



NAMAs on Waste Management: Designing a MRV methodology for the NAMA

Sandra Aparcana
UNEP DTU Partnership

NAMA training
Maputo, Mozambique - Sep
2015

Measuring, Reporting and Verifying (MRV)

- The MRV requirements for NAMAs will depend on the country's specific need for information and the international requirements for MRV set by the UNFCCC

It can be divided into two levels: MRV of the voluntary national mitigation actions under the UNFCCC at **the international level**, and the MRV of the specific individual NAMAs at **the national level**.



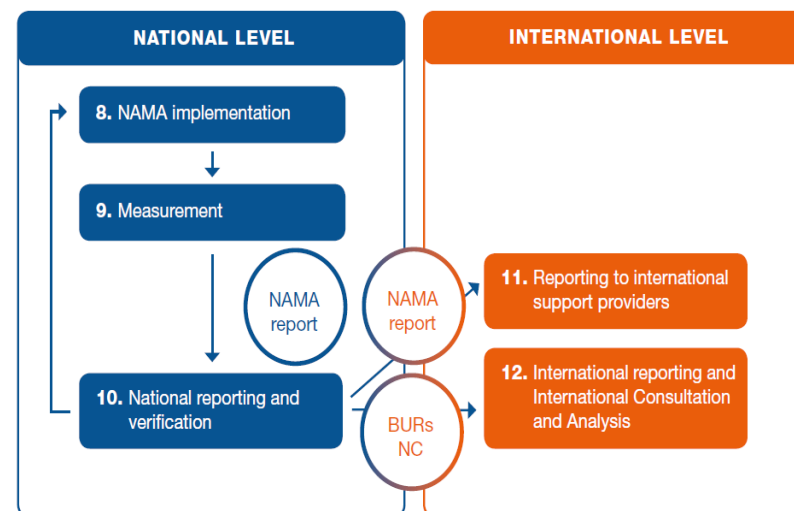
National and international level of MRV for NAMAs

- At the international level:**

Report on national mitigation efforts and national GHG inventory through National Communications (NC) and Biennial Update Reports (BURs), including:

 - ✓ Measurement of parameters to prepare the national greenhouse gas inventory
 - ✓ Reporting of information on the national greenhouse gas inventory and the impacts of NAMAs implemented by the country
 - ✓ Assessment of the information reported in the BURs through International Consultation and Analysis (ICA) (Verification); a process where technical experts review the information in consultation with the country.

In addition, supported NAMAs are expected to follow and meet eventual MRV requirements of international partners, donors or investors in NAMAs.



Sharma and Desgain, 2014

At the national level:

- It addresses **individual NAMAs and supports the international level**. It feeds with information into the Biennial Update Reports for the UNFCCC.

The only international requirement set for the national level is based on the **general guidelines for measurement, reporting and verification of domestically supported nationally appropriate mitigation actions**, recommended by the Conference of the Parties at its 19th session (FCCC/SBSTA/2013/L.28): "*Developing country Parties are encouraged to utilize existing domestic processes, arrangements or systems, including domestically available information, methodologies, experts and other aspects, for domestic measurement, reporting and verification. Otherwise, developing country Parties may wish to voluntarily establish domestic processes, arrangements or systems for the domestic measurement, reporting and verification of domestically supported NAMAs.*" (UNFCCC, 2013: General Guidelines for domestic measurement, reporting and verification).

Implementing the MRV processes

Measuring and Monitoring:

Measurement is measuring data/parameters to monitor the situation. Measurement is an operational function, while monitoring is a management function.

- **Monitoring a NAMA on waste requires measuring the same data used for establishing the business as usual scenario** or baseline. Some parameters to be monitored and used for estimating GHG emissions may be:
 - ✓ waste generation,
 - ✓ waste composition,
 - ✓ waste collection,
 - ✓ waste streams according to waste treatment,
 - ✓ gas generation and composition,
 - ✓ energy consumption, and energy generation of the project

Frequency:

The frequency of data collection should be **determined by the project developers, depending on the activities and capacities available, and under considerations of possible seasonal changes** of waste composition and generation, energy consumption, etc

Designing a data monitoring system

Indicators: Define key performance indicators

- Input, activity and outcome
- Indicators should be tailored to the policy or action, based on the type of policy or action, the requirements of stakeholders, the availability of existing data, and the cost of collecting new data

Parameters: Define parameters for ex-post assessment

- Parameters required to estimate baseline emissions using the emissions estimation method(s) for each source and sink. Parameters (e.g. activity data, emission factors) make up the emissions estimation equations or algorithms

Define timeline: Define monitoring period for the policy

- The policy monitoring period is the time period over which the policy or action is monitored
- At the minimum, the policy monitoring period should include the policy implementation period. But note the effects on GHG emissions may go on long after the policy has finished

Create: Create a monitoring plan

- Measurement or data collection, methods, sources of data (either existing or additional data needed), monitoring frequency, whether the data is measured, modelled, calculated or estimated; uncertainties, sampling procedures, documentation, QA/QC

Monitor: Monitor parameters over time

- eg: Performance indicators are likely to provide useful information on the validity of the assumptions made in the ex-ante assessment of the policy

Methodology for measuring

The methodologies and procedures **should define how to measure the expected impacts** (including greenhouse gas-related impacts, transformational impacts and sustainable development benefits), **the progress** (both the status of activities and outputs), **and the support given to the NAMA**. This should include:

- ✓ The geographical scope
- ✓ The impact boundaries of the activity on GHG emissions, and the sustainable development benefits
- ✓ The baselines for key development benefits and greenhouse gas emissions
- ✓ The indicators to measure the impacts
- ✓ The data required to measure/estimate the indicators
- ✓ A data collection system including clear delegation of data collection responsibilities between the different involved stakeholders
- ✓ Establishing procedures to ensure reliability of data collected and estimates (Q&A)

What to measure?

- ✓ **Information on NAMAs under planning: progress indicators** to track the implementation of the NAMAs, methodologies and assumptions related to estimation of greenhouse gas emissions reduction
-
- ✓ **Information on NAMAs under implementation, or implemented:** progress of NAMAs, results achieved, outputs, and impacts

Indicators

Indicators: “SMART” (specific, measurable, accurate, realistic and time-bound)

Focused, clear and specific

It should measure and represent progress that the NAMA is expected to bring

Precise and unambiguous in describing clearly and exactly what is measured.

Indicators can be divided in two categories:

- ✓ **Progress indicators:** they track the implementation status of NAMA activities
- ✓ **Impact indicators:** They refer to the impact of outcomes of NAMAs related to the reduction of GHG emissions, as well as other objectives served by the activity, in accordance with national sustainable developmental goals.

Progress indicators

Goal				
Reducing GHG emissions through sustainable municipal waste management				
Objectives				
To decrease by X% the waste volume diverted to landfills and open dumps		To establish a separation at source system for municipal solid waste, with a coverage rate of X%, and a recycling rate of Y%, by (date)		
Activities				
Offer training programmes	Create and promote public-private partnerships for building and operation of facilities and its financing	Social awareness programmes for citizens, organising solidarity or cooperation programmes	Offer environmental awareness raising programmes	Development and implementation of economic enforcement schemes (fees, etc.); or schemes for making citizens take part of the economic revenues of separate waste collection systems Awareness raising programmes
Progress indicators				
# of training programmes conducted for local authorities, waste management advisors and other key stakeholders	# of successful PPP with building plans in progress or operating facilities Tonnes of waste diverted to landfills annually	# of social awareness events for citizens and waste workers # of newly formed community-based organisations, with inclusion of waste workers	# of environmental awareness raising programmes organised by the municipalities	Percentage of households participating in the new collection system

Impacts indicators

Goal					
Reducing GHG emissions through sustainable municipal waste management					
Objectives					
To decrease by X% the waste volume diverted to landfills and open dumps			To establish a separation at source system for municipal solid waste, with a coverage rate of X%, and a recycling rate of Y%, by (date)		
Outcomes					
Decreased waste volume diverted to landfills and open dumps			Established separation at source system for municipal solid waste		
Impacts					
<u>Climate:</u> -Lower greenhouse gas emissions (compared to business as usual) -E.g. reduction of fossil fuel consumption, renewable energy generated	<u>Environment:</u> -Reduction of air, water, and soil pollution -E.g. land use avoided, water saved	<u>Social:</u> -Job creation (high and low qualified) -Know-how transfer	<u>Economic:</u> -Revenues through commercialization of recycled materials -Creation of added value	<u>Social:</u> -Job creation -Increase of income for waste workers/recyclers -Increased social and environmental awareness of citizens -Reduction of health problems of citizens -Elimination of vector-borne diseases	<u>Environment:</u> Reduction of air, water, and soil pollution -Land use avoided -Water saved
Impacts Indicators					
tCO ₂ e reduced	-Amount of air, water and soil pollutants reduced from reduction of diverted waste to landfills and open dumps	-Number of new high and low qualified jobs -Number of international agreements for technical trainings on	-Amount of total annual revenues/total sales within the national recycling market	-Number of new high and low qualified jobs -% of income increase for waste workers/recyclers -# of newly formed community-based	-Amount of air, water and soil pollutants reduced due to avoided use of fossil fuels and extraction of raw materials

- Some **progress indicators could either be used to estimate the impact indicators or the two might use the same data.** For example, data for estimating indicators of "tonnes of waste diverted to landfills annually" could also be used for estimating the GHG impacts.

The **impact indicators also help track the transformational change in the system.** For example, an indicator for know-how transfer could help to show the knowledge change in the waste sector.



Reporting

- **Reporting entails regular communication from the entity implementing a NAMA to different entities**, such as the designated authority that manages the MRV system or the entity providing international support
- Purposes** of reporting may include
- ✓ **Providing information** to the relevant national entity for inclusion in the Biennial Update Report, for the NAMA Registry (which in the case of unilateral NAMAs would be for recognition), for national policy mainstreaming, for impacts on sustainable development and for co-benefits
 - ✓ **Fulfilling requirements** per agreement **with the entity providing support** in accordance with its requirement in a mutually agreed upon protocol, especially regarding GHG emissions reduction impacts
 - ✓ **Tracking the efficiency** of the implemented policies and determining how efficient development investments are
 - ✓ **Assisting in legitimizing government's policy implementation**

Reporting in NAMA should consider:

- ✓ what? (will be reported)
- ✓ To whom?
- ✓ Frequency of reporting

and include following information:

- ✓ Indicators for assessing progress,
- ✓ Indicators for assessing impacts
- ✓ Estimation methodologies
- ✓ Assumptions used for estimation of indicators
- ✓ Description of the measurement approach
- ✓ Quality assurance/quality control (QA/QC) procedures

Verifying

It should confirm that what has been measured and reported is **complete, accurate, and transparently presented**

- It should demonstrate that so that a third party can arrive at the same conclusions based on the reported information.

Through documentary evidence:

Review of reported documents - this would be the case of the ICA process

* Documentary evidence could also be done more in depth by a national entity or entities providing support to evaluate the accuracy of the information, the data quality and the applied quality assurance and quality control procedures

Through physical evidence:

Direct observation

Usually done through a visit by a verifier to inspect the data where it is measured and stored

Assessing the soundness of the mode of measuring - e.g. biodigesters are present, operational and correctly operated, and parameters properly measured, etc.

Verification: levels

- First party verification: performed by the same entity responsible for the implementation of the NAMA (domestic verification). Q&A mechanisms should ensure that the verification is independent

Second party verification: should be done by and an entity not included in the NAMA implementation. potentially the entity that sets the standard against which the assessment is done.

Third party verification: Here the implementer is assessed against a standard by an independent organisation that is different from both the implementer and the entity setting the standard (second party). E.g. CDM

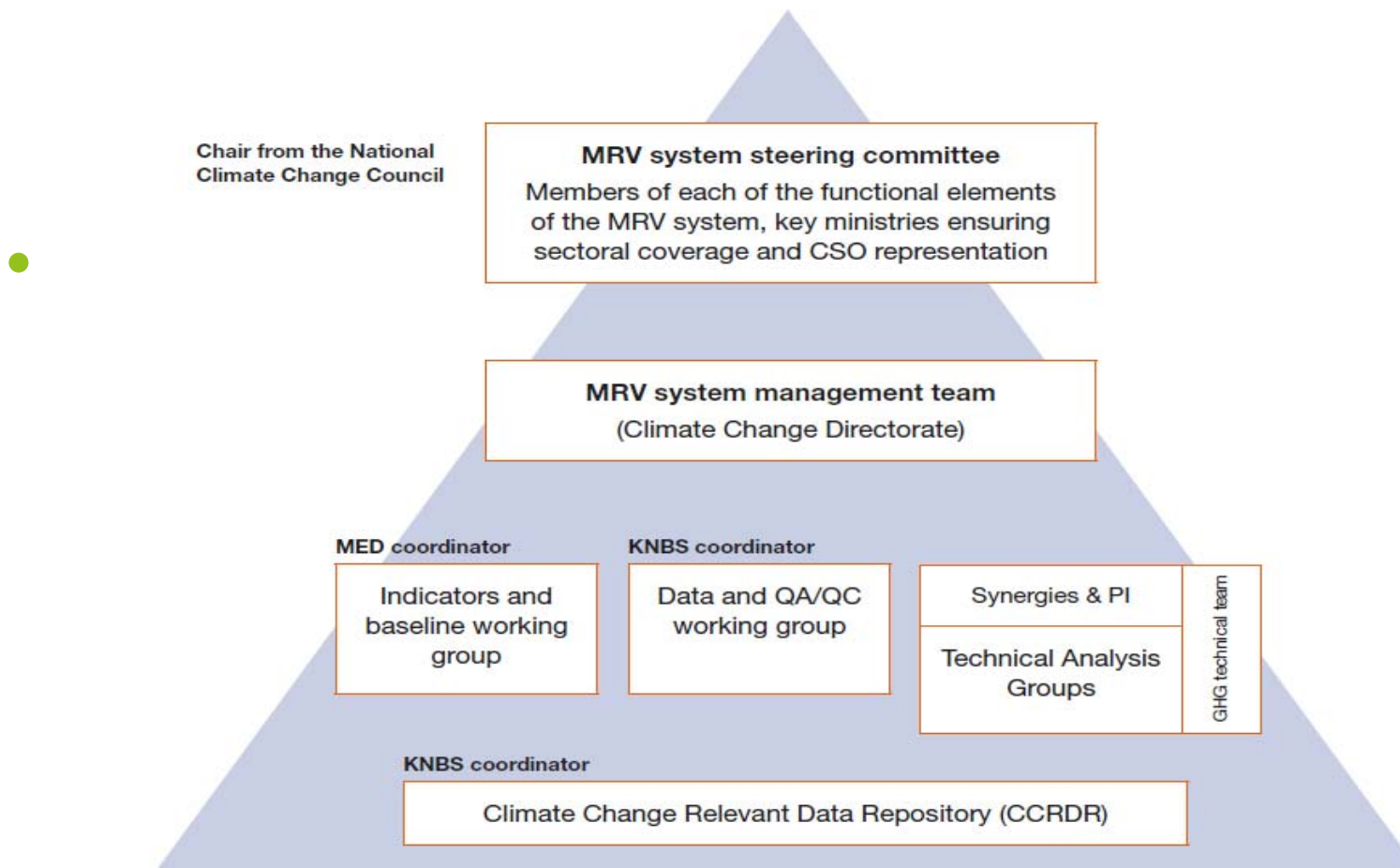
Institutional arrangements for MRV

Institutional arrangements are an important element in creating the required framework for MRV of NAMAs

- **It is important to designate a single entity responsible for the overall coordination**, to ensure an effective and coherent MRV system.



Example of institutional structure for MRV: case Kenya



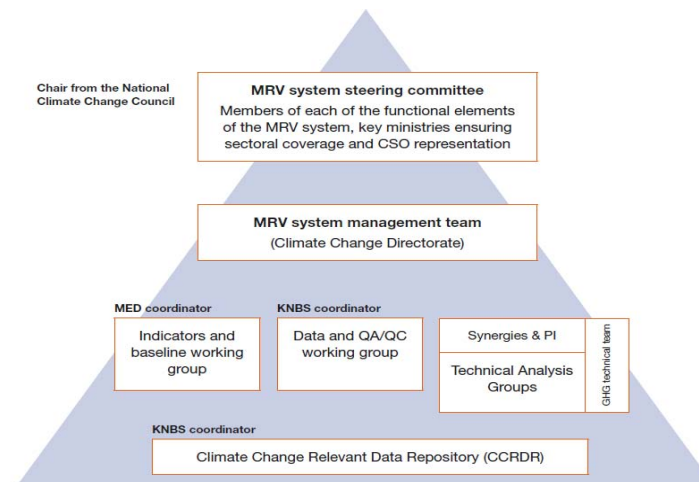
Source: National Climate Change Action Plan Kenya

Group work: Mapping of institutional structure and relevant stakeholders for waste - MRV in Mozambique

Identify a reporter

● Presentation of NAMA case

1. Identify institutions potentially involved (Mapping institutional structure of the WM system) for the MRVs structure
2. What role could they play for the MRV structure?



Activity	responsible entity	responsibilities	Interlinking/int eractions
Measuring/ Monitoring			
Reporting			
Verification			

- # Questions & Discussion

