



Initiative for Climate Action Transparency – ICAT

**Designing a Roadmap for the Establishment of a National
Measurement, Reporting and Verification (MRV) System of
Climate Change Actions in Mozambique**



Initiative for Climate Action Transparency - ICAT -

Recommendations for the establishment of a robust national MRV system for climate change policies and actions

Deliverable #3

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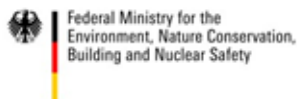
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ABSTRACT

Under the Paris Agreement, all parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed on the ambitious goal to limit the increase in global average temperature to well below 2°C, and pursue efforts to limit warming to 1.5 C. The main framework to achieve the objective of the Paris Agreement is the countries' Nationally Determined Contributions (NDCs). In this context, the government of Mozambique approved the country's NDC in 2018, establishing domestic mitigation actions, adaptation measures, and the financial support needed to operationalize its NDC. Yet, the country is in need of more accurate data to better showcase the progress of its NDC and to demonstrate the progress in contributing to reduction of greenhouse gas emission. Therefore, an improved and efficient monitoring system is necessary for measuring, reporting, and verifying (MRV) the implementation of the policies and actions present in the NDC.

The objectives of this document is to assess the current institutional arrangement for national MRV of climate change policies and actions in order to identify gaps and challenges and design a roadmap for the establishment of a robust national MRV system. Mozambique's MRV system for climate change is characterized by weak coordination, outdated institutional set up, lack of consistent data, lack of robust mechanism for data collection, lack of information sharing mechanism, limited institution capacity to collect metadata, and lack of legal instrument to operationalize the information sharing mechanism.

This document proposes an updated structure for the national MRV system with replacement of institutions that are no longer active (such as the National Council for Sustainable Development (CONDES), the Climate Change Unit (UMC), and the Environment Fund (FUNAB)) and inclusion of other institutions with more active role, such as the National Institute of Statistics (INE), the Ministry of Economy and Finance (MEF) and the Central Bank of Mozambique. With respect to legislation, the introduction of a climate change law is important to guarantee that data is shared between institutions with data related to climate change and MITADER and therefore allowing this sector to fulfil its mandate for reporting namely: reporting nationally, on the National System for Monitoring and Evaluation of Climate Change (SNMAMC); and reporting internationally, on the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.



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ACRONYMS

Acronym	Meaning
ACM	Academy of Science of Mozambique (<i>Academia de Ciências de Moçambique</i>)
AFOLU	Agriculture, Forestry and Other Land Use
AMOR	Recycling Association of Mozambique (<i>Associação Moçambicana de Reciclagem</i>)
ANAMM	National Association of Municipalities of Mozambique (<i>Associação Nacional dos Municípios de Moçambique</i>)
BM	Central Bank of Mozambique (<i>Banco de Moçambique</i>)
BUR	Biennial Update Report
CDM	Mozambique Beer Company (<i>Cervejas de Moçambique</i>)
CONDES	National Council for Sustainable Development (<i>Conselho Nacional de Desenvolvimento Sustentável</i>)
COP	Conference Of Parties
CTA	Confederation of Economic Associations (<i>Confederação de Associações Económicas</i>)
DINAB	National Directorate of Environment (<i>Direcção Nacional do Ambiente</i>)
DINAF	National Directorate of Forestry (<i>National Directorate of Forestry</i>)
DTU	Technical University of Denmark
EDM	Mozambique Electricity Company (<i>Electricidade de Moçambique</i>)
ENAMMC	National Strategy for Adaptation and Mitigation of Climate Change (<i>Estratégia Nacional de Adaptação e Mitigação das Mudanças Climáticas</i>)
FAEF	Faculty of Agronomy and Rural Engineering (<i>Faculty of Agronomy and Rural Engineering</i>)
FEMA	Business Forum for Climate Change (<i>Fórum Empresarial do Meio Ambiente</i>)
FNDS	National Fund for Sustainable Development (<i>Fundo Nacional de Desenvolvimento Sustentável</i>)
FUNAE	Energy Fund (<i>Fundo de Energia</i>)
GHG	Greenhouse gases (<i>Gases de efeito de estufa</i>)
GIIMC	Inter-Institutional Group of Climate Change (<i>Grupo Inter-Institucional para as Mudanças Climáticas</i>)
ICAT	Initiative for Climate Action Transparency
IIAM	Mozambique Agriculture Research Institute (<i>Instituto de Investigação Agrária de Moçambique</i>)
INAM	National Institute of Meteorology (<i>Instituto Nacional de Meteorologia</i>)
INE	National Statistics Office (<i>Instituto Nacional de Estatísticas</i>)
INGC	National Institute of Management of Calamities (<i>Instituto Nacional de Gestão de Calamidades</i>)
MAEFP	Ministry of State Administration and Public Affairs (<i>Ministério de Administração Estatal e Função Pública</i>)
MASA	Ministry of Agriculture and Food Security (<i>Ministério da Agricultura e Segurança Alimentar</i>)
MCTESP	Ministry of Science, Technology, Higher Education and Vocational Studies (<i>Ministério da Ciência, Ensino Superior, e Técnico-Profissional</i>)
MEF	Ministry of Economy and Finance (<i>Ministério de Economia e Finanças</i>)
MGC	Matola Gas Company
MIC	Ministry of Industry and Commerce (<i>Ministério da Indústria e Comércio</i>)
MIMAIP	Ministry of Sea, Inland water and Fisheries (<i>Ministério do Mar, Águas, Interiores e Pescas</i>)
MIREME	Ministry of Mineral Resources and Energy (<i>Ministério dos Recursos Minerais e Energia</i>)
MISAU	Ministry of Health (<i>Ministério da Saúde</i>)
MITADER	Ministry of Land, Environment and Rural Development (<i>Ministério da Terra, Ambiente e Desenvolvimento Rural</i>)
MOPHRH	Ministry of Public Works, Housing and Water Resources (<i>Ministério das Obras Públicas, Habitação e Recursos Hídricos</i>)
MRV	Measurement, Reporting and Verification



Acronym	Meaning
MTC	Ministry of Transport and Communication (<i>Ministério dos Transportes e Comunicações</i>)
NAMA	Nationally Appropriate Mitigation Actions
NDC	Nationally Determined Contribution
NDC-P-SF	Nationally Determined Contribution Partnership, Support Facility
PES	Economic and Social Plan (<i>Plano Económico e Social</i>)
REA	Environment Status Report (<i>Relatório do Estado do Ambiente</i>)
REDD+	Reduction of Emission from Deforestation and Forest Degradation
SAN	Food Security and Nutrition (<i>Segurança Alimentar e Nutricional</i>)
SCN	Second National Communication (<i>Segunda Comunicação Nacional</i>)
SETSAN	Technical Secretariat for Food Security and Nutrition (<i>Secretariado Técnico de Segurança Alimentar e Nutricional</i>)
SNIGEE	National System of Greenhouse Gas Inventories (<i>Sistema Nacional de Inventários de Gases com Efeito Estufa</i>)
SNMAMC	National System of Monitoring and Evaluation of climate change (<i>Sistema Nacional de Monitoria e Avaliação das Mudanças Climáticas</i>)
UEM	University Eduardo Mondlane (<i>Universidade Eduardo Mondlane</i>)
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change (<i>Convenção Quadro das Mudanças Climáticas</i>)
UNIDO	United Nations Industrial Development Organization
UP	Pedagogic University (<i>Universidade Pedagógica</i>)
WBG	World Bank Group
WWF	World Wild Fund for Nature



I INTRODUCTION

I.1 Background

In 1992 almost all countries joined to respond to the effects of climate change and its impacts, culminating in the adoption of the United Nations Framework for Climate Change Convention (UNFCCC, or Convention). Following the adoption of the UNFCCC, Mozambique has been an active member to the several events organized by the Convention. In 2015, the UNFCCC organized the COP21, and Parties reached a landmark agreement to tackle climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future. The Paris Agreement builds upon the previous efforts to increase the ability of countries to deal with the impacts of climate change, and to make finance flows consistent with low GHG emissions and a climate-resilient pathway. The Agreement provides for an enhanced transparency framework for action and support, with the vision to build trust and confidence about the implementation of the Agreement by the Parties.

With the vision to support the implementation of the transparency framework for action and support, a multi-donor neutral fund was designed to improve the capacity of developing countries to assess the impacts of policies and actions to implement the Nationally Determined Contribution (NDCs). This multi-donor neutral fund is the Initiative for Climate Action Transparency (ICAT). In Mozambique, ICAT was introduced by the partnership between UNEP and the Technical University of Denmark (DTU) with a focus on the country needs related to national MRV system and the assessment of impacts of climate policies included in the NDC. The Ministry of Land, Environment and Rural Development (MITADER) was engaged as implementing entity and the project cooperation agreement was signed on 23rd June 2017. In order to implement the activities specified in the work plan, the ICAT project in Mozambique launched three consultancies covering different sets of activities. This report is about the component "Design of a roadmap for the establishment of a national Measurement Reporting Verification (MRV) system in Mozambique".

I.2 Objectives

As per the terms of reference, the purpose of this component was to reach a consensus between the stakeholders involved in climate change in order to define an appropriate structure for the management of the national MRV system, and assign specific roles, responsibilities and levels of authority to the involved institutions.

Specifically, this component has the following objectives:

- Provide a description of the legal, institutional, procedural reforms, namely the roles, responsibilities, level of authority and decision-making structure, MRV procedures and legal arrangements;
- Suggest options for improvement of data availability.



I.3 Organizational of the report

The organization of the report is the following. Chapter 1 introduces the assignment including the rationale of the consultancy and the problems it aims to address. Under the same chapter, the objectives and the structure of the report are presented. Chapter 2 describes the methodology used to produce this deliverable, the steps taken to collect information, and the types of institutions interviewed. The requirements for a robust national MRV system are discussed in detail in chapter 3 which is subdivided by four sub-sections:

- Sub-section 3.1 assesses the existing system for monitoring and evaluation of climate change and proposes changes to enhance its effectiveness;
- Sub-section 3.2 addresses the institutional setup for effective MRV of climate change including the sectors to be involved, the levels of authority of these institutions and the type of data that is needed for a robust MRV for climate change
- Sub-section 3.3 assesses the legal framework to establish an efficient MRV system including the need for development of specific laws and memorandums of understanding to ensure that the institutions holding relevant climate change information share it with the institutions that have the mandate to analyse information;
- Sub-section 3.4 proposes recommendations for improving data availability and the national MRV system;

Finally, the concluding remarks are presented in chapter 4, followed by chapters 5 and 6, which list the bibliography used and the annexes.



2 METHODOLOGY AND APPROACH

The overall methodology applied for this deliverable was desk review of the relevant documents related to the measurement, reporting and verification (MRV) of climate change data. This approach was combined with consultation meetings with the stakeholders of the national MRV system, based on their capacities, area of expertise, institutional hierarchy, and engagement in previous activities. An instrument for information gathering about the type of information produced by the institutions and the main roles and responsibilities of the main stakeholders in the climate change agenda is presented in annex I. The main steps of the work were:

Identification of organisations and institutions related to climate change

Organisations and institutions related to climate change are users or carriers of intermediate and basic data, and main holders of published and unpublished documents on climate change.

Interviews

Informal interviews with individuals who are familiar with MRV of climate change in Mozambique were conducted to obtain information about institutional roles and responsibilities, and levels of authority in the national MRV system (list of people interviewed in annex 2).

Detailed reviews and compilation of data and information

This consisted in reviewing project documents, studies, reports and publications, and compiling information collected at organizations and institutions. The reports and documents reviewed were the following:

- The National System for Monitoring and Evaluation of climate change (SNMAMC);
- The National Strategy for Adaptation and Mitigation of Climate Change (ENAMMC);
- Mozambique initial national communication to UNFCCC;
- The report on the national inventory on greenhouse gases;
- Nationally Determined Contribution of Mozambique to UNFCCC;

Consultation workshops

The consultant conducted a series of workshops with the stakeholders for discussing the establishing of roles and responsibilities and levels of authority in the national MRV system including:

- Sub-activity 1: Definition of MRV requirements and procedures within and between institutions and the private sector;
- Sub-activity 2: Design the necessary legal arrangement to enable the implementation and operationalization of the national MRV system and procedures;

The workshops were held in Maputo, at the premises of the Ministry of Land, Environment and Rural Development on 3, 4, 6, and 7 June 2019 and included institutions from the sectors of energy, agriculture and land use, industry and commerce, and environment. The full list of the institutions is presented in annex 3.



3 REQUIREMENTS FOR A ROBUST NATIONAL MRV SYSTEM

3.1 The existing system: SNMAMC

The National Climate Change Monitoring and Evaluation System (*Sistema Nacional de Monitoria e Avaliação das Mudanças Climáticas - SNMAMC, in Portuguese*) was developed by the government of Mozambique, with support of international non-government and development organizations (World bank, United Nations Development Programme, Danish International Development Agency, Save the Children, World vision, among others) to ensure the systematic monitoring and evaluation of climate change responses in an integrated way, with efficiency and effectiveness.

Approved in 2014, the SNMAMC framework provides the basis for national reporting on climate change to the Council of Ministers, international conventions, and climate financing bodies. SNMAMC was designed to fully integrate with government planning and budget systems and to ensure that relevant government sectors use the framework to report on climate change impacts, progress on adaptation to and mitigation of climate change, and development of policies and institutional responses to climate change.

The objectives of the SNMAMC (2015) in Mozambique have been defined in the document are the following:

- Improve accountability in use of resources and verifying effective allocation for the sectors at all levels and for the most vulnerable groups;
- Support inter-sectoral coordination and the implementation of the National Strategy for Adaptation and Mitigation of Climate Change (*Estratégia Nacional para Adaptação e Mitigação das Mudanças Climáticas - ENAMMC, in Portuguese*) and Climate Change Action Plans (*Planos de Ação das Mudanças Climáticas, in Portuguese*) through monitoring and learning from the implementation process;
- Evaluate to what extent the ENAMMC has contributed to reduce vulnerability to Climate Change and attain Mozambique's national development goals.
- Inform policy-making and planning by developing new evidence on effectiveness of adaptation, mitigation and disaster risk reduction approaches.
- Fulfil the reporting requirements at national and international levels.

The SNMAMC is an information and data compilation instrument that describes the mandate of the Ministry of Land, Environment and Rural Development (MITADER), to report annually to the Council of Ministers on the progress and impacts of implementation of the ENAMMC. The key components of SNMAMC are as follows:

- Framework indicators at national and sectoral level to track progress towards the ENAMMC;
- Greenhouse gas (GHG) information obtained from independent GHG inventory report and its impact in policy making and emission reduction actions towards low carbon development;



- Climate change expenditure assessments and consistent tracking of climate change finance;
- Assessment of vulnerability to climate change at sectoral and local level, and assessment of changes in vulnerability in result of adaptation policies and interventions;
- Long term program evaluation to assess the impacts and effectiveness of climate change response over a period of 10-15 years;
- Learning mechanism to understand what approaches and technologies are successful; and
- Communication and sharing of monitoring & evaluation (M&E) results to inform stakeholders and influence policy development and implementation.

The overall coordination of the implementation of SNMAMC is the responsibility of MITADER through the Department of Climate Change (DMC). In order to operationalize the SNMAMC, the DMC works closely with the Ministry of Economy and Finance (MEF). Some of the key challenges that remain on the implementation of the SNMAMC include inter alia:

- Ineffective mechanisms for coordination of institutions responsible for monitoring climate change (MITADER, Academy of Science, MASA, MIREME, MTC, MIC, MEF, INE, FNDS and others) and for providing information to produce the SNMAMC reports;
- Limited knowledge of government staff on monitoring and evaluating the effects of climate change;
- Limited availability of data, variable data quality, and lack of multi-level reporting systems (from local scale to a national level).

Additionally, the process of reporting climate change actions to the government of Mozambique and to international conventions is hindered by several barriers summarized in box I.

Box I - Key challenges remaining for the implementation of the SNMAMC

a) Lack of up to date indicators – The SNMAMC is a recognized instrument to support monitoring and evaluation of climate change. The fact that other initiatives such as the Nationally Determined Contribution (NDC) or the Paris Agreement were developed after the introduction of the SNMAMC creates a need to update the SNMAMC to address the new developed indicators, and emerging demands (recommendation of actions from the NAMA for vegetable coal, NAMA for Renewable feed in tariff-REFIT).

b) Weak legal instrument to guide reporting on climate change – The SNMAMC does not have a legal instrument that supports its operationalization, therefore its implementation relies on the goodwill of the institutions. Many requests from the SNMAMC (such as annual reporting to the Council of Ministers) are not being implemented. The legal instrument could be a law (on a long term basis and approved by the legislative bodies), decree (medium term and approved by the Council of Ministers) or even a ministerial diploma (short term and approved by a minister, or a group of ministers).



c) Lack of public documentation of SNMAMC - The SNMAMC is not publicly available in the common government information sharing mechanisms such as sector's webpage, library, or repository. Absence of these documents make them unknown to many new initiatives and decision makers.

d) Lack of finance to operationalize SNMAMC - The SNMAMC lacks financial support from the institutions for full operationalization. The SNMAMC report requires data that in some cases require specific surveys and specific expertise, which may not be available or may require some effort and cost to obtain.

e) Lack of ownership of the SNMAMC - The SNMAMC is a document produced with support from the national and international institutions. The fact that this instrument was strongly supported and lead by the implementation partners affected the ownership of the document. Moreover, with the conclusion of the projects supporting the SNMAMC, this system was not fully implemented.

f) Limited capacity within many institutions to collect data specific on climate change - Even though many institutions have specialized technicians in statistics, their capacity and level of knowledge on the issues of climate change is limited and more training is needed.

Indicators in the SNMAMC

The current SNMAMC has been developed under the context of the ENAMMC. There is a need to update the SNMAMC in order to ensure that the country is able to monitor its internal and external commitments, namely the NDC, the Paris Agreement, the NAMAS and the changes in the contexts and mandates that occurred in Mozambique. For instance, when the SNMAMC was created, forest and land was under MASA, but currently these sectors are under MITADER.

Periodicity of SNMAMC

The SNMAMC is supposed to be reported on an annual basis while the NDC, the National Communication and the Biennial Update Report have different reporting periods. Adjusting the reporting of these documents to a similar period would allow the country to organize itself to better respond to national and international commitments. Moreover, this is advantageous in terms of data collection because of synergies in the objectives.

It is recommended that the report on the SNMAMC to be adjusted to the same as the NDC reporting (every 5 years) and allow information to be collected through the already existent instruments (The National Poverty Survey, or the Environment Status Report). Once the SNMAMC is established, the period of reporting might reduce to 2 years, which is similar to the other international reporting instrument such as the Biennial update report (BUR) or biennial transparency report (BTR). By providing information on shorter intervals allow the series of information to be available for a more robust decision making approach.



3.2 Recommendations for the institutional setup

The following section presents the institutions involved in the national MRV system, the reasons for their involvement, and the relationship between the sector and the MRV objectives.

3.2.1 Current reporting structure

Under the current reporting structure, MITADER receives information from the Climate Change Unit (CCU), and has the responsibility to provide reports to be submitted to UNFCCC after validation by the Council of Ministers. The reporting process mandates sectors to submit climate change information directly to MITADER, who will produce the report. The current structure has the public sector, private sector, and civil society at the same level of responsibility in reporting, which affects the mandate for provision of information from subordinated institutions in the private sector and civil society to the lead sectors. The National Institute of Statistics and the institutions controlling the financial support have very limited influence in the current structure.

The following figure presents the institutional arrangement of the current arrangement according to the ENAMMC produced by MICOA (2012).

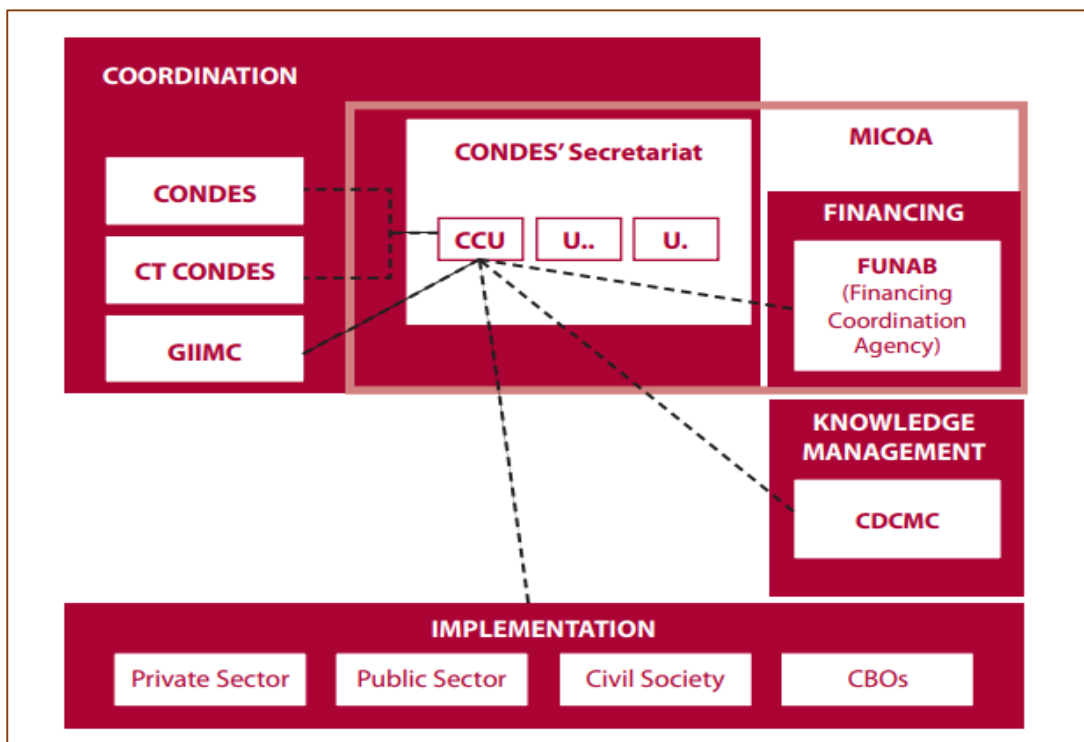


Figure 1: Institutional mechanism for coordination, implementation and financing for M&E (MICOA 2012) and the main institutions¹

¹ CCCU-Climate Change Coordination Unit, now included in the National Directorate of Environment (DINAB); CONDES-National Council for Sustainable Development with a secretariat at DINAB; MICOA-Ministry for Coordination of Environment Affairs, now MITADER; FUNAB-National Environment Fund,



3.2.2 Proposed future reporting structure

The proposal for the new structure is to have sectoral and cross-sectoral priorities and that the institutional arrangements on climate change are clearly and well-aligned through the relevant ministries. The current coordination and planning mechanism in place, through the Inter Institutional Group for Climate Change (GIIMC), will continue playing its role where MITADER will continue with its role of coordinating that multi-sectoral group. The stakeholders will play relevant roles in reporting climate change. MEF will be included to gather climate change information through the social and economic plans (PES), and INE will produce annual yearbooks with basic climate change information. MITADER will take higher responsibility over the MRV and fulfil the recommendations of the National Climate Change Strategy (ENAMMC) through its Climate Change Department (DMC), which will coordinate climate change reporting at a higher level. MITADER needs to elevate the discussions from department level to a higher level, at the level of National Director or managerial level within the ministry.

The proposal for the new structure will also strengthen and improve the linkage between the ministries overseeing the sectors and the private sector companies. While in the past MITADER had to seek information directly from private sector companies (for instance: MOZAL, PETROMOC, EDM), the new structure proposes that lead ministers request information from the organizations, agencies, and bodies under their jurisdiction and send this information to MITADER.

Another suggestion for the new structure is that the MRV of financial support will stay within the Central Bank of Mozambique (BM), which is an institution that controls funds from all the institutions and can produce a report of different types of funds received per institution. The Academy of Science of Mozambique (ACM) is called to improve its role in terms of participation in the elaboration and revision of climate change documents with an expanded role in terms of revision of major documents and conduction of studies on specific matters about the climate change topics.

The process of collection of data will be conducted by the sectors and organized into the four categories of MRV namely: (a) MRV of greenhouse gas emissions, (b) MRV of mitigation actions, (c) MRV of impacts and adaptation, and (d) MRV of support needed and received. Figure 2 is a graphical representation of the proposed reporting structure. The institutions depicted in the figure have the responsibility to collect information for the country to be able to measure, report, and verify data on GHG emissions, mitigation actions, impacts of climate change and adaptation, and support needed and received, in the light of the climate change law that will be established. The information collected will be made available in the official webpages for other users and for other studies.

now FNDS (Fundo Nacional de Desenvolvimento Sustentável –National fund for Sustainable Development); GIIMC-Inter Institutional Group for Climate Change; CBO-Community Based Organizations; CDCMC-Knowledge Management Center of Climate Change



The MRV of greenhouse gas emissions will be done through the National Inventory System of Greenhouse Gas (SNIGEE), which is overseen by MITADER, under the National Directorate of Environment. MITADER uses the SNIGEE to guide sectors for data collection on GHG indicators. Usually the country hires lecturers from the university as consultants for preparing the national GHG inventory.

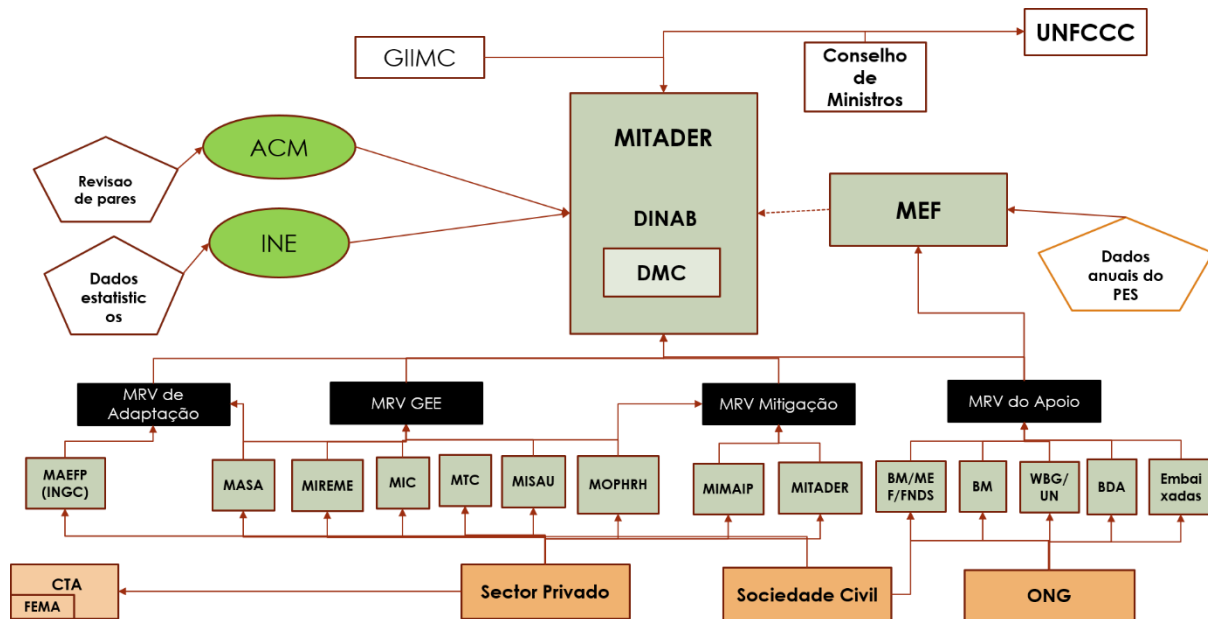


Figure 2: Mechanism for information sharing for MRV of climate change (developed by the author).

- ACM: Academia de Ciências de Moçambique (Academy of Sciences of Mozambique)
- FNDS: Fundo Nacional de Desenvolvimento Sustentável (National Fund for Sustainable Development)
- BM: Banco de Moçambique (Central Bank of Mozambique)
- INE: Instituto Nacional de Estatística (National Statistics Office)
- GIIMC: Grupo Inter-institucional de Mudanças Climáticas (Inter-Institutional Group of Climate Change)
- DMC: Departamento de Mudanças Climáticas (Climate Change Department)
- DINAB: Direcção Nacional de Ambiente (National Directorate of Environment)
- MITADER: Min. da Terra, Ambiente e Desenvolvimento Rural (Ministry of Land, Environment and Rural Development)
- MEF: Min. de Economia e Finanças (Ministry of Economy and Finances)
- UNFCCC: United Nations Framework Convention on Climate Change
- MAEFP: Min. de Administração Estatal e Função Pública (Ministry of State Administration and Public Affairs)
- INGC: Instituto Nacional de Gestão de Calamidades (National Institute of Management of Calamities)
- MASA: Min. de Agricultura e Segurança Alimentar (Ministry of Agriculture and Food Security)
- MIREME: Min. dos Recursos Minerais e Energia (Ministry of Mineral Resources and Energy)
- MIC: Min. da Indústria e Comércio (Ministry of Industry and Commerce)
- MTC: Min. dos Transportes e Comunicações (Ministry of Transport and Communication)
- MISAU: Ministério da Saúde (Ministry of Health)
- MOPHRH: Min. das Obras Públicas, Habitação e Recursos Hídricos (Ministry of Public Works, Housing and Water Resources)
- MIMAIP: Min. do Mar, Águas Interiores e Pescas (Ministry of Sea, Inland Water and Fisheries)
- WBG: World Bank Group
- UNDP: United Nations Development Programme
- BDA: Bilateral development agencies (USAID, JICA, SIDA, etc.)

The MRV of GHG emissions will involve 6 ministries, namely MIREME, MASA, MIC, MTC, MISAU and MOPHRH, with the coordination of MITADER. Each ministry will create a



subgroup that will lead the information sharing and reporting of information necessary for the MRV of GHG emissions. These technical working groups gather institutions under thematic area for the national system for inventory of greenhouse gas. Therefore, the energy group is composed by the sectors of energy, transport; the agriculture group is composed by the sectors of agriculture and environment; the industrial processes is composed by the trade and industry sectors; and the waste group is composed by the health, environment and public works. Each ministry is responsible for collecting information from the organizations, agencies, and bodies subordinated to their jurisdiction, including private sector and civil society.

The institutions involved in the MRV of mitigation are all the institutions involved in the MRV of GHG emissions - MASA, MIREME, MIC, MISAU, and MOPHRH - and also MIMAIP and MITADER. MIMAIP will provide information about the mangroves and oceans and MITADER will lead the provision of information about forestry, and land use. From an adaptation perspective, MAEFP will provide information related to adaptation co-benefits on mitigation.

The MRV of adaptation will involve all the institutions engaged in actions that help populations to adapt to the effects of climate change. These institutions are: MAEFP (especially INGC), MASA, MIREME, MIC, MTC, MISAU, MOPHRH, MIMAIP, MITADER. There is also a presence of private sector and civil society in adaptation.

The MRV of support needed and received will involve the MEF and the Central Bank of Mozambique (BM) and these can be supported by the World Bank group through its support for the preparation of Climate Public Expenditure and Institutional Review (CPEIR). Other institution that is relevant is the United Nations Development Programme (UNDP) for its role in preparation of the Public Expenditure Report (PEER).

3.2.3 Specific roles and responsibilities of the institutions

Of the reporting instruments that the country has to report, specific emphasis is on the mitigation. The information on mitigation will lead to contribution national and international instruments such as the Biennial Update Report (BUR) and the Biennial Transparency Report (BTR) as well as the Nationally Determined Contribution (NDC). The main institutions with mandate to address the climate change mitigation reporting in Mozambique are described in the following section.

3.2.3.1 Ministry of Land, Environment and Rural Development (MITADER)

The MITADER has the primary responsibility for matters related to climate change and environment, with a strong emphasis on cooperation with other ministries, such as MASA, MIREME, MOPHRH, MIC, MTC. Additionally, MITADER's mandate to lead the implementation of the National Strategy for Adaptation and Mitigation of Climate Change (ENAMMC) places this ministry at the centre of the country's climate change response, with the responsibility to work in alignment with a various governmental and non-governmental stakeholders. MITADER is also responsible for reporting requirements under the UNFCCC and other international conventions. Box I refers to specific roles and responsibilities to be addressed by MITADER within the climate change reporting framework.



Box 2: Responsibilities of MITADER related to the national MRV system

- Coordinate the existent Group Inter-Institutional for Climate Change (GIIMC) responsible for implementation of climate change issues within the country;
- Serve as the Secretariat of the GIIMC;
- Coordinate the thematic technical working groups such as energy including transport working group, Agriculture, Forestry and Other Land Use (AFOLU), waste working group, and industrial processes working group, responsibly for the preparation and implementation of climate change policies, strategies, plans, programs and actions and for the national and international MRV and transparency systems (preparation of the national GHG reports, National Communications - NCs, Biennial Update Reporting - BURs, NDC including its NDC Operational Plan, National Adaptation Plan – NAP and soon the Biennial Transparency Reporting – BTRs);
- Appoint the project coordinator for the preparation of each of the above mentioned report to be submitted to the UNFCCC;
- Sign Memorandums of Understandings (MOUs) including information sharing protocol with relevant government institutions that coordinate thematic areas. The MOUs establish an institutional arrangement so that Mozambique can gather information necessary for complying with the international MRV requirements;
- Mobilize bilateral and multilateral funds including other sources of funds to implement climate change actions including to comply with national and international MRV and transparency system;
- Submit financial, progress and other reports to the climate funds and other institutions that provided funds for preparation of the national climate change reports and documents as required;
- Mobilize technical assistance from the academies (such as University Eduardo Mondlane, under the MOU signed with this institution) for the preparation of climate change reports and documents;
- Designate the technician to represent DINAB in all thematic technical working groups;
- Formulate and implement procedures for quality assurance, quality control and verification in all stages of the preparation of the reports (NCs, BUR, BTR and National GHG Reports) for high quality;
- Compile the reports (NCs, BUR, BTR, National GHG Inventory Reports, etc.) and other documents (NDC, NAP, policies, strategies, plan and programs);
- Circulate the compiled reports and documents for comments;
- Hold national meetings, whenever is required, to validate the compiled report;
- Submit reports prepared for approval by the Council of Ministers and subsequently to the Convention (BUR, National Communications, NDC, BTR, etc.);
- Maintain database of the activity data and information used in the preparation of the reports and documents including those reports and documents; and,
- Disseminate the reports and documents.

The multiple responsibilities and mandates of MITADER are enacted by its multiple directorates and departments, notably the National Directorate for Environment (DINAB), the National Directorate for Forestry (DINAF), and the National Directorate for Planning and International Cooperation (DPCI). In addition to the “line” directorates, MITADER’s activities are further supported by subordinate institutions such as the National Fund for



Sustainable Development (FNDS) to promote and finance programs and projects to ensure sustainable, harmonious and inclusive development. Table I presents a detailed roles and responsibilities of key directorate and entities participating in MRV within the MITADER.

Table I: Key institutions within MITADER related to national MRV in Mozambique

MITADER	Institution role and responsibilities to MRV	Type of MRV
National Directorate of Forestry	<ul style="list-style-type: none"> Quantitatively and qualitatively assess forest resources as well as reducing emissions from deforestation and forest degradation Ensure the licensing, management, protection, research, conservation, monitoring and monitoring of forest resource use. 	MRV of GHG emissions MRV of mitigation actions
National Directorate of Environment (DINAB)	<ul style="list-style-type: none"> Provide technical assistance to all levels of environmental governance Establish standards, guidelines and procedures for the preparation of environmental management plans for socio-economic development projects. Coordinate the implement of bilateral and multilateral agreements including on climate change convention Co-ordinate the implementation of Agenda 2030 Develop environmental management system 	MRV of GHG emissions MRV of mitigation actions
National Directorate of Land	<ul style="list-style-type: none"> Globalize land use information Oversee the exploration plans proposed by the land use and benefit holders 	MRV of GHG emissions MRV of mitigation actions
National Directorate of Territorial Planning and Resettlement	<ul style="list-style-type: none"> Monitor the implementation of territorial management instruments Evaluate, monitor and promote good practices related to territorial management in communities. Develop, coordinate and manage the national territorial information system 	MRV of GHG emissions MRV of mitigation actions



<p>Planning and Cooperation Directorate</p>	<ul style="list-style-type: none"> • Lead and control the process of collecting, processing, analysing and inferring statistical information. • Monitor and evaluate the implementation of policies, programs and projects. • Ensure the creation and maintenance of a database for environmental statistics purposes. • Monitor the implementation of cooperation programs, projects and actions. • Evaluate the results of regional and international cooperation projects and / or programs. • Monitor the implementation of activities arising from bilateral and multilateral agreements. • Develop and maintain a database on all cooperation programs. 	<p>MRV of GHG emissions</p> <p>MRV of mitigation actions</p> <p>MRV of support</p>
<p>National Fund for Sustainable Development (FNDS)</p>	<ul style="list-style-type: none"> • Mobilize, generate and manage financial resources by applying them to actions leading to sustainable development • Fund programs for environmental management, climate change adaptation and mitigation, sustainable forest management, biodiversity conservation, land management and land use planning; • Mobilize resources bilaterally and multilaterally for the implementation of sustainable development activities; • Manage the financial resources of the Conventions in the areas of environment, land, forests, conservation and others that may prove relevant to sustainable development (as GEF Operational Focal Point). 	<p>MRV of support</p>

3.2.3.2 Ministry of Economy and Finance (MEF)

The Ministry of Economy and Finance (MEF) is responsible for managing national development and is the focal point for management of external finance and related projects. In addition, the National Directorate for Monitoring and Evaluation within MEF is the National Designated Authority (NDA) for Mozambique’s communications with the Green Climate Fund (GCF) and is therefore anticipated to play an important role in applying for and managing external finance to support climate change-related initiatives through the latter fund.

Although the MEF does not have a long record of leadership on Mozambique’s climate change response, the former Ministry of Planning and Development (MPD) which preceded the current ministry leaders, was instrumental in facilitating the consideration of climate change in the country’s revised institutional and policy frameworks. MEF can use this past experience



to continue supporting the country, especially on the components of MRV for financial support needed and received. Furthermore, MEF can play an important role on resource mobilization because of hosting the focal point for the GCF.

The MEF has played an important institutional role in the formulation and financing of the Development of Policy and Operation (DPO) projects and as a result, has become an important stakeholder in national-level projects focused on climate change, despite not playing a major role in the implementation of field-level activities. Through the DPO projects, several policies on climate change have been approved, including the National System for Monitoring and Evaluation of climate change (SNMAMC). MEF is also a repository of the Economic and Social Plans (PES). These plans incorporate information on Adaptation and Mitigation that can be used to report climate change. The roles and responsibilities of MEF in climate change reporting are summarized in Box 2.

Box 3: Responsibilities of MEF related to the national MRV system

- *Co-ordinate with MITADER the implementation of the agenda 2030;*
- *Represent the country in international financial and economic institutions and organizations (for example as NDA for GCF)*
- *Prepare the annual Social and Economic Plan (PES) based on the information received from other ministries and present to the Council of Ministers for endorsement before it is submitted to the parliament for approval;*
- *Monitor and evaluate the PES implementation*
- *Compile the PES balance based on the information provided by other ministries in regards to PES implementation and present to the Council of Ministries for endorsement before its approval by the parliament*

Within MEF, three institutions are relevant for the MRV. The National Treasury Directorate for its role in managing the funds and its importance in contributing to the MRV of support; the National Directorate of Monitoring and Evaluation, for its role on compilation of the PES; and the Cooperation Directorate, for its role in elaboration of the projects including climate change projects. Table 2 illustrates the detailed roles and responsibilities of key directorate and INE within MEF relevant for MRV System.

Table 2: Key institutions related to CC MRV in Mozambique

MEF	Institution role and responsibilities to MRV	Type of MRV
National Treasury Directorate	<ul style="list-style-type: none"> • Register external finance and disseminate their reports 	MRV of support



MEF	Institution role and responsibilities to MRV	Type of MRV
National Directorate of Monitoring and Evaluation	<ul style="list-style-type: none"> Assess the effectiveness of sectorial policies and strategies with support of the MEF focal point for NDC; Undertake monitoring and evaluation activities at all levels of the implementation of short, medium- and long-term plans; Lead the process of monitoring and evaluation of partner-funded projects implemented in the various sectors. 	<p>MRV of mitigation actions</p> <p>MRV of support</p>
Cooperation Directorate	<ul style="list-style-type: none"> Collect and update information on external financing projects. Maintain updated external financing database 	MRV of support

3.2.3.3 Ministry of Mineral Resources and Energy (MIREME)

The MIREME is responsible of coordinating of ensuring the implementation of the government's policy in geological research, exploration of mineral and energy resources, and development and expansion of infrastructure for the supply of electricity, natural gas and petroleum products.

The diverse responsibilities and mandates of MIREME within the MRV system are undertaken and supported by several directorates composed by representatives of National Directorates of Energy, Geology and Mines, Fuels and Hydrocarbons and Planning and Cooperation, National Energy Fund, National Hydrocarbon Company. Box 3 bellow presents the responsibilities of MIREME for the MRV of climate change.

Box 4: Responsibilities of MIREME related to the national MRV system

- *Coordinate the energy technical working group composed of representatives of MIREME (National Directorates of Energy, Geology and Mines, Fuels and Hydrocarbons and Planning and Cooperation, National Energy Fund, National Hydrocarbon Company), Ministry of Transport and Communications (National Directorate Transport and Logistics, National Land Transport Institute, National Sea Institute, National Civil Aviation Institute, Ports of Mozambique Company and Mozambique Airports Company), Ministry of Industry and Commerce (National Directorate of Industry), MITADER (Directorate Environment (DINAB), National Statistics Institute, EDM, PETROMOC and other entities deemed relevant;*
- *To appoint the energy technical working group coordinator and other technicians to be part of this group, which is responsible for conducting studies related to the energy sector, such as identification of mitigation options and their effects and support needs and vulnerability and adaptation assessment, to be include in the documents (NDC, policies, strategies, plan, programs, etc.) and reports (NCs, BURs, BTR, etc.);*
- *Mobilize additional funds and other support and partnerships for MRV and transparency system and implementation of adaptation and mitigations actions in the energy sectors including transport;*



- Promote the implementation of energy adaptation and mitigations actions through integration of those actions into annual PES especially the actions that are included in the NDC;
- Report to MITADER through DINAB the studies done, the progress achieved in implementing NDC and other adaptation and mitigation actions including support received and challenges
- Participate in the preparation of national GHG inventory report which includes, but not limited to data collections and analyses, selection of methodologies, definition of assumptions and preparation and validation of the GHG national reports and improvement plan;
- Provide data activities and information necessary for the preparation of documents (NDC, policies, strategies, plans and programs) and reports (NCs, BUR, BTR, etc.) to be submitted to the Council of Ministers and to the UNFCCC;
- Participate and provide information necessary for the process of consultation and international analysis of documents submitted to the UNFCCC (such as the BUR) as well as for the facilitation of the sharing of views;
- Permanently document the steps described above in order to allow re-estimation of future emissions; and
- Identify areas that require improvement in the next report.

Under MIREME, four institutions are relevant to the MRV system of climate change because of the data they are able to gather and report on mitigation actions. The subordinated institutions described in table 3 further support the activities on MRV of MIREME.

Table 3: Institutions related to MRV under MIREME

Institution	Activities related to climate change	Contributor to which MRV
General Inspectorate of Mineral Resources and Energy	<ul style="list-style-type: none"> • Inspect and audit facilities for the production, transport, distribution and marketing of electricity, hydrocarbons and fuel, including fuel storage and discharge facilities; • Organize and carry out inspections, investigations, investigations and audits of different activities related to the Mineral Resources and Energy sector. 	MRV of Mitigation actions
National Directorate of Geology and Mines	<ul style="list-style-type: none"> • Plan, coordinate, control and ensure the inventory of the country's mineral resources, including on the continental shelf and in the Exclusive Economic Zone. • Manage mining data and geological information and keep updated the respective geological inventory and mineral reserves of the country; • Coordinate and monitor mining geological activities carried out by public and private entities; 	MRV of GHG Emissions MRV of mitigation actions



	<ul style="list-style-type: none"> Ensure the promotion and monitoring of artisanal and small-scale mining. 	
National Directorate of Energy	<ul style="list-style-type: none"> Conduct studies on the development and sustainable use of energy resources, including their mapping and updating. Licensing energy facilities, natural and legal persons responsible for the preparation and operation of energy projects and keeping their registration updated Evaluate, monitor and propose the certification of energy technologies, in coordination with the competent entities, in order to comply with the quality, safety, health and environmental standards in force in the country 	<p>MRV of GHG emissions</p> <p>MRV of mitigation actions</p> <p>MRV of support needed and received</p>
Planning and Cooperation Directorate	<ul style="list-style-type: none"> Monitor the execution of sector investments 	MRV of support needed and received
	<ul style="list-style-type: none"> Organize and keep up to date statistical information on the mineral resources, fuel and energy sector, and disseminate information of interest to the sector; 	<p>MRV of GHG emissions</p> <p>MRV of mitigation actions</p>

3.2.3.4 Ministry of Transport and Communications

The Ministry of Transport and Communications leads the process of transport and communication and is composed by the following subsectors: (a) ports; (b) railways; (c) Merchant Marine; (d) Road Transport; (e) Civil Aeronautics; (f) Post mail and Telecommunications. MTC covers the National Directorate of Transport and Logistics, National Institute of Land Transport, National Institute of Sea, National Institute of Civil Aviation, Mozambican Ports Enterprise and Mozambique Airports Company. The roles and responsibilities of MTC are linked with those of MIREME and these two institutions are in the same working group for the analysis o MRV for mitigation and for the MRV for GHG. Box 4 presents the roles and responsibilities of MTC into the MRV.

Box 5: Responsibilities of MTC related to the national MRV system

- Participate in the energy working group, appointing representatives from National Directorate Transport and Logistics, National Land Transport Institute, National Sea Institute, National Civil Aviation Institute, Ports of Mozambique Company and Mozambique Airports Company;*
- Mobilize additional funds and partnerships for reporting and documents;*
- Plan the activities to be performed;*
- Request payment of the resources allocated to the planned activities;*



- Report to MITADER through DINAB the progress of planned activities so that this information can be included in progress and financial reports to be submitted to the Implementing Agency of the Global Environment Fund (GEF) assisting the country in drafting the documents;
- Provide data and information necessary for the preparation of documents to be submitted to the Council of Ministers and to the UNFCCC;
- Participate in the process of selection of methodologies, definition of assumptions and preparation of reports;
- Comment and validate reports prepared with stakeholders;
- Participate and provide information necessary for the process of consultation and international analysis of documents submitted to the UNFCCC (such as the BUR) as well as for the facilitation of the sharing of views;
- Permanently document the steps described above in order to allow re-estimation of future emissions; and
- Identify areas that require improvement in the next report.

Two sector departments are relevant for the MRV for climate change, as table 4 shows. These are the National Directorate of Transport and Security, and the National Directorate of Logistics for its role in data collection and the Directorate of Economics and Investments for its role in gathering new investments in climate change.

Table 4: MTC -Ministry of Transport and Communications

Institution	Activities related to climate change	Contributor to which MRV
National Directorate of Transport and Security	<ul style="list-style-type: none"> • Instruct and oversee transportation licensing processes 	MRV of GHG emissions MRV of mitigation actions
National Directorate of Logistics and Private Sector Development	<ul style="list-style-type: none"> • Conduct policy analysis, monitoring and evaluation 	MRV of mitigation actions
Directorate of Economics and Investments	<ul style="list-style-type: none"> • Develop and monitor the implementation of transport sector development programs and projects. • Direct and control the process of collecting, processing, analysing and inferring the statistical and economic information of the sector. • Conduct sector policy analysis, monitoring and evaluation • Monitor and evaluate the execution of investment projects. 	MRV of GHG emissions MRV of mitigation actions MRV of support



3.2.3.5 Ministry of Agriculture and Food Security (MASA)

The MASA is mandated to establish policies, regulations and strategies to ensure food and nutritional security of the population. In addition, the ministry is responsible for production and publication of official agricultural statistics in its various directorates and agencies (such as the Annual National Agricultural Survey-IAI). However, some statistical programs are jointly organized and conducted by the National Institute of Statistics of Mozambique (INE) and MASA (INE, 2016).

As a result of the cross-cutting nature of the agriculture sector, the implementation of MASA's policy framework is based on an approach of inter-sectoral coordination between the agriculture sector, energy for agriculture, transport for agriculture, forest for agriculture, processing of agriculture products, regarding the formulation, monitoring, evaluation and implementation of policy actions to reduce climate change impact for the sector.

The diverse responsibilities and mandates of MASA are enabled by several directorates and departments, including inter alia Inspectorate-General for Agriculture and Food Security; National Directorates for Agriculture and Silviculture; National Directorate for Veterinary; National Directorate for Agricultural Extension; Directorate for Documentation of Agrarian Information; and Directorate for Planning and International Cooperation. In addition to the abovementioned line directorates, MASA's activities are further supported by subordinated institutions for research and development activities (notably the National Institute for Agricultural Research of Mozambique (IIAM) and dedicated facilities for development of cotton and cashew crops) and sponsored institutions such as Agrarian Development Fund (FDA); National Institute of Irrigation (INIR); Technical Secretariat for Food and Nutritional Security (SETSAN).

In terms of climate change priorities, MASA's activities are aligned with cross-cutting national policy instruments such as the ENAMMC strategy and the SNMAMC monitoring framework (which includes multiple objective indicators for adaptation in the agriculture sector) and the sectoral priorities outlined in the draft Action Plan for Climate Smart Agriculture.

Box 6: Responsibilities of MASA related to the national MRV system

- *Co-coordinate with MITADER, the Agriculture, Forestry and Land Use Group (AFOLU), composed of representatives from MASA (Directorate of International Planning and Cooperation, National Directorate of Agriculture and Forestry, National Directorate of Agricultural Extension, Directorate National Veterinary Organization, National Institute of Irrigation and Institute for Agricultural Research of Mozambique), MITADER (National Directorate of Environment - DINAB, National Directorate of Forests, National Directorate of Territorial Planning and Resettlement, CENACARTA and UTREDD), National Institute of Statistics and other entities deemed relevant;*
- *Appoint the AFOLU Group Co-coordinator and other technicians to be part of this group;*
- *Mobilize additional funds and partnerships for the preparation of reports and documents;*
- *Plan the activities to be carried out;*
- *Request payment of the resources allocated to the planned activities;*
- *Report to MITADER through DINAB the progress of planned activities so that this information may be included in the progress and financial reports to be submitted to the*



Global Environment Fund Implementing Agency assisting the country in drafting the documents;

- *Provide data and information necessary for the preparation of documents to be submitted to the Council of Ministers and to the Convention;*
- *Participate in the process of selection of methodologies, definition of assumptions and preparation of reports; validate reports to stakeholders;*
- *Participate and provide information necessary for the process of international consultation and analysis of documents submitted to the Convention (such as the BUR) as well as for the facilitation of the sharing of views;*
- *Permanently document the steps described above in order to allow re-estimation of future emissions; and*
- *Identify areas that require improvement in the next report.*

The directorates relevant for MRV of climate change are the following. The Directorate of Agriculture and Directorate of Veterinary, for data collection; the National Directorate of Planning, for statistics gathering; and the department of finance and administration, for its information gathering for MRV for financial support. The subordinated institutions described in table 5 further support the activities on MRV of MASA.

Table 5: MASA - Ministry of Agriculture and Food Security

Institution	Activities related to climate change	Contributor to which MRV
National Directorate of Agriculture	<ul style="list-style-type: none"> • Ensure the design, implementation, monitoring and evaluation of policies, strategies and specific legislation on agriculture and forestry. • Oversee and inspect commercial seed, fertilizer and pesticide networks • Lead data collection, processing and analysis to generate information about the course of the agrarian campaign. 	<p>MRV of GHG emissions</p> <p>MRV of mitigation actions</p>
National Directorate of Veterinary	<ul style="list-style-type: none"> • Ensure the preparation, implementation, monitoring, evaluation of policies, strategies and legislation of the livestock subsector and veterinary area. • Collect, process and analyse data for the generation of livestock information and disseminate it. 	<p>MRV of GHG emissions</p> <p>MRV of mitigation actions</p>
National Directorate of Planning and Cooperation	<ul style="list-style-type: none"> • Identify, formulate, monitor and evaluate the guidelines, policies, strategies, programs, plans and projects of the agrarian sector and advise on their technical and economic viability; • Assess the effects of national and international macroeconomic policy on agricultural production and propose actions for the • Produce and disseminate statistics to assess the performance of the agrarian sector; 	<p>MRV of GHG emissions</p> <p>MRV of mitigation actions</p>



	<ul style="list-style-type: none"> Produce evidence-based sector analytical information for decision making 	
	<ul style="list-style-type: none"> Explore and disseminate in the sector the technical, material and financial potential of cooperation 	MRV of support
Department of Administration and Finance	<ul style="list-style-type: none"> Monitor the execution of funds allocated to projects at Ministry level and report to stakeholders 	MRV of support

3.2.3.6 Ministry of Industry and Commerce (MIC)

The MIC has the primary responsibility for all matters related to ensuring the formulation, elaboration and implementation of sectoral policies and strategies to promote the growth of industrial production, trade, agricultural marketing and exports. MIC has a function of guaranteeing the statistics for the industry sector (food industry, mineral industry, beverage industry, metal industry, among others) by providing the quantities of produce, the raw material used for the fabrication of goods.

Box 7: Responsibilities of MIC related to the national MRV system

- *Coordinate the Industrial Processes and Use of Product Group composed of representatives of the MIC (National Directorate of Industry), MIREME (National Directorate of Energy and National Directorate of Hydrocarbons and Fuels), MITADER (National Directorate of Environment - DINAB), Forum Business for the Environment, CTA, National Institute of Statistics, Large Industries / Associations (Mozal, Cement, Quarry, Sugar, etc.) and other entities deemed relevant;*
- *Appoint the Coordinator of the Industrial Processes and Use of Products Group and other technicians to be part of this Group;*
- *Mobilize additional funds and partnerships for reporting and documents;*
- *Plan the activities to be performed;*
- *Request payment of the resources allocated to the planned activities;*
- *Report to MITADER through DINAB the progress of planned activities so that this information can be included in progress and financial reports to be submitted to the Implementing Agency of the Global Environment Fund assisting the country in drafting the documents;*
- *Provide data and information necessary for the preparation of documents to be submitted to the Council of Ministers and to the Convention;*
- *Participate in the process of selection of methodologies, definition of assumptions and preparation of reports;*
- *Validate reports prepared with stakeholders;*
- *Participate and provide information necessary for the process of consultation and international analysis of documents submitted to the Convention (such as the BUR) as well as for the facilitation of the sharing of views;*
- *Permanently document the steps described above in order to allow re-estimation of future emissions; and*
- *Identify areas that require improvement in the next report.*



Within MIC, only the National Directorate of Industry is relevant for the MRV because of the ability to collect information about the number, quantity, type of material used in industrial production. The MRV for MIC is described in table 6 below.

Table 6: MIC - Ministry of Industry and Commerce

Institution	Activities related to climate change	Contributor to which MRV
National Directorate of Industry	<ul style="list-style-type: none"> Manage and control all the industries and make a record of their raw material usage and production. 	MRV of GHG emissions MRV of mitigation actions

3.2.3.7 Ministry of Health (MISAU)

The MISAU is responsible for the implementation of the public and community health programme and for the development and supervision of policies for the private health system throughout Mozambique. Through its National Directorate of Planning, the Department of Environment Management is the lead sector for the environment working group within the health sector. MISAU provides information on the incineration of the hospital waste, MOPHRH and the municipalities provide information regarding the human waste management.

Box 8: Responsibilities of MISAU related to the national MRV system

- Co-ordinate the Waste Group composed of representatives of MIREME, MASA, MISAU, MITADER, MOPHRH, Municipalities Association and other entities deemed relevant;
- Appoint the Coordinator of the Waste Group and other technicians to be part of this Group;
- Mobilize additional funds and partnerships for the preparation of reports and documents;
- Plan the activities to be carried out;
- Report to MITADER through DINAB the progress of planned activities so that this information may be included in the progress and financial reports to be submitted to the Global Environment Fund Implementing Agency assisting the country in drafting the documents;
- Provide data and information necessary for the preparation of the documents to be submitted to the Council of Ministers and to the Convention;
- Participate in the process of selection of methodologies, definition of assumptions and preparation of reports;
- Validate reports prepared with stakeholders;
- Participate and provide information necessary for the process of international consultation and review of documents submitted to the Convention (such as the BUR) as well as for the facilitation of the sharing of views;
- Permanently document the steps described above in order to allow re-estimation of future emissions



MISAU will lead the group through the Directorate of Cooperation, which will collect information from other sectors. The MISAU’s activities on MRV are further supported by the institution described in table 7 below.

Table 7: MISAU - Ministry of Health

Institution	Activities related to climate change	Contributor to which MRV
National Directorate of Planning and Cooperation	<ul style="list-style-type: none"> Lead and control the process of collecting, processing, analysing and inferring statistical information about the health sector 	MRV of GHG emissions

3.2.3.8 Ministry of Public Works, Housing and Water Resources (MOPHRH)

The MOPHRH mandate is to promote, build and preserve infrastructure that drives socio-economic development, using resources available sustainably for the planning and coordinated implementation of public water management programs, development of construction industry, public buildings and the road network, access to clean water, sanitation and decent housing. Under the MRV of Adaptation, MOPHRH will provide information about infrastructure development, and access to water and sanitation.

Box 9: Responsibilities of MOPHRH related to the national MRV system

- Co-ordinate the waste working group composed of representatives of MIREME, MASA, MISAU, MITADER, Mozambique Municipalities Association (ANAMM) and other entities deemed relevant through leadership of the data collection and reporting frameworks for the waste sector;
- Appoint the coordinator of the waste group and other technicians to be part of this group;
- Mobilize additional funds and partnerships for the preparation of reports and documents;
- Plan the activities to be carried out;
- Request payment of the resources allocated to the planned activities;
- Report to MITADER through DINAB the progress of planned activities so that this information may be included in the progress and financial reports to be submitted to the Global Environment Fund Implementing Agency assisting the country in drafting the documents;
- Provide data and information necessary for the preparation of the documents to be submitted to the council of Ministers and to the UNFCCC;
- Participate in the process of selection of methodologies, definition of assumptions and preparation of reports;
- Validate reports prepared with stakeholders;
- Participate and provide information necessary for the process of international consultation and review of documents submitted to the UNFCCC (such as the BUR) as well as for the facilitation of the sharing of views;



- Permanently document the steps described above in order to allow re-estimation of future emissions; and
- Identify areas that require improvement in the next report

The National Directorate of Water Supply and Sanitation and the National Directorate of Water Resources Management will contribute to the national MRV system through their data collection and reporting (table 8 below).

Table 8: Ministry of Public Works, Housing and Water Resources

Institution	Activities related to climate change	Contributor to which MRV
National Directorate of Water Supply and Sanitation	<ul style="list-style-type: none"> • Establish and operate national water and sanitation information systems • Monitor compliance with domestic and industrial pollution prevention standards 	<p>MRV of GHG emissions</p> <p>MRV of mitigation actions</p>
National Directorate of Water Resources Management	<ul style="list-style-type: none"> • Ensure oversight and enforcement of resource law and regulatory framework for water resources management 	<p>MRV of mitigation actions</p>

3.2.3.9 The Academy of Science of Mozambique

The Academy of Science of Mozambique (ACM) is an entity that brings together scholars, scientists and innovators, committed to the production and dissemination of science and technology, as well as the mobilization of the community for the development of the country as a whole. The Academy of Science is under the tutelage of the Ministry of Science, Technology, Higher Education, and Vocational Studies (MCTESTP). The main objectives of the ACM:

- Contribute to the development of science and technology in Mozambique;
- Disseminate to national and foreign scientific advances;
- To honour the scientific research of excellence done in the country;
- Raise the professional ethics and social appreciation of national scientists;
- Strengthen scientists' links with each other, with society and with the rest of the world.

The ACM is a virtual institution composed by the university lectures of various academic professionals of various backgrounds, that are not directly linked with the academy on day to day basis but are requested when there is a need. The ACM has a secretariat with supporting staff and lecturers that work on virtual basis. The ACM can support MITADER through proofreading of the documents produced (BUR, BTR, NDC, GHG, NC, etc.). With various



specialists that are part of the academy of science, it is possible to have ACM performing specific studies to fulfil gaps in knowledge and data availability.

3.2.3.10 National Fund for Sustainable Development

The National Fund for Sustainable Development (FNDS) is a legal entity governed by public law, with legal personality and capacity, administrative, financial and patrimonial autonomy, under the supervision of the Minister responsible for the Land, Environment and Rural Development (MITADER). The FNDS was created to respond to the global need to adopt sustainable development models that are able to host and manage multilateral financing funds, and other funds from the United Nations. The FNDS will contribute with information on the financial support received once it is approved as a repository of funds by the GCF.

3.2.3.11 National Institute of Statistics

The INE is an institution with mandate to collect manage and report information. INE can play an active role in MRV of climate change through data collection and dissemination. INE is supervised by the Council of Ministers and has higher capacity to collect information on annual basis such as statistical yearbooks, which can include environment data, census and other on demand studies.

3.2.3.12 Council of Ministers

The Council of Ministers has the mandate to appreciate the documents submitted by MITADER prior to submission. The role of the Council of Ministers is very important to ensure that relevant information is analyzed prior to its submission to international institutions. This role will continue under the future structure in order to make sure that the government approves the reports about instrument (NC, BUR, BTR). Following appreciation and approval of the document, it is sent to the institution accommodating the focal point of UNFCCC for formal submission.



3.3 Recommendations for the legal setup

Under the legislation, there is a need to revitalize the coordinating institution for climate change, the national council for sustainable development (CONDES) and its function of coordination of climate change. This will assure that climate change agenda should be taken to the level of ministers to improve the level of authority and accountability. On the other hand, one of the most important gap to be addressed is the need to formalise the mandate of GIIMC and enable the effective functioning of the national technical working groups. The formalisation of GIIMC as an entity mandated with coordination and information-sharing will reduce the risk of overlapping mandates and duplication of activities between national-level stakeholders.

In addition, a law must be developed to improve the data sharing. Currently there is challenge in terms of data sharing between and among public and private institutions. Climate change has benefitted several policy instruments and protocols for planning and operationalization, however enforcement is still weak and the proposed climate change law will fill the gap existent in data production, sharing and reporting.

The first step taken was the inclusion of the reporting need into the formal documents. For instance: the SNMAMC mandates annual reporting to climate change. The country's NDC includes a chapter on reporting and strengthens the need for annual reporting from sectors. However, the recommendations from these documents do not have legal mandate and remains within the documents only.

The second step taken by the country to operationalize the reporting need is the development of the protocols. MITADER has embarked in development of protocols for information sharing. For instance, a protocol was signed between MITADER and University Eduardo on climate change support in reporting. A draft protocol (MoU) was submitted to MISAU, MIREME, MOPHRH, MIREME, MIC, MASA for provision of information for GHG reporting. However, these latter protocols have not been signed, despite being submitted long time ago. Moreover, there is no guarantee about the operationalization of the protocols, because their utilization is not mandatory and rely on the level of interest of the sector leader.

The third step needed is the establishment of a climate change law. The establishment of a law solves the issues of willingness because it is compulsory to apply regarding of the willingness to use it. Furthermore, the law has stronger importance because it is not only dependent on the institution related to the law, but also with the legislators (in this case, the deputies of the assembly of the republic). This type of instrument is more complex to develop and requires time. Given the level of efficiency and effectiveness required on climate change and based on the past experience of the country with constant failing in production and submission of climate change documents, it is recommended a development of a climate change law. This law will align with the country's ambitions and international commitments to reduce vulnerability to climate change and support low-carbon development initiatives. The main components of the law are presented in box 10 below.



Box 10: Law for institutionalization of climate change reporting

Rational: Under this law, sectors related to climate change will be requested to provide information on regular basis to MITADER. This law will describe the institutional arrangement including the responsibility of the different actors in collection, sharing and preparation of a National Climate Change Annual Report (SNMAMC document) and international documents (National Communication, Biennial Update Report, Biennial Transparency Report, Nationally Determined Contribution), and other documents that the UNFCCC will adopt, and define the timeframes for collecting and sending data. The law will also describe the procedures and methodologies to follow in preparing the information, taking into account the guidelines adopted by the UNFCCC. The law will have the necessary penalties for institutions not complying with data sharing instructions.

Justification: This law will institutionalize the preparation and submission of climate related documents, enabling the country to comply with international reporting commitments within the framework of transparency on climate change. At the national level, this law will contribute to the generation of relevant information on climate change to support the process of decision-making on priorities for adaptation, mitigation and required support including the creation of technical and institutional capacity.

Problems to be solved: lack of legally established institutional arrangements, resulting in the different institutions failing in their responsibilities of preparing and submitting data and implementation of the NDC.

Operationalization of the law: This law will be operationalized through two main instruments

- Requirement to report specific data. Sectors will be required to provide data that will be used for the different types of MRV
- Requirement of MITADER to submit climate change information to the Council of Ministries on a regular basis and to the Assembly of the Republic on five-year basis

Immediate needs: (i) capacity building on complying with the UNFCCC guidelines for transparency and international reporting, (ii) design of data collection sheets and engagement of non-state actors

Lead institution: This law will be coordinated by the Ministry of Land, Environment and rural Development (MITADER) at the National Directorate of Environment (DINAB).

Challenges: The change in institution names and mandates in result of elections might affect the capacity and the mandate to perform certain demands previously established to be executed by the institutions. The formulation of the law needs to accommodate potential future changes in the names and mandates of ministries.



3.4 Recommendations for the procedural setup

The procedural setup of the MRV system for climate change is presented in this section. In terms of categories, the future MRV system needs to address all categories of MRV namely: MRV of greenhouse gas emissions, MRV of mitigation, MRV of climate change impacts and adaptation, and MRV of support received and needed.

The MRV of greenhouse gas emissions will be done through the National Inventory System of Greenhouse Gas (SNIGEE), which will provide the necessary data for the elaboration of the GHG inventory reports included in the national communications, biennial update report, SNMAMC, and other reports. The SNIGEE will include collection, analysis and monitoring of activity data used in inventories (for example, amount of fuel used by the power generation industry, amount of fuel used by the power generation industry for its own consumption, amount of natural gas consumption in the energy sector, fuel used for transport, amount of caustic soda produced and consumed, amount of clinker produced and consumed by cement plants, etc.)

The MRV of mitigation actions will consider the indicators for the emission reduction targets in the NDC² and the indicators that will measure the reductions of emissions resulting from the actions in the NDC operational plan and NAMAs. It could include, for example, quantity of vehicles powered by natural gas, quantity of environmentally friendly stoves produced and sold, quantity of charcoal using improved furnaces, reforested areas (ha), number of livestock farmers with systems for treatment / recovery of animal waste, and the associated reductions in GHG emissions. Moreover, the MRV of mitigation will also track the mitigation co-benefits resulting from adaptation measures. For example, the NAMA for vegetable coal production might create jobs.

The MRV of climate change impacts and adaptation actions will check what measures are in the NDC and if the indicators defined in SNMAMC can track progress on these measures. Another issue is that adaptation measures have mitigation co-benefits. For example, mangrove regeneration will increase CO₂ removal and temporary storage capacity; use of renewable energies in pumping water for irrigation, agroforestry systems, use of methane from rice cultivation, etc. This type of MRV should include indicators that will help to track the impacts resulting from the occurrence of extreme events including their magnitude. That is, for the extreme events occurred what is the magnitude and losses resulting from these events (loss of life, lost agricultural areas (ha), destroyed infrastructure, estimated cost of loss and estimated cost for reconstruction and value achieved from both government and partners for rebuilding).

Regarding the MRV of the support received and required, the national MRV system will take into account the enhanced transparency framework that recommends that countries report on financial support, technology development and transfer, and capacity building needed and received. Therefore, the MRV of financial support needed will include indicators that will help

² The detailed information can be found in the country's NDC, which has set a target of reduction of GHG of about 30 MtCO₂ eq between 2020 and 2025.



to track support (bilateral / multilateral, public, etc) to implement climate change actions which should include, for example, the nature of support (donation, loan, credit, grants, etc.), the implementation area (adaptation, mitigation, development and transfer of technology or training), the sector (agriculture, water resources, early warning, energy, etc.), and the stage (ongoing, planned , completed), of climate actions.

At the end of every year (except for the inventories) sectors will be required to produce information and make it available to the public. Some information regarded as confidential will be kept confidential and will be provided to specific sectors based on Mozambique law of supply of confidential information. MITADER will make use of the information to produce the level of GHG inventories per sector based on the data available. MITADER will send information to the specific sector for verification before publishing to the public. Once the information is finalized, MITADER will estimate the level of GHG and use the information to produce formal national and international documents (NC, BUR, BTR, NDC) among other needed documents. Table 9 below shows the institutional setup per type of MRV per sector.

Table 9: Roles and Responsibilities in the national MRV system

Category	Institution (Who)	Role (What)	Where (source of information)	variables	Unit of measurement	Timeline (When)
MRV OF MITIGATION AND GEE (Energy and Transport)	MIREME,	provide the following information -Electricity generation and utilization	Private sector, public sector (energy sector statistics) Website: www.mireme.gov.mz	Emissions related to electricity	GW/Year	Annual
	MTC	-transport industry: fuel consumption per type	Private sector, public (transport sector statistics), aviation Website: www.mtc.gov.mz	petrol, natural gas, JET,	TJ/year	Annual
MRV OF MITIGATION AND GEE (Industrial processes and product use)	MOPHRH	-Mineral industry production of Cement production and clinker	Private sector, CBO Website: www.mophrh.gov.mz	Cement and clinker (if produced internally)	Tonnes/year	Annual
	MIREME,	Mineral industry: Glass production	Private sector, Public sector Website: www.mireme.gov.mz	glass	Tonnes/year	Annual
	MIC,	-Chemical and other Process Uses of Carbonates: Ceramics and Other use of Soda Ash	Private sector, public sector Website: www.mic.gov.mz	ceramics	TJ/year	Annual
	MIC,	-Metal Industry: Iron and Steel production; Ferroalloys production, Aluminium production and zinc production	Private sector, public sector Website: www.mic.gov.mz	Steel, aluminum, zinc,	Tones/year	Annual
	MIC,	-Non-Energy Products from Fuel and Solvent Use: Lubricant use	Private sector, public sector Website: www.mic.gov.mz	Lubricants	TJ/year	Annual
	MIC,	-Products Uses as Substitute for Ozone Depleting Substances: refrigeration and air conditioning, Foam blowing Agents, Fire Protection, Aerosols	Private sector, public sector Website: www.mic.gov.mz	Quantity sold, quantity destroyed	Tones/year	Annual



Category	Institution (Who)	Role (What)	Where (source of information)	variables	Unit of measurement	Timeline (When)
	MIC,	-Other: Pulp and Paper Industry, Food and Beverages Industry,	Private sector, public sector Website: www.mic.gov.mz	Pulp and paper	Metric tones/yea	Annual
MRV OF MITIGATION AND GEE (Agriculture, Forestry and Other Land Uses)	MASA	Livestock: Enteric Fermentation and Manure Management	Private sector, public sector, statistic yearbooks Website: www.masa.gov.mz	Urea, manure, mud	Number of units of livestock	Annual
		Land: Forest, Cropland, Grassland, Wetlands, Settlements,	Public sector Website: www.masa.gov.mz	Forestry, cropland, uncovered soil	hectare/year Gg C/year	4 years
MRV OF MITIGATION AND GEE (Waste)	MOPHRH,	Solid waste disposal: Managed waste disposal site, Unmanaged Waste disposal; and, Uncategorised waste disposal	Public sector, private sector Website: www.mophrh.gov.mz	waste	Gg/year	Annual
	MISAU	Biological treatment of solid waste	Public sector, private sector Website: www.masa.gov.mz	Waste	Gg/year	Annual
	MISAU	Wastewater treatment and disposal: Domestic wastewater treatment and discharge	Public sector, private sector Website: www.masa.gov.mz	waste water	kg BOD/year	Annual
MRV OF CLIMATE CHANGE IMPACTS AND ADAPTATION	MIREME, MASA, MITADER, MTC, MISAU, MIC, MEF, MOPHRH, MGCAS, MAEFP, MICUTUR	National circumstances, institutional arrangements and legal frameworks Impacts, risks and vulnerabilities,	ALL involved sectors	Adaptation	N/a	Annual
MRV OF SUPPORT NEEDED AND RECEIVED	ALL relevant sectors	Information on financial, technology development and transfer and capacity-building support needed and received under Articles 9–11 of the Paris Agreement	ALL	Finance	MZN/USD	Annual



3.5 Recommendations for improving data availability

At a cross-cutting level, the ENAMMC notes that research and systematic observation of climate change is ineffective as a result of the limited availability of data measurements taken at appropriate frequency and scale. This represents a significant barrier to determining the real impacts of climate change and reporting mechanism. Further, ENAMMC notes that the lack of inter-sectoral engagement in the systematic collection of data relevant to climate change, the lack of standardization, irregularity and low quality of climate data are all barriers to effective MRV. The datasets generated by several cross-cutting sectors have the potential to address the lack of systematic statistical data on climate change, however at present there appears to be a low rate of awareness.

Other important aspect is that several institutions require considerable technical and financial support to enable a strong role in the generation of data and management of information and knowledge. This will require sustained support and long-term planning. A strong capacity building programme is needed at all levels (government institutions, private sector, non-government institutions) in order to equip the sectors with the right skills to collect, process and analyse climate change information.

It is recognized that the data availability changes from sector to sector and based on specific circumstances. This assessment provides the foundations for improvement of data availability at all sectors based on the documents needed to report. Most sectors analyzed face similar general challenges on regard to data availability. In this section, the general (cross sector) challenges of data availability are presented and main recommendations are proposed.

Current status of data availability

The country has devoted a lot of effort to produce documents and reports on national and international forums. Currently the country has the following data problems

- Limited data availability for the indicators. Most indicators do not have required information to produce the reports. When it comes to the MRV of GHG, there is a lack of specific databases for all the indicators measured. An assessment of the indicators conducted during the deliverable two found that of the total number of indicators needs to assess the GHG in Mozambique only 48% of information is considered available within the sectors (annex 4). It is important to note that such information is not in the webpages of the ministries. When it comes to the MRV for Adaptation (represented as the NDC), does not have specific indicators to all the variables needed to collect.
- Lack of databases for the National communications (NCs), Greenhouse Gas inventories (GHG), Biennial Update reports (BURs); and the National System for Monitoring and Evaluation of Climate Change (SNMAMC).
- Lack of web-based platforms for data collection. There is a no platform for data collection and information sharing within GIIMC.

Recommendations for improvement of data collection

The following are immediate recommendations for improvement of data collection in Mozambique:



- MITADER to share a map of all indicators needed for production of climate change reporting with the sectors
- Where data is not available, there should be an assessment with the sector to find out why the data is not available and the reasons for data availability. Sectors able to collect information will be recommended to start collecting immediately through the climate change law. For the sectors that do not have capacity to collect such information, a training will be conducted to them to support them to fulfil the task. Alternatively, the National Institute of Statistics will be requested to support such sector;
- Each sector should create a database with the information available for national and international reporting and make the database available to MITADER;
- Each sector to make public relevant climate change data in their website, taking into consideration the sensitivity of information classified as confidential;
- Engage government to provide financing (through grant or government budget) for the sectors to collect, systematize and store the information that can be used for recalculation of the figures and other parallel studies.
- The country to develop a shared web-platform for collecting and sharing information among climate relevant sectors, to be administrated by MITADER.



4 CONCLUDING REMARKS

This report assessed the existing monitoring reporting and verification (MRV) system for climate change in Mozambique and proposes options for improvement of data availability, data management and data sharing. The conclusions are organized into five sessions namely: institutional setup for improved reporting; legal setup; procedural setup; and data availability and financial support. The following session presents the main conclusions under each of the five topics:

- (1) **Institutional setup** – This document proposes a new structure to replace the institutional setup proposed in the ENAMMC (2012). The new structure includes institutions that were not previously included (INE, MEF, BM) to support the process of data collection and reporting. In this regard, INE will support with data collection and elaboration of surveys. Moreover, MEF will provide the Economic and Social Plans (PES), and the Mozambique Central Bank (BM) will provide information about the financial support needed and received by the country. Under the new setup, MITADER will be responsible to produce climate change reports using information from the lead sectors that will get information from the organizations, agencies and bodies under their jurisdiction.
- (2) **Legal setup** – under the legislation, a climate change law is suggested to support the process of reporting the climate change. The same law can be subdivided into several decrees according to the need. The proposed climate change law will assure obligation and compliance by the sectors to submit the information to MITADER for fulfilment of reporting requirements. The climate change law will be specific in terms of type of information to be provided, the periodicity, responsible institutions and the possible enforcement measures. The climate change law is also expected to guide the country in terms of the institutionalization of the Inter Institutional Group for Climate Change (GIIMC) and the future of the National Council for Sustainable Development (CONDES).
- (3) **Procedural setup** – the current procedures lack specific data to be supplied and determination of which institution supplies information where. This document provides clear mapping of institutions that provide data with the type of information required and periodicity of reporting. Climate change reporting must be handled at ministerial or National director level to assure ownership.
- (4) **Data availability** – data availability in format required to produce reports is still a major concern. The situation is worsened by lack of information sharing mechanism and lack of databases for specific data related to climate change. This document concludes that there is a need to develop databases, studies and yearbooks with information on the basic indicators for climate change. Institutions are requested to address their internal data needs and where data is not available, other institutions can support collection of such information. On the other hands, institutions with technical



and financial gap must be assisted to cover their needs using internal and external resources.

- (5) **Financial support to climate change** - climate change is embedded in the national planning and budgeting system allocated to mainstreaming climate change, at sector-wide and country-wide levels. For this reason, this document suggests to clearly map and track the investments for climate change. This can be done through the Ministry of Economy and Finance (MEF) or through the Mozambique Central Bank (BM). and this information can be reported on annual basis to the Council of Ministers.



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6 ANNEX

Annex I - Instrument used to collect data

	Questions for Analysis of the MRV for ICAT				
Instrument	List of institutions and Roles & responsibilities: (Primary source, coordinator, facilitator, legislator, mobilizer)	Needs (financial, technological, training)	What are the knowledge gaps (inability to gather data)	What are the gaps in legislation (lack of information sharing law)	What are the gaps in terms of studies (eg study about specific emission factors)
Guide question MRV for GHG MRV for Mitigation MRV for Adaptation MRV for Support needed and received	List participating sectors and describe the role they can play in the information gathering and sharing process	Indicate what needs are plaguing sectors to contribute to the efficient MRV mechanism	Is there any knowledge your sectors need for an effective MRV mechanism?	Any laws for the MRV mechanism to be efficient? If so, how would this law be described?	Do you think any study is necessary to be considered?

Annex 2- List of Interviewees

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Annex 3 - List of Institutions represented in the workshops for deliverable 3.

Date	03 rd June	04 th June	06 th June	07 th June
Group	Energy	AFOLU	Industrial processes	Solid waste
Invited Institutions	<p>MIREME</p> <ul style="list-style-type: none"> -DNE (1) -DNGM (1) -DNPC (1) <p>MTC</p> <ul style="list-style-type: none"> -DNNTS (1) -INAM (1) -INAMAR (1) -IACM (1) -CFM (1) <p>INE (1)</p> <p>EDM (1)</p> <p>PETROMOC (1)</p> <p>DINAF (1)</p> <p>DINAB (1)</p> <p>FUNAE (1)</p> <p>MGC (1)</p>	<p>MASA</p> <ul style="list-style-type: none"> -DPCI (1) -INIR (1) -DINAV (1) -DINAS (1) -DINEA (1) <p>MITADER</p> <ul style="list-style-type: none"> -DINAF (1) -DINOTER (1) -FNDS (1) -ANAC (1) <p>FEMA (1)</p> <p>CTA (1)</p> <p>FAEF (1)</p> <p>WWF (1)</p> <p>UNDP (1)</p>	<p>MIC</p> <ul style="list-style-type: none"> -DPCI (1) -DNI (1) <p>MIREME</p> <ul style="list-style-type: none"> -DNE (1) -DNGM (1) <p>-Mozal (1)</p> <p>-Cimentos de Moçambique (1)</p> <p>-Açucarreira de Moçambique (1)</p> <ul style="list-style-type: none"> -CDM (1) -Coca-Cola (1) -CTA (1) -FEMA (1) -INE (1) -UNIDO (1) <p>MITADER (2)</p>	<p>MITADER</p> <ul style="list-style-type: none"> -DINAB-DGA (6) <p>MISAU</p> <ul style="list-style-type: none"> -DNGA (1) -MIREME (1) -MASA (1) -ANAMM(2) -Município da Matola (1) -Município de Maputo (1) -AMOR (1) -Enviroserve (1)
Nr. of participants	15	15	15	15
Full designation of invited institutions	<p>MIREME-Ministry of Mineral Resources and Energy (Ministério dos Recursos Minerais e Energia)</p> <p>DNE-National Directorate of Energy (Direcção Nacional de Energia)</p> <p>DNGM –National Directorate of Geology and mining (Direcção Nacional de Geologia e Minas)</p> <p>DNPC-National Directorate of Planning and Cooperation (Direcção Nacional de Planificação e Cooperação)</p> <p>MTC-Ministry of Transport and Communication (Ministério dos Transportes e Comunicações)</p> <p>DNTS-National Directorate of Transport and Logistics (Direcção Nacional de Transportes de Superfície)</p> <p>INAM-National Institute of Meteorology (Instituto Nacional de Meteorologia)</p> <p>INAMAR- National Service for Administration and Marine Inspection (Serviço Nacional de Administração e Fiscalização Marítima)</p> <p>IACM-Mozambican Institute for Civil Aviation (Instituto de Aviação Civil de Moçambique)</p> <p>CFM-Mozambique Railway (Caminhos de Ferro de Moçambique)</p> <p>INE-National Institute of Statistics (Instituto Nacional de Estatística)</p> <p>EDM-Mozambique Electricity Company (Electricidade de Moçambique)</p> <p>PETROC-Mozambique Oil (Pretóleos de Moçambique)</p> <p>DINAF-National Directorate of Forestry (Direcção Nacional de Florestas)</p> <p>DINAB-National Directorate of Environment (Direcção Nacional do Ambiente)</p> <p>FUNAE-Energy Fund (Fundo de Energia)</p> <p>MGC-Matola Gas Company</p>	<p>AFOLU-Agriculture, Forestry and Other Land Use</p> <p>MASA-Ministry of Agriculture and Food Security (Ministério de Agricultura e Segurança Alimentar)</p> <p>DPCI-Directorate of Planning and International Cooperation (Direcção de Planificação e Cooperação Internacional)</p> <p>INIR-National Institute of Irrigation (Instituto Nacional de Irrigação)</p> <p>DINAV-National Directorate of Veterinary (Direcção Nacional de Veterinária)</p> <p>DINAS-National Directorate of Agriculture and Silviculture (Direcção Nacional de Agricultura e Silvicultura)</p> <p>DINEA-National Directorate of Agriculture Extension (Direcção Nacional de Extensão Agrária)</p> <p>MITADER-Ministry of Land, Environment and Rural Development (Ministério da Terra, Ambiente e Desenvolvimento Rural)</p> <p>DINAF-National Directorate of Forestry (Direcção Nacional de Florestas)</p> <p>DINOTER-National Directorate of Land Planning (Direcção Nacional de Ordenamento Territorial)</p> <p>FNDS-National Fund for Sustainable Development (Fundo Nacional de Desenvolvimento Sustentável)</p> <p>ANAC-National Administration for the Conservation Areas (Administração Nacional das Áreas de Conservação)</p> <p>FEMA-Enterpreunal Forum for Climate Change (Fórum</p>	<p>MIC-Ministry of Industry and Commerce (Ministério da Industria e Comércio)</p> <p>DPCI- DPCI-Directorate of Planning and International Cooperation (Direcção de Planificação e Cooperação Internacional)</p> <p>DNI-National Directorate of Industry (Direcção Nacional da Industria)</p> <p>MIREME-Ministry of Mineral Resources and Energy (Ministério dos Recursos Minerais e Energia)</p> <p>DNE-National Directorate of Energy (Direcção Nacional de Energia)</p> <p>DNGE-National Directorate of Geology and Mines (Direcção Nacional de Geologia e Minas)</p> <p>CDM-Mozambique Beer company (Cervejas de Moçambique)</p> <p>CTA-Confederation of Economic Associations of Mozambique (Conferenciação de Associações Económicas de Moçambique)</p> <p>FEMA- Enterpreunal Form for Climate Change (Forum empresarial do Meio ambiente)</p> <p>INE-National Institute of Statistics (Instituto Nacional de Estatísticas)</p> <p>UNIDO- United Nations Industrial Development Organization</p> <p>MITADER-Ministry of Land, Environment and Rural Development (Ministério da Terra, Ambiente e Desenvolvimento Rural)</p>	<p>DINAB-National Directorate of Environment (Direcção Nacional do Ambiente)</p> <p>MISAU-Ministry of Health (Ministério da Saúde)</p> <p>DNGA-National Directorate of Environment Management (Direcção Nacional de Gestão Ambiental)</p> <p>MIREME- Ministry of Mineral Resources and Energy (Ministério dos Recursos Minerais e Energia)</p> <p>MASA- Ministry of Agriculture and Food Security (Ministério de Agricultura e Segurança Alimentar)</p> <p>ANAMM-National Association of Municipalities of Mozambique (Associação Nacional dos Municípios de Moçambique)</p> <p>AMOR-Mozambican Association for Recycling (Associação Moçambicana de Reciclagem)</p>



		<p>Empresarial do Meio Ambiente) CTA-Confederation of Economic Associations (Confederação das Associações Económicas) FAEF-Faculty of Agronomy and Rural Engineering (Faculdade de Agronomia e Engenharia Rural) WWF-World Wild Fund of Nature (Fundo Mundial para a Natureza) UNDP-United Nations Development Programme (Programa das Nações Unidas para o Desenvolvimento)</p>		
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Annex 4 - Data available and data not available per category

Categories		Basic data	Lead institution	Other institutions	Data availability	
					YES	NO
Energy	Manufacturing Industries and Constructions	Iron and steel	No info			
		Non-ferrous Metals	No info			
		Chemicals	MIC			
		Pulp, Paper and Print	MIC			
		Food processing, Beverages and Tobacco	MIC			
		Non-Metallic Minerals	No info			
		Transport Equipment	No info			
		Machinery	No info			
		Mining (excluding fuels) and Quarrying	No info			
		Wood and wood products	No info			
		Construction	No info			
		Textile and Leather	No info			
	Transport	Domestic aviation	No info			
		International aviation	No info			
		International water --borne navigation	No info			
		Domestic water-borne navigation	No info			
		Pipeline transport	No info			
	Other	Commercial/Institutional,	No info			
		Residential,	No info			
		Agriculture/Forestry/Fishing	No info			
Fugitive emissions from fuel		No info				
Industrial Processes and Product Use	Mineral Industry	Cement and glass production	Cimentos			
	Other Process Uses of Carbonates	Ceramics and Other use of Soda Ash	No info			
	Chemical Industry	Ammonia and Soda Ash production	No info			
	Metal Industry	Iron and Steel production;	MIC			
		Ferroalloys production,	MIC			
		Aluminium production and	MIC			
		zinc production	MIC			
	Non-Energy Products from Fuel and Solvent Use	Lubricant use	No info			
	Products Uses as Substitute for Ozone Depleting Substances	refrigeration and air conditioning	MIREMI			
		Foam blowing Agents	No info			
		Fire Protection	MIREMI			
		Aerosols	MIREMI			
Other	Pulp and Paper Industry					
	Food and Beverages Industry					



Categories		Basic data	Lead institution	Other institutions	Data availability	
					YES	NO
Agriculture, Forestry and Other Land Uses	Livestock	Enteric Fermentation and Manure Management	MASA-DINAV			
	Land	Forest,	MASA-DINAV			
		Cropland,	MASA-DINAV			
		Grassland,	MASA-DINAV			
		Wetlands,	MASA-DINAV			
		Settlements,	MASA-DINAV			
Aggregate sources and non-CO2emissions sources on land						
Waste	Solid waste disposal	Managed waste disposal site,	Conselho Municipal	MOPHRH		
		Unmanaged Waste disposal	Administracao do Distrito	MOPHRH		
		Uncategorised waste disposal				
	Biological treatment of solid waste		Unidade Sanitária	MISAU		
	Wastewater treatment and disposal	Domestic wastewater treatment and discharge	MOPHRH/ETAR Municípios	MOPHRH		
		Industrial wastewater treatment and discharge	Industriais-MICO	MIC		