

## Presenter Notes for

### **Module 6: Measurement, Reporting and Verification (MRV) and Adaptation M&E**

This module is suggested to last for one and a half hours. The presentation should be delivered in an interactive way, with participants encouraged to ask questions and share experiences and country progress throughout the presentation. Be sure to leave some time at the end for questions and answers. The corresponding activity for this module will have participants discuss the main barriers to MRV and adaptation M&E and suggest concrete solutions.

#### **SLIDE 2: OBJECTIVES**

This module covers measurement, reporting and verification (MRV) for agriculture and also adaptation monitoring and evaluation (M&E). It builds on discussions in module 1 on how NDCs fit into existing climate change policies and actions.

\*Note: African countries are at different stages when it comes to MRV and adaptation M&E. The presenter should be familiar with the countries represented by participants in the training and what progress has been made in those particular countries with respect to both MRV and adaptation M&E. Since this presentation comes in the afternoon of the third day of the training, the presenter can spend the first two days interacting with participants and finding out more about how involved they are in their country's MRV and M&E processes.

#### **SLIDE 3: NDCS AND MRV SYSTEM ESTABLISHMENT**

As mentioned in module 2 regarding CSA prioritization, countries are not starting from scratch with MRV and adaptation M&E. NAMAs that are being implemented will have systems of tracking mitigation efforts. Agriculture ministries will also have establishing M&E frameworks for other projects or for reporting on other global goals like the Sustainable Development Goals (SDGs).

Agriculture MRV systems for NDCs may need to cover sectors that were not covered by other monitoring systems, and collecting the data required can be daunting. Lack of data has been cited frequently as a challenge for MRV and adaptation M&E. The activity related to this module will allow participants to discuss the challenges and possible solutions and to share experiences between countries.

#### **SLIDE 4: NATIONALLY APPROPRIATE MITIGATION ACTIONS (NAMAS)**

To help make the presentation interactive, ask participants to name any ongoing agricultural NAMAs being implemented in their countries and to provide a brief description of the status of the implementation.

#### **SLIDE 5: LONG-TERM LOW EMISSIONS, CLIMATE RESILIENT DEVELOPMENT STRATEGIES (LTS)**

The priority in 2020 is the alignment of the LTS with NDCs and NAPs. Because climate change is a long-term challenge, it requires planning horizons that span beyond the 5- or 10-year time frames of the NDCs. The current level of ambition reflected within the existing NDCs is not sufficient to achieve the objectives set out in the Paris Agreement (PA). In the present circumstances, the LTS may provide common ground for the long-term vision that identifies evolving adaptation needs and mitigation opportunities that will have implications for more ambitious NDCs over time. Thus, the requirement for

countries to develop LTSs is intended to support the effectiveness of the NDCs and NAPs by ensuring that no measures are taken that contradict the goal of transforming economies to low emissions, climate resilient development pathway. According to the PA, the design of an LTS must be consistent with the overall goals to be achieved within this century—namely, the temperature goal, the alignment of financial flows, adaptation to the adverse effects of climate change, and mitigation of GHG emissions.

#### **SLIDE 6: LANDSCAPE OF GUIDING DOCUMENTS**

Reduction of GHGs should be embedded as a goal in NDCs, NAMAs and LTSs. A comprehensive MRV system is required to report against all of these and fulfil the obligations for communication to UNFCCC under the Paris Agreement.

#### **SLIDE 7: WHAT IS MRV?**

The presentation now moves into the specifics of MRV.

#### **SLIDE 8: UNFCCC GUIDANCE ON MRV**

The UNFCCC provides official guidance for measurement (or estimation), reporting, and verification of greenhouse gas emissions and mitigation actions at the national level. The guidelines for measurement of greenhouse gas emissions within the context of reporting to the UNFCCC are well established. Measurement of GHG emissions in developing countries' national GHG inventories should follow [IPCC 1996 Revised Guidelines](#). Use of more recent [IPCC \(2006\)](#) guidelines is optional.

The UNFCCC and the Paris Agreement direct developing country Parties to measure (or estimate) the effects of domestically and internationally supported mitigation actions (such as Nationally Appropriate Mitigation Actions). This type of MRV is voluntary, and there are no prescriptive guidelines; countries are intended to create their own systems according to their circumstances and priorities. While this has allowed more flexibility, it has also created some confusion as to what constitutes MRV of a mitigation action and what minimum acceptable practices might be.

Reporting and verification guidelines are also prescribed by the Convention. Each developing country party is required to submit a [National Communication](#) every four years and a [Biennial Update Report](#) every two years. The purpose of these reports is to provide updates on actions undertaken by a Party to implement the Convention, including the status of its greenhouse gas emissions and removals, as well as on the actions the Party has taken to reduce emissions or enhance greenhouse gas sinks (such as forests). Verification processes differ depending on the type of report.

The Paris Agreement added two new layers to the UNFCCC MRV framework: the need to report progress on Nationally Determined Contributions (NDCs), and the establishment of an “Enhanced Transparency Framework.”

#### **SLIDE 9: UNFCCC GUIDANCE ON MRV**

Reporting and verification are not the focus of this module. These happen at the global level through UNFCCC processes.

#### **SLIDE 10: PRINCIPLES FOR CREDIBLE MRV UNDER THE UNFCCC**

Until now, these principles have applied primarily to national greenhouse gas inventories.

**Transparency** means that the assumptions and methodologies used for an inventory should be clearly explained to facilitate replication and assessment of the inventory by users of the reported information. The transparency of inventories is fundamental to the success of the process for the communication and consideration of information.

**Consistency** means that an inventory should be internally consistent in all its elements with inventories of other years. An inventory is consistent if the same methodologies are used for the base and all subsequent years and if consistent data sets are used to estimate emissions or removals from sources or sinks. Under certain circumstances referred to in paragraphs 15 and 16, an inventory using different methodologies for different years can be considered to be consistent if it has been recalculated in a transparent manner, in accordance with the Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories and Good Practice Guidance for Land Use, Land-Use Change and Forestry.

**Comparability** means that estimates of emissions and removals reported by Annex I Parties in inventories should be comparable among Annex I Parties. For this purpose, Annex I Parties should use the methodologies and formats agreed by the COP for estimating and reporting inventories. The allocation of different source/sink categories should follow the split of the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, and the IPCC Good Practice Guidance for Land Use, Land Use Change and Forestry, at the level of its summary and sectoral tables.

**Completeness** means that an inventory covers all sources and sinks, as well as all gases, included in the IPCC Guidelines as well as other existing relevant source/sink categories which are specific to individual Annex I Parties and, therefore, may not be included in the IPCC Guidelines. Completeness also means full geographic coverage of sources and sinks of an Annex I Party.

**Accuracy** is a relative measure of the exactness of an emission or removal estimate. Estimates should be accurate in the sense that they are systematically neither over nor under true emissions or removals, as far as can be judged, and that uncertainties are reduced as far as practicable. Appropriate methodologies should be used, in accordance with the IPCC good practice guidance, to promote accuracy in inventories.

#### **SLIDE 11: GUIDANCE ON MRV AND ADAPTATION M&E**

Although tracking GHG emissions is not simple, the guidance from UNFCCC for mitigation is well established. Countries may already have the beginnings of such systems in place if they are implementing any NAMAs.

Although there is a proliferation of resource documents on adaptation M&E (shown later in the module), there is no official guidance from UNFCCC on this. Work is currently underway by a group of development partners to make recommendations for a common framework through the Koronivia process (refer back to Module 1 that discussed this topic).

#### **SLIDE 12: FIGURE CONNECTING NAMAS AND PRIVATE SECTOR ACTIONS TO NDC TARGETS**

Whatever system for tracking GHGs nationally has been established for National Communications and Biennial Update Reports will likely form the basis for MRV of the NDC. However, the GHG inventory will likely need to be enhanced in order to capture the effects of mitigation actions.

Both national and subnational actions can contribute toward meeting NDC targets and goals:

- NAMAs (domestically and internationally supported)
- Other mitigation projects (e.g. projects undertaken by NGOs that sell voluntary carbon credits)
- Private sector efforts to reduce emissions
- Adaptation and resilience actions that reduce GHGs or sequester carbon as a co-benefit

Ideally, the effects of all of these types of mitigation actions should be captured in MRV of the NDC. This requires linking project-level MRV/M&E with national MRV.

### **SLIDE 13: CALCULATING BASE YEAR OF BASELINE EMISSIONS**

Countries are likely to have already calculated baseline emissions for their previously submitted NDCs.

### **SLIDE 14: TIER 1 VERSUS TIER 2 EMISSIONS CALCULATIONS**

To make the presentation more interactive, ask participants whether their countries are using any Tier 2 emissions factors.

### **SLIDE 15: TIER 1 VERSUS TIER 2 EMISSIONS CALCULATIONS**

Using a Tier 2 approach requires very specific data. There are several examples from the livestock subsector because for many countries in Africa livestock contribute a relatively high percentage of the total GHG emissions and therefore present opportunities to reduce emissions through improved management practices.

### **SLIDE 16: BENEFITS OF MOVING TO TIER 2 EMISSIONS CALCULATIONS**

Check in with participants to make sure that everyone understands the concept of emissions intensities. If there are some who are not very certain, provide an example. You can use an example of two dairy cows. One is fed low quality feed and produces 5 litres of milk per day, and another is fed better quality feed and produces 8 litres of milk per day. If they both produce the same amount of methane, the one producing more milk has a lower emissions intensity. Relate this to the graph on the slide. The figure shows the relationship between emissions intensity and milk yield per dairy cow. Higher production of milk per cow relates to lower emissions intensities. Sub-Saharan Africa has the highest emissions intensities for milk compared to other regions of the world (see FAO's report for details: <http://www.fao.org/3/i3461e/i3461e03.pdf>).

The ability to calculate emissions using a Tier 2 approach can help countries show progress toward their NDC targets.

### **SLIDE 17: TIER 1 VS TIER 2**

This slide provides a graphic representation of the difference between Tier 1 and Tier 2.

### **SLIDE 18: HYPOTHETICAL TIER 2 INVENTORY FOR NATIONAL BEEF HERD IN AN ASIAN COUNTRY**

This table can be used to illustrate the types of productivity data required for Tier 2. The animals should be categorized by sex and age, and the emission rates for those different age and sex categories for the national context are needed. In countries with different types of livestock production systems (e.g., intensive vs extensive), there will be additional categories and calculations needed.

### **SLIDE 19: GETTING THE RIGHT NUMBERS**

The emission factors required to calculate based on a Tier 2 approach need to be generated by researchers. The International Livestock Research Institute (ILRI) has been doing work to calculate emissions factors for different livestock production systems in eastern Africa.

Ask participants whether their national agricultural research services are doing similar studies, either for livestock or for crops.

### **SLIDE 20: REDUCTION IN EMISSIONS INTENSITY FROM INCREASING PRODUCTIVITY IN A BEEF SYSTEM**

The figure shows how improved management practices can lead to reductions in GHG emissions from the baseline over time.

### **SLIDE 21: EXAMPLE FOR LIVESTOCK IN ETHIOPIA**

The examples from some of the graphs have been for an Asian beef production system. Ethiopia has been working toward using Tier 2 for its sector subsector as described in the slide.

### **SLIDE 22: KENYA DAIRY NAMA**

This example is included, although the dairy NAMA in Kenya is still yet to be submitted (as of mid-2020) as a full proposal to the Green Climate Fund (GCF).

### **SLIDE 23: DISCUSSION ON MRV PROGRESS FOR MITIGATION**

Stimulate discussion among the participants by asking them to share examples of:

- Alignment of agriculture development goals and low emissions (GHG) targets
- Coordination between units: Climate Change Directorate, GHG inventory, line ministries
- Data collection and management for MRV
- Established MRV systems for agriculture or related subsectors
- Capacity to report on NAMA progress, NDC contributions

### **SLIDE 24: ADAPTATION M&E**

There is **an increase interest** in adaptation M&E. Almost half of the Parties who included adaptation within their NDCs reference its importance indicating ongoing or planned efforts, importance that its related to two main purposes:

- *Learning*: improving effectiveness and efficiency of the adaptation process
- *Accountability*: demonstrating that actions have led to a result.

Relatively few countries, however, have designed and implemented a national system for adaptation M&E (rather than e.g. program or project level). For the ones that have, approaches combine qualitative and quantitative indicators, ranging between three (Mexico) and over 100 (France, Germany, Kenya, the Philippines) with qualitative analysis.

M&E systems rely on a combination of indicators that: provide information on trends in climate exposure and vulnerability, realised impacts of climate events, and/or assess either adaptation processes or outcomes.

#### **SLIDE 25: GLOBAL GOAL ON ADAPTATION**

The Paris Agreement in 2015 was a key milestone with the commitments established by all parties to create NDCs and pursue domestic measures aimed at achieving the global goal of limiting global temperature increase well below 2 degrees.

But it also reinforced the international framework for adaptation action by **establishing a Global Adaptation Goal** of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, and indicates that Parties “**shall**, as appropriate, engage in adaptation planning and the implementation of actions [...] which may include - [...] (d) Monitoring and evaluating and learning from adaptation plans, policies, programmes and actions”.

Prior to adoption of the Paris Agreement, only Non-Annex I Parties were explicitly encouraged to provide information on and evaluate adaptation strategies and measures, via guidelines on National Communications. Now, all parties are requested –but not required- to monitor and evaluate adaptation activities at the national level and to periodically take stock of the collective progress made towards achieving this global goal, through the “global stock take” process.

#### **SLIDE 26: WHY IS ADAPTATION M&E IMPORTANT?**

The specificities of national-level M&E systems lie in its potentially broader scope in terms of the sectors, climate hazards, geographic area and adaptation measures considered and they can also address aspects such as:

- the degree of co-ordination between different actors, and/or between institutions/government bodies in charge of adaptation.
- to which extent consideration of climate impacts and adaptation is mainstreamed (embedded across different policy priorities or in operational and planning decisions, or development planning)

Applying M&E that addresses adaptation co-benefits and resilience comes with a set of challenges due to:

- Nature of climate adaptation (e.g. long timescales for impacts and outcomes)
- Multi-dimensional (economic, financial, social) nature of resilience
- Multi-scale: need for aggregating information horizontally across climate-sensitive sectors, and vertically across different levels of government
- Lack of an “off the shelf” methodology and single common metric to assess related outcomes
- Difficulty to identify, combine and interpret the types and relevant indicators
- Country capacity and resource constraints.

#### **SLIDE 27: ADAPTATION IN THE NDCS**

M&E of adaptation are two distinct but related activities:

- The monitoring examines (on an on-going basis)
  1. progress in implementing planned initiatives that affect adaptive capacity (level of climate resilience or the capacities to develop and implement adaptation policies, plans and strategies)
  2. changes in the enabling environment in place for adaptation actions and adaptive capacity,
  3. trends in exposure and vulnerability to climate-related hazards or realised impacts of climate events
  4. tracking financial or non-financial resources spent on adaptation initiatives.

The information collected through monitoring needs to be periodically reported, or lessons learnt from the evaluation have to inform planning of future adaptation action, including modifying plans and actions to improve outcomes.

- The evaluation assesses (periodically) if:
  1. Adaptation action are on track to meet pre-defined objectives and why/why not?
  2. Resources spent are efficiently allocated?
  3. Adaptation actions are effectively reducing climate risks and how

Evaluations are partly based on the information monitored, but also draw on other relevant information such as stakeholder consultations and expert reviews

The Paris Agreement established that the periodical stock take to track implementation and progress on adaptation goal shall cover 4 aspects:

- a) Recognize adaptation efforts of developing country Parties
- b) Enhance the implementation of adaptation action taking into account the adaptation communication
- c) Review the adequacy and effectiveness of adaptation and support provided for adaptation
- d) Review the overall progress made in achieving the global goal on adaptation: *“enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response”*

## SLIDE 28: CHALLENGES OF ADAPTATION M&E

To encourage interaction with the participants, ask for examples from their countries of existing systems in place to track agricultural adaptation.

According to the UNFCCC, “adaptation” refers to adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects. It refers to changes in processes, practices and structures to moderate potential damages or to benefit from opportunities associated with climate change.

The long timescales needed to capture outcomes and impacts create challenges for adaptation M&E.

Resilience building can be defined as increasing the dynamic capacity of a system to:

- **to absorb** the impacts of climate-related shocks and stressors (floods, droughts, storms, but also lower intensity phenomena (e.g. erosion, land degradation, heat, and water stress)

- to **adapt to, change** and to **potentially transform**, in a manner that enables the achievement of development outcomes

This multi-dimensional nature of resilience makes it difficult to measure and track.

Agricultural interventions targeting adaptation and resilience building for agricultural systems and communities use different entry points for both engaging, investing and supporting farmers and value-chain actors.

- Supporting services and tools
- Knowledge and technology transfer
- Capacity building
- Strengthening policy frameworks and enabling environment

These interventions at multiple scales also create challenges for M&E of adaptation.

### **SLIDE 29: HOW TO TRACK PROGRESS TOWARDS ADAPTATION?**

There is a proliferation of initiatives and frameworks on developing systems for adaptation M&E at all levels. The literature is either focused on providing guidance to develop national level systems for monitoring and evaluation or providing information and insights from a set of existing systems.

It might seem promising to have so many options from which to choose, but they are not ready to use directly off the shelf. There are multiples tools, indicators and reporting needs that need to be aligned.

### **SLIDE 30: RESOURCES ARE OUT THERE, THROUGH NOT ALWAYS AGRICULTURE-SPECIFIC**

What to track? A review of salient characteristics of implemented/planned national adaptation M&E systems shows that related indicators are designed to track:

1. Trends in climate
2. Exposure and vulnerability
3. Impacts of climate events
4. Adaptation processes/intervention outputs
5. Outcomes

Selected indicators need to take the country context into account. Different types of indicators may include:

- Readiness indicators (enabling adaptation environment)
- Process or output indicators (used to monitor implementation progress)
- Outcome/impact indicators aimed to measure the actual resulting effect of the adaptation/resilience building intervention in relation to the Adaptation Goal

Adaptation indicators are fundamentally linked to development indicators due to the strong connection between adaptation and development actions and goals. Therefore, the inclusion of standard indicators of (sustainable) development performance is necessary to track progress towards reduced vulnerability and enhanced adaptive capacity.

### **SLIDE 31: RESILIENCE/ADAPTATION INDICATORS SPECIFIC TO AGRICULTURE**

Work by FAO aiming to contribute to the Paris Agreement led to the publication of a framework and methodology for Tracking Adaptation in Agricultural Sectors.

The FAO Framework for Tracking Adaptation allows the examination of processes and outcomes of adaptation at national and local levels, providing a consistent and flexible list of indicators. These indicators fall under four thematic categories and four sub-categories.

This work takes into account ongoing national efforts for reporting to major international mechanisms (including the UN's SDGs and Sendai Framework for Disaster Risk Reduction) and applying the M&E Adaptation/Resilience building logframe.

The list is designed for countries to review the long list of possible indicators and select those that fit best with their country context.

### **SLIDE 32: RESILIENCE/ADAPTATION INDICATORS SPECIFIC TO AGRICULTURE**

Ask the participants whether any of them come from countries receiving support through FAO and UNDP's Integrating Agriculture in National Adaptation Plans (NAP-Ag) program (only four African countries have been part of NAP-Ag—Zambia, the Gambia, Uganda and Kenya). These countries have received specialized support to address specific climate change adaptation concerns within their agriculture sectors. Some learning resources are available online (links on the slide).

\*Note: before the training, try to establish whether the African countries that have been part of the NAP-Ag program have functioning M&E systems to date. These can be used as examples. As of mid-2020, these systems were still being finalized. For example, Kenya was still finalizing the M&E framework for adaptation in agriculture at last check. For an update on Kenya's process, see this presentation from April 2020: [https://www.transparency-partnership.net/system/files/document/Aligning\\_MRV\\_ME%20%28002%29.pdf](https://www.transparency-partnership.net/system/files/document/Aligning_MRV_ME%20%28002%29.pdf)

### **SLIDE 33: KEY MESSAGES**

This module has covered a lot of material. MRV and adaptation M&E are some of the most challenging aspects of implementing NDCs.

A complete MRV system has to bring together many subsectors and requires extensive coordination.

Moving from Tier 1 calculations to a Tier 2 approach gives more accurate information and can help a country better show progress towards its NDC targets. Tier 2 approaches can help attract financing from both public and private sectors (link to Module 3 on climate financing).

Adaptation M&E is increasingly recognized by the UNFCCC as an important step of the process of adapting to climate change by enabling Parties to better address climate risks, improve effectiveness of adaptation measures and increase accountability. Adaptation M&E systems developed to date focus on diverse range of specific purposes and types of indicators

Parties lack a common indicator framework, to track progress towards the Paris Agreement Global Goal on Adaptation. Development of a common methodology and guidance from UNFCCC could be issued in the future, but until then each country needs to create a system that works for its own context.