Monitoring climate benefits of sustainable land management

An approach for multi-level, multi-purpose M&E systems

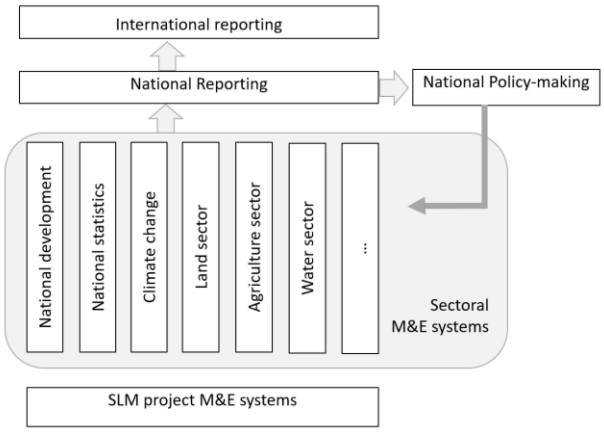
The commitments made by UNFCCC Parties in their Nationally Determined Contributions (NDCs) under the Paris Agreement have given new impetus to climate action across many sectors. Sustainable land management (SLM) activities are listed as priority actions for climate change mitigation in 60% of all submitted NDCs and for adaptation in 40% of NDCs (Richards et al. 2016). SLM includes diverse measures such as erosion control, soil and nutrient management in croplands, agroforestry and grazing land management. SLM also directly contributes to other global targets as the Sustainable Development Goals (SDGs), on land degradation neutrality and the conservation of biodiversity.

The Paris Agreement has introduced an enhanced transparency framework (ETF) to assess progress towards global mitigation and adaptation objectives. In regard to mitigation, the current reporting framework under which countries report to UNFCCC is referred to as Measurement, Reporting and Verification (MRV). Reporting on adaptation was so far voluntary through National Communications. The ETF will supersede the current transparency system with common rules for all parties to comply with, and will include agreed guidelines for reporting on both mitigation and adaptation.

International and domestic monitoring, evaluation and reporting processes are distinct but closely related (see Figure 1). M&E refers to monitoring, evaluation and learning systems used by governments, international organisations, NGOs and other project implementing agencies for their own policy purposes. These M&E systems include project-based M&E systems, as well as sectoral M&E systems that government agencies use to track the progress and outcomes of national plans and programmes, including national land management, agriculture and other plans that promote SLM. Together with national statistical systems, these sectoral M&E systems often provide the data and assessments used to measure and report progress on mitigation and adaptation at national and international levels.

Common challenges include weak linkages between M&E systems at different levels and limited coherence among sectoral M&E systems, including between SLM initiatives and systems that monitor and report climate benefits at national level. This information brief uses examples from Kenya to illustrate the value of multi-purpose, multi-level M&E systems, and proposes steps towards developing such systems based on existing M&E systems for SLM.

Figure 1: Schematic showing how M&E systems at different levels support international reporting



National SLM-related M&E systems in Kenya

Kenya's *Vision 2030* is the country's long-term development planning framework. It is implemented through a series of medium-term plans (MTP). The Climate Change Act of 2016 provides the legal basis for integrating climate change aspects into planning, budgeting and implementation at national and county levels and in sectors. The MTP-III (2018-2022) aims to mainstream climate change actions into all sectors, at both national and county levels.

At the national level, implementation progress and outcomes of the MTP plans are measured using the National Integrated Monitoring and Evaluation System (NIMES). However, for climate change mitigation and adaptation, progress and outcomes are to be tracked using a National Performance and Benefit Measurement Framework

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Table 1: Selected SLM-related national plans in Kenya and the status of their monitoring systems

Government agencies	SLM-related plans	Status of M&E systems
Ministry of Devolution and Planning	MTP-III (2018-2022)	Key national outcomes and flagship projects monitored
Climate Change Directorate	National Adaptation Plan (2015-2030)	System covering mitigation and adaptation under development
	National Climate Change Action Plan (NCCAP, 2018-2022)	GHG inventory institutional development complete. Data gaps remain. Adaptation monitoring system still under development.
Ministry of Environment and Natural Resources	Green Economy Strategy and Implementation Plan (2016-2030)	M&E system proposed to link with NIMES but not yet implemented
Ministry of Agriculture and Irrigation	Kenya Climate Smart Agriculture Implementation Framework (2018-2027)	Sectoral M&E system to be developed
Ministry of Environment and Natural Resources	Kenya Strategic Investment Framework on Sustainable Land Management (2017-2027)	Sectoral M&E system proposed but not yet implemented

(NPBMF), which is still under development, as are M&E systems for several SLM-related sectoral plans. Some sectoral SLM-related M&E systems propose to track progress and outcomes by integrating key performance indicators into NIMES, others by developing sector-specific M&E systems (see Table 1). Regarding mitigation, institutions responsible for greenhouse gas (GHG) inventory compilation have been strengthened and a registry for mitigation actions is being developed. However, obtaining activity data on land management practices remains a challenge. Filling data gaps in the NPBMF will require coordination with both NIMES and sectoral M&E systems.

In addition to these national M&E systems, numerous donor and NGO project M&E systems collect data on SLM activities and outcomes.

Challenges & opportunities for coherent M&E of SLM

These challenges to the development of functional and efficient M&E systems are common in many countries. Disparate sectoral M&E systems without a link to national climate change M&E systems would often be inefficient and create duplication of resource-consuming structures, while increasing the challenges for ensuring coherence, coordination and data sharing between relevant government agencies. National monitoring and evaluation systems are required that coordinate and streamline different M&E activities. Building on existing M&E systems can avoid duplication of costs and monitoring effort, but some existing M&E systems require further strengthening to be fully functional.

The current proliferation of uncoordinated M&E systems inside and outside of government institutions reflects the differing information needs of diverse stakeholders. However, M&E systems that can serve multiple purposes for different stakeholders can effectively address the described challenges.

The example of the Kenya Agricultural Carbon Project (KACP) illustrates how a project monitoring system can meet different needs at local and international levels (see Text Box). For local stakeholders, M&E strengthens farmer organisations and enables farmers to express training needs and obtain feedback from extension workers. The same information system provides data on adoption of SLM practices to inform implementing agencies and donors of project progress. In addition, its input data is used for calculating GHG emission reductions, e.g. for issuing carbon credits at international level.

Innovations such as ICT-based Management Information Systems (MIS) are increasingly used, enabling data to be easily shared across levels. High resolution, project-level data can also be integrated with data systems supporting compilation of the national GHG inventory, and the national registry of mitigation actions.

The KACP M&E system also collects some data related to adaptation and food security outcomes. The indicators monitored are in line with common adaptation indicators of climate finance projects, and with sectoral monitoring systems. However, they are not well aligned with the national adaptation indicators, which focus more on process indicators or outcomes related to other sectors.

Monitoring of inputs, activities, outputs and outcomes in what is known as 'results-based M&E' is a common framework for M&E used by government, donors, the private sector and NGOs. This provides a basis for aligning theories of change and indicators among different SLM initiatives and sectors, and for data sharing across levels. For example, government SLM plans commonly propose to monitor numbers of farmers adopting SLM and number of hectares under SLM. These output indicators are also tracked by many project M&E systems. At project level, more specific data on types of practices adopted is collected, information that is needed for compiling the national GHG inventory as well as for tracking adaptation actions and making climate vulnerability assessments.

Farmer-based monitoring systems in the Kenya Agricultural Carbon Project

The Kenya Agricultural Carbon Project (KACP) was initiated in 2008, and in 2009 became the first project to receive carbon credits issued under the sustainable agricultural land management (SALM) carbon accounting methodology, certified under the Verified Carbon Standard (VCS). Vi Agroforestry, a non-governmental organization, implements the project with about 29,400 smallholder farmers organized in 1,700 registered farmer groups.[1] The project monitoring system has improved over time, becoming more cost effective. Based on the evaluated project successes, Vi Agroforestry scaled the project and included a dairy component with private investors. Soon the monitoring system will cover about 60,000 farmers in Western Kenya.

KACP provides advisory services to support farmers to adopt SLM practices, market crop produce, and manage savings and loan schemes, and also provides additional capacity building on family planning, HIV prevention, child nutrition, and other issues. SLM practices promoted by KACP include manure management, use of cover crops, composting and agroforestry. Carbon payments are one innovative element of the project. In the first ten years of the project, the average farmer sequestered about a total of 3 tCO_2 per hectare and year in the form of soil carbon and tree biomass. The carbon revenues are shared among farmer groups (60%) and used for advisory services provided by Vi Agroforestry (35%) and to cover Vi Agroforestry project related management costs (5%). The monitoring costs are US$1.4/ha/year. However, the most important benefit for farmers is the increase in crop yields due to the combination of project interventions. Average maize yields have more than tripled from 1500 kg/ha in 2009 to more than 7,400 kg/ha in 2017.

Progress in adoption of SLM measures and the resulting GHG emission reductions are tracked through an activity-based monitoring system. KACP monitors adoption of SLM practices, and a science based biophysical model (RothC) is used to estimate effects on soil carbon and GHG emissions. Supported by farmer group leaders, farmers self-report using a simple template for their agricultural crops and activities, along with land area, yield and specific SLM practices. Farmer group leaders collate the data from their members and produce a group summary that is sent to the project team via SMS. This provides the input data for estimation of carbon benefits, as well as data on adoption rates and proxy indicators of food security and other socio-economic benefits. The monitoring system is also used by farmers groups to identify training needs and priorities for advisory support. Activity monitoring engages farmers, provides crucial information to improve extension and supports self-learning by farmer groups, strengthening the commitment of farmers to the adoption of SLM activities and farmer groups' capacities.

Several indicators monitored in KACP are relevant to adaptation and food security outcomes, such as numbers of beneficiaries (by gender) and crop yields. However, since funding for KACP does not explicitly target adaptation finance, the project has no separate adaptation reporting. During the scaling up of the KACP by Vi Agroforestry in another location, a tool based on the Revised Universal Soil Loss Equation was specially designed to use the activity data collected to estimate the benefits of SLM practices for soil and water conservation.

[1] Project development was initially supported and the carbon credits purchased by the World Bank BioCarbon Fund (BCF) and the Swedish International Development Agency (SIDA). The Livelihoods Funds and Brookside Dairy financed the scaling up.

Towards coherent multi-purpose, multi-level monitoring systems

National policy and plan documents are clear on the value of improved M&E data, including:

- enabling policy makers to track and report on progress towards SLM-related targets
- promoting awareness
- supporting coordination of SLM activities
- providing the evidence to inform planning and targeting of interventions, and
- demonstrating the climate- and other effects of SLM measures, both to disseminate good practices and to justify investment in SLM.

Being able to demonstrate the effects of climate actions also has become increasingly important for accessing international climate finance.

Well-functioning sectoral M&E systems and clear linkages between sectoral M&E systems, GHG inventories and climate change adaptation monitoring systems could provide the basis for complying with international reporting requirements on progress and on the effects of SLM measures on adaptation and mitigation. M&E systems for SLM need to fulfil several criteria, including:

- Meet diverse stakeholders' needs for information and fulfill different functions at different levels;
- Increased transparency by strengthening national M&E systems and the coherence between M&E systems in different sectors and different levels;
- Align with institutional mandates for monitoring and reporting; and
- Be commensurate with the resources and capacities available.

While data on GHG emissions may be a priority interest to some stakeholders, data on the adoption of management practices and its effects (e.g. on yields, farm costs, food security etc.) will be the main motivator of M&E data collection and sharing. Lessons from the KACP and other SLM-related initiatives show that stakeholders commit to improved M&E when it meets their priority information needs.

Cost-effective M&E of climate benefits is enabled by aligning M&E of SLM with existing M&E systems and allocating M&E roles on the basis of existing institutional arrangements. It is important to avoid over-burdening M&E systems with excessive requirements, as funds and capacities are limited. ICT systems can also play a key role in reducing the costs of data collection and analysis, and facilitating data quality control and data sharing.

Similar challenges are faced in developing M&E systems in other domains, such as Climate Smart Agriculture (CSA). Recent work by ICRAF and UNIQUE to support stakeholders in the southern Africa region to develop national CSA M&E systems has successfully tested a participatory process for engaging stakeholders in elaborating action plans for the development of coherence among M&E systems, such as is needed for SLM (see figure on the right side).

The key elements of the process are based on participatory engagement with stakeholders in clarifying the purposes of M&E, identifying priority information needs, and an assessment of existing M&E systems and related human and technical capacities. The process and tools for each step engage stakeholders in developing an action plan for coherent M&E system among stakeholders and across levels.

Where countries have prioritized SLM in their NDC and will need to better monitor and report the climate benefits of SLM, development partners should support these countries to develop coherent and functional M&E systems that meet stakeholders' information needs while also providing the information needed for transparent international reporting.

10 STEPS TOWARD COHERENT M&E SYSTEMS

1. **CLARIFY PURPOSES OF M&E**
   Clarify the key uses and values of M&E data for different stakeholders
2. **DETERMINE INFORMATION NEEDS**
   List stakeholders' priority information needs and indicators in existing M&E systems
3. **PARTICIPATORY ALIGNMENT**
   Work with stakeholder to select indicators that meet priority information needs
4. **DATA SYSTEMS ANALYSIS**
   Assess existing data collection and analysis systems for opportunities to build on existing data systems
5. **PROTOCOL DEVELOPMENT**
   Create clear data collection protocols
6. **INTEGRATED DATA SYSTEM**
   Develop integrated systems for flow of information
7. **CONFIRM ROLES**
   Assign roles and responsibilities for data collection and reporting
8. **CAPACITY NEEDS ASSESSMENT**
   Conduct a thorough evaluation of human and institutional capacities
9. **STRENGTHEN CAPACITY**
   Conduct training courses at multiple levels for M&E staff
10. **NATIONAL FINANCE**
    Integrate M&E across sectoral budgets to access national finance and budgets of donor-supported sector-wide approaches

Adapted from Rosenstock et al. (2018)

Further reading:

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