be monitored, the type of data to be collected and how it will be collected, it leads to a more robust monitoring and evaluation. The involvement of stakeholders in PM&E however requires a lot of negotiation, prioritization of issues and strategic collection of data for PM&E. More often the question has been to what extent or at what level different stakeholders should be involved. There is however some key issues that requires consideration to make the PM&E process more effective. These include but are not limited to:

- Promoting a culture of reflection and learning

One of the key objectives of PM&E is to promote learning and use of information for decision making. Learning is however not an automatic process in organizations. People can feel threatened by the results PM&E. It can affect power structures by giving more decision making to more disadvantaged and less powerful people such as communities or the disadvantaged within communities. As a result of this, a change in attitude from one of being protective to one of being open to learning should be cultivated. The process should be given time and should not be rushed. It also implies that PM&E should not be seen as a one off activity but as a culture and a way of doing things.

- Scaling out the PM&E and impact assessment process

How do we reach more communities and more projects with PM&E? One of the approaches and the easiest is to integrate PM&E into methodologies and approaches that projects are using in their implementation of activities, for example integrating PM&E into the FFS approach or the FRG approach. This means that as project teams implement the FFS curriculum, PM&E is part and parcel of the curriculum. This will of course imply refining the PM&E process so that it is shorter and easier to apply. A second

approach is to apply the indicators from one community into communities with similar characteristic (cultural, socio-economic, ethnic, etc) or use results and indicators from other schools with similar technologies and geographical area to introduce new schools to PM&E. This however has its shortcomings as the communities may not have as much ownership to the results “imported” from other schools or communities compared to if they developed their results themselves.

- Integrating gender and equity into PM&E

With participatory research, gender and equity concerns are central to the implementation process. More often than not, gender and equity has not been reflected in the PM&E performance frameworks. Gender and equity issues including participation, empowerment, changes in gender relations need to be negotiated by both the project teams and the communities so that they become part of the PM&E process.

- Negotiation and sharing roles for PM&E

Data collection needs to be a shared responsibility between researchers, extension officers and farmers. Teams however need to be careful so that none of these become overwhelmed with the data collection. For example farmers should not collect data that is not of interest to them but only to scientists. Information should also be shared across all stakeholders; for example scientists should share their information with farmers and vice versa. A common assumption with regards to data collection by farmers has been that once farmers know the indicators they should collect data on, they will get on with it. More often than not, the capacity of farmers to collect and analyze data has to be built. This should however not be taken to the extent that researchers give farmers long complicated forms or data sheets in which to record data as this may deter them from collecting the data.

- Standardization and comparability

Indicators and questions from PM&E will differ between projects if they are defined in a participatory way, which may make it difficult to compare outputs and outcomes of different participatory approaches between projects

There are many challenges in setting up and implementing PM&E systems. Ensuring that PM&E does not just become a technical process-develop results, indicators, collect data and analyze. The learning aspect of PM&E needs very strong emphasis so that there is a balance between focus on the implementation and on the learning and the use of PM&E data to take corrective measures and make decisions. Establishing and supporting PM&E systems is an expensive process, both in terms of time, human capital and material resources for initiating and sustaining M&E, and also because of the intensive facilitation required in the initial stages. In most cases, organizations will not have the skills that are required to support the process and these skills may need to be built before the process can take off. Due to the involvement of different stakeholders, strategies need to be developed to involve these different stakeholders. For example for CD-PM&E the use of graphics, identification of local vocabulary for some of the technical terms should be done.

5. Conclusions and recommendations

This paper analyzes experience with establishing and supporting PM&E processes both at community and project level in three countries in Uganda, Malawi, and Kenya. Our initial results indicate that there are several important aspects in establishing and supporting these systems: (1) Developing a capacity building strategy for PM&E. This includes applying diverse tools and methods that can encourage active participation of all members, such as graphics, role plays, stories from the farmers' daily lives, and identifying local vocabulary for the technical terms. (2) Ensuring that indicators are negotiated information is only collected on those indicators that are relevant, from the perspective of the different stakeholders. (3) The initial stages of establishing PM&E systems at require a strong mentoring and follow-up component from facilitators to ensure appropriate establishment and skills enhancement. (4) The Community-driven PM&E system provides relevant information that communities can use to improve the functioning of their projects, communication within the group, and for informed decision-making. (5) Integrating community indicators with project level indicators providing a more holistic view of the project benefits and can strengthen information feedback process between communities and R&D systems. (6) The PM&E system must include a communication system that allows information to be exchanged between the stakeholders and to be interpreted so that it can form a basis for taking appropriate decisions (7) Linking PM&E to impact assessment improves the process and allows for more reflection and learning making the results of the impact assessment useful for future improvements (8) Involving different stakeholders especially communities in PM&E improves the measurement of the benefits of participatory processes such as empowerment, capacity and organizational skills.

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