MINISTRY OF GREEN ECONOMY AND ENVIRONMENT

EASTERN PROVINCE JURISDICTIONAL SUSTAINABLE LANDSCAPE PROGRAMME

MEASURING REPORTING AND VERIFICATION MANAGEMENT FRAMEWORK

@March 2023

TABLE OF CONTENTS

ACRONYMS

ZIFLP	Zambia Intergrated Forest Landscape Project
ZEMA	Zambia Environmental Managemnet Agency
EP-JSLP	Estern Province Juridictional Sustainable Landscape Program
MRV	Measuring , Reporting and Verification
GHG	Greenhouse Gas
JSLP	Juridictional Sustainable Landscape Programme
IPCC	Intergovernmental Panel on Climate Change
PIU	Pending Issuance Unit
ZARI	Zambian Agricultural Research Institute
QA/QC	Quality Assuarance/Quality Control

1 INTRODUCTION

The Zambia Integrated Forest Landscape Project (ZIFLP) in Eastern province is supported by World Bank and its objective is to improve landscape management and increase environmental and economic benefits for targeted rural communities in the Eastern Province and to improve Zambia's capacity to respond promptly and effectively to an Eligible Crisis or Emergency.

The project provides support to rural communities in Eastern Province to allow them to better manage the resources of their landscapes so as to reduce deforestation and unsustainable agricultural expansion; enhance benefits they receive from forestry, agriculture and wildlife; and reduce their vulnerability to climate change. Simultaneously, the project is supporting the creation of the enabling environment for subsequent carbon emission reduction purchases. The ZIFLP's key beneficiaries are the rural poor communities of the Eastern province.

The Zambia Environmental Management Agency (ZEMA) with support from ZIFLP have been mandated to develop national and subnational (EP-JSLP) Measurement, Reporting and Verification System (MRV) and other GHG emission-related processes and systems under subcomponent 1.2: Emissions Reduction Framework. With this support, ZEMA will have one integrated and robust MRV that will be used to monitor emissions for the EP-JSLP and at national level.

It is for this reason that the project is developing an MRV system for implementation in Eastern Province. The MRV System will be designed to enable a multi-tiered independent agency/institution to manage the MRV system for Eastern Province Jurisdictional Sustainable Landscape Programme (EP-JSLP) in Eastern Province.

This MRV management plan provides a framework for the management of MRV within Eastern Province. The MRV management plan together with Standard Operating Procedures provides a rules, procedures, methods and tools to manage the quality of the data collection and management process as part of MRV.

1.2 GOAL

To establish a framework for the collection and management of data and information that will provide measurable, reportable and verifiable high quality emissions reduction estimates in line with the IPCC guidelines in the EP-JSLP.

2 METHODOLOGY

2.1 GUIDANCE

Monitoring will be based on performance indicators established on the following:

Emissions,
Mitigation actions,
Adaptation co-benefits,
Technology transfer,
Finance,
Capacity building,
Impacts of policies and measures established.

EP-JSLP MRV framework is designed and established consisting of overall provincial cascading to local/chiefdom level.
A sampling framework will guide data collection for energy, forestry and agriculture. Data will be collected based on metrices contained in guidelines, procedures, templates and standard operating procedures.

2.2 REPORTING

The EP-JSLP shall collect data as stipulated in the standard operation procedures and provide comprehensive report every after year to be submitted to the Ministry of Green Economy and Environment by January of every year. Thereafter, the focal point in the Ministry of Green Economy and Environment will submit the report to World Bank.

2.3 STANDARD OPERATING PROCEDURES

The following are the standard operating procedures to be used together with the MRV management plan.

a) Standard operating procedures for energy(Annex II)
b) Standard operating procedures for forestry (Annex III)
c) Standard operating procedures for agriculture (Annex IV)

2.4 Overview of Sampling Framework

2.4.1 Energy Sector

Provided in table 1 are details of sample total provincial and district sample sizes

Table 1 Sample size

Total households in easter province	495,616[1]
Confidence level	95%
Margin of Error (%)	5%
Sample size	384
Number of districts in eastern province	14
Number of households to be sampled per district	27

Provided in table 2 is the number of personnel needed to undertake the household firewood and charcoal consumption measurements.

Table 2. Number of personnel

Number of data collectors per district	2
Supervisors/quality control/District supervisor	1
Total personnel per district	3
Total personnel for Eastern Province	42

2.4.2 Forestry

Provided in table 3 is a summary of sampling frame for forestry sector. Biophysical assessment will also cover cropland, settlements, grassland and wetland

Table 3 Sample size

Total number of sample plots in Forest Land	
Sample size in forestland	
Total Number of sample plots in cropland	
Sample size in cropland	
Total Number of Sample Plots in Grassland	
Sample size in Grassland	
Total Number of Sample Plots in Settlements	
Sample size in settlements	
Total Number of Sample Plots in Wetlands	
Sample size in Wetlands	
Confidence level	95%
Margin of Error (%)	5%

[1] ZAMSTATs, 2023

Provided in table 4 is the number of personnel needed to field measurements.

Table 4. Number of personnel

Number of data collectors per district	
Supervisors/quality control/District supervisor	
Total personnel per district	
Total personnel for Eastern Province	

Provided in table 5 is the number of personnel needed to conduct remote sensing analysis

Table 5 Number of personnel for Remote Sensing data analysis

Lead remote sensing data analyst	
Remote sensing data analyst officer	
Remote sensing data analyst officer	
Remote sensing data analyst officer	

2.4.3 AGRICULTURE

Provided in table 6 is a summary of sampling frame for forestry sector. Biophysical assessment will also cover cropland, settlements, grassland and wetland

Table 6 Sample size

Total number of farmers under conventional farming	
Sample size for conventional farmers	
Total Number of Farmers under Conservation farming	
Sample size for farmers practicing conservation farming	
Total number of farmers under agro-forestry	
Sample size for farmers practicing agro-forestry	
Confidence level	
Margin of Error (%)	

Provided in table 7 is the number of personnel needed to undertake data collection on crop related data

Table 7. Number of personnel for collecting crop related data

Number of data collectors per district	
Supervisors/quality control/District supervisor	
Total personnel per district	
Total personnel for Eastern Province	

Provided in table 8 is the number of personnel needed to undertake livestock related data collection.

Table 8. Number of personnel for collecting livestock related data

Number of data collectors per district	
Supervisors/quality control/District supervisor	
Total personnel per district	
Total personnel for Eastern Province	

3 INSTITUTIONAL ARRANGEMENT

3.1 OVERVIEW

The MRV instituitional arrangment (figure 1) system will involve instutitions which include; Forestry Department, Ministry of Agriculture, Ministry of Livestock and fisheries, Zambian Environmental Managment Agency, Ministry of Green Economy and Environment(Department of Climate Change). The following are the roles and responsibilities of the insitutions are provided as follows:

1. **Measurements**

a) Forestry Department. Will be responsible for data collection (i.e. satellite land, monitoring data, forestry inventory data, biodiversity data, benefits and co-benefits data) and quality control. District forest officers, and selected community members will be trainined on how to collect biophysical data related to biomass carbon stocks, deadoowd and litter, soil carbon, wood removals, fires in national foresty and community forests. Data on land use and land use change will also be collected using remote sensing. Remote sensing will also be used to conduct mapping of vegetation cover, above ground biomass, impact of fires, detecting deforestation and degradation. Supporting institutions will incude Zambia Agriculture Research Instution, COMACO, and BCP.

b) Ministry of Agriculture-Will be responsible for collecting data related to farm data related to crop production, fertiliser use, soil carbon, tillage practices, climate smart agriculture adoption rates, among others. District agriculture officers, and selected community members will be trainined on how to to collect data. Supporting institutions will incude Zambia Agriculture Research Instution, COMACO, and BCP.

c) Ministry of Livestock and fisheries: will be responsible for collecting data related to livestock population and other relevant information.

d) Ministry of Energy-will involved in data collection on firewood and charcoal consumption, efficient cookstoves efficiencies and other related information. Community members will be identifiied and trained on how to collect data.

2. **Reporting**

a) Project Implementation Unit will be involved in providing logistical support for data collection exercise and supervision of data collection and quality control. PIU will also be responsible for compilation of data and preparation of reports

b) Zambia Environmental Managment Agency will be involve in managing the hosting and maintanence of the Portal to be used for MRV data managment. ZEMA will also provide support related to data analysis and reporting.

c) Ministry of Green Economy and Environment. Will be responsible for approval and submission of report to the World Bank. Part of the project information together with other national data, will be used to compile the Binniel Transparent Report and National Communication which will be submitted to the UNFCCC

3. **Verification**

a) Independent verifier(s) will be engage to provide undertake verification of data submitted and reports submitted.

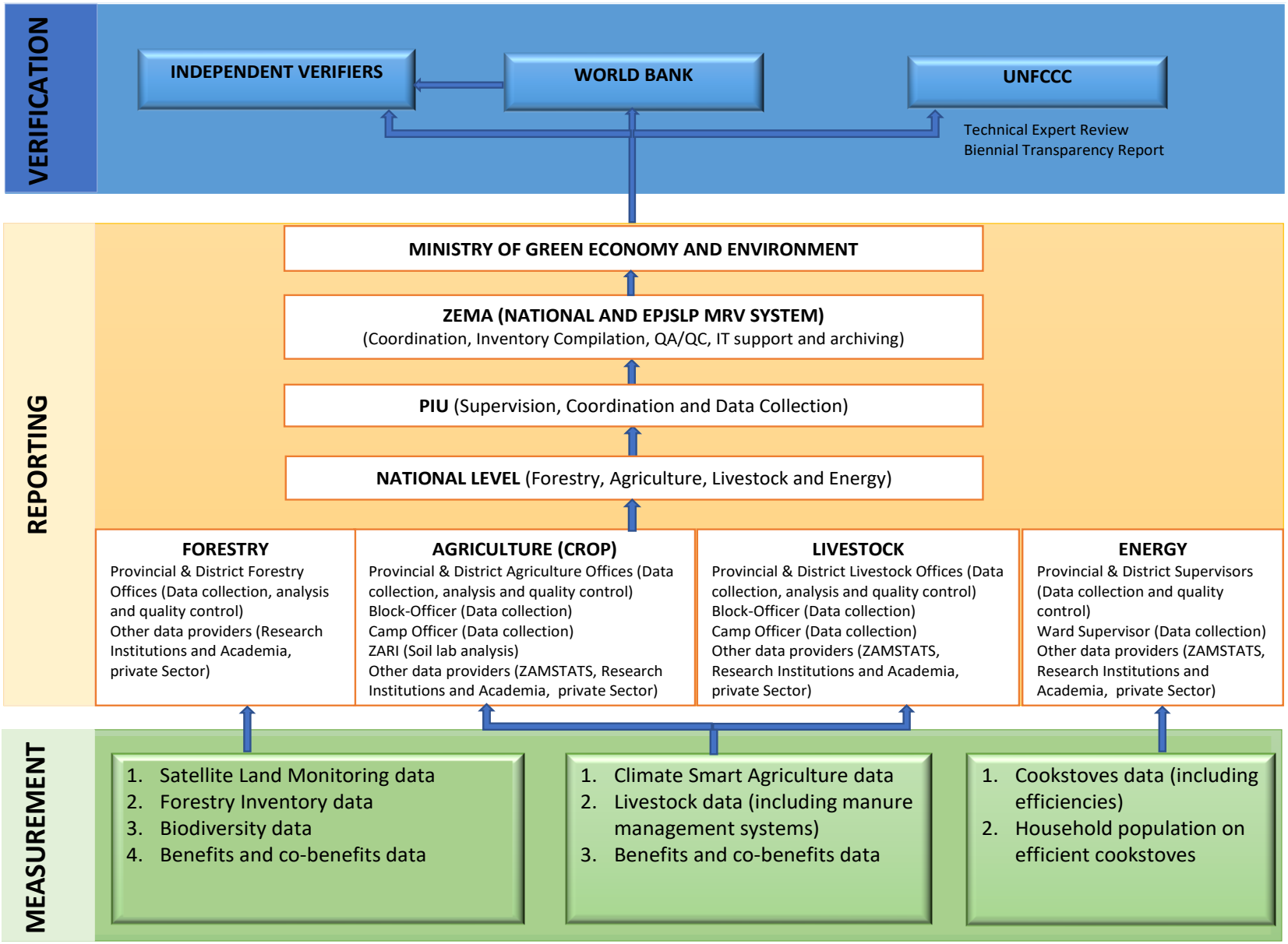

Figure 1 MRV institutional arrangment

3.2 ROLES AND RESPONSIBILITIES

Provided in below are roles and responsibilities for MRV team members.

MRV coordinator

a) In coordination with the PIU, the role will entail working with sector lead institution officers(energy, agriculture and forestry) to deliver high-quality MRV outputs.
b) Will serve as a focal point for enquiries regarding national MRV systems.
c) Will work closely with sector leads, traditional leaders, community leaders and private sector partners in developing and maintaining the MRV systems.
d) Oversee data collection of data according to indicators and metrices provided for in the standard operating procedures for forestry, energy and agriculture.
e) Provide guidance in the development of the sampling framework for energy, forestry, and agriculture
f) Supervise data collection at district and chiefdom level for agriculture, energy and forestry
g) Provision of guidance on reporting on MRV outputs
h) Ensure enforcement of quality control in the collection
i) Compilation of report on MRV metrics and communicating progress to the Project Coordinator
j) Defining the timeline with the processes by which work gets done on the MRV teams
k) Lead the formulation of annual/multi-year work plan for the MRV project in consultation with sector lead institution and other relevant stakeholders.
l) Provide project related MRV related inputs to the national MRV system and other national development planning process as necessary.
m) Design and organize refresher capacity building and knowledge sharing activities on MRV; mobilize appropriate resource persons and serve as trainer/resource person as necessary.

Energy

1. **Energy sector MRV officer**

    a) Will work closely with the MRV coordinator, traditional leaders, community leaders and private sector partners in collecting data developing and maintaining the MRV systems.
    b) Supervise data collection at ward level, and consolidate into chiefdom and district level
    c) Prepare report on MRV outputs for the energy sector
    d) Ensure enforcement of quality control in the collection
2. District Supervisor-Energy

a) Will work closely with Energy sector MRV officer, traditional leaders, community leaders and private sector partners in collecting data.
b) Supervise data collection at ward level in a designated sample area
c) Ensure enforcement of quality control in the collection

3. Enumerators/Data collectors

    a) Will work closely with District Supervisor-Energy traditional leaders, community leaders in collecting data.
    b) Conduct measurements of firewood, charcoal consumption in a designated sample area
    c) Administer questionnaire to every household in the sample area

Forestry sector MRV officer

a) Will work closely with the MRV coordinator, traditional leaders, community leaders and private sector partners in collecting data related to forestry and developing and maintaining the MRV systems.
b) Supervise data collection on forestry inventory for national forestry, community forestry, and consolidate and district level
c) Prepare report on MRV outputs for the forestry sector
d) Ensure enforcement of quality control in the collection

4. District Supervisor-Forestry
    a) Will work closely with Forestry sector MRV officer, traditional leaders, community leaders and private sector partners in collecting data.
    b) Supervise data collection in gazette forests community and private forests as designated in sample area
    c) Ensure enforcement of quality control in the collection
5. Enumerators/Data collectors

    a) Will work closely with District Supervisor-Forestry traditional leaders, community leaders in collecting data.
    b) Conduct measurements of forest measurement and inventories in designated sample areas

Agriculture sector MRV officer

a) Will work closely with the MRV coordinator, ZARI, Ministry of Livestock, traditional leaders, community leaders and private sector partners in collecting data related to agriculture and developing and maintaining the MRV systems.
b) Supervise data collection on soil samples, crop and livestock data, and consolidate and district level
c) Prepare report on MRV outputs for the agriculture sector
d) Ensure enforcement of quality control in the collection

4. **District Supervisor-Forestry**
   a) Will work closely with Agriculture sector MRV officer, ZARI, Ministry of Livestock, traditional leaders, community leaders and private sector partners in collecting data.
   b) Supervise data collection in farms as designated in sample area
   c) Ensure enforcement of quality control in the collection

5. **Enumerators/Data collectors**
   a) Will work closely with District Supervisor- ZARI, Mini, try of Livestock leaders, community leaders in collecting data.
   b) Conduct measurements based on indicators and metrices for agriculture as provide in the standard operating procedures for agriculture in designated sample areas

Provided in section 3.1 are roles, and contact details for MRV team members.

3.3 TEAM COMPOSITION

Provided in Tables 10 to o 16 are details of the MRV system team members.

Table 10 Designated MRV Agency

Designated project MRV Agency/Organization	Focal Point of the Agency
ZIFLP	Name, Organisation, Position and Contact

Table 11 MRV Management Team (PIU)

Role	Name	Organization	Contact Information
MRV Coordinator			
Energy Sector Lead			
Agriculture Sector Lead			
Forestry Sector Lead			
Archiving Officer (Data and Document)			
QC			
Compiler			

IT Officer			

Table 12 MRV team members for Energy Sector

Position	Organization	Contact(s) [Name]	Contact Information [E-mail, Phone, etc.]	Responsibilities
MRV provincial sector leader				
Chadiza-MRV district Officer				
Chasefu - MRV district Officer				
Chipangali- MRV district Officer				
Chipata - MRV district Officer				
Katete - MRV district Officer				
Kasenengwa - MRV district Officer				
Lumezi - MRV district Officer				
Lundazi - MRV district Officer				
Lusangazi -- MRV district Officer				
Mambwe - MRV district Officer				
Sinda - MRV district Officer				
Vubwi - MRV district Officer				
Nyimba- MRV district Officer				
Petauke- MRV district Officer				
Other				

* List of data collectors for the energy sector per district is provided in Annex V.

Table 14: Agriculture sector

Position	Organization	Contact(s) [Name]	Contact Information [E-mail, Phone, etc.]	Responsibilities
MRV provincial sector leader				
Chadiza-MRV district Officer				
Chasefu - MRV district Officer				
Chipangali- MRV district Officer				
Chipata - MRV district Officer				
Katete - MRV district Officer				
Kasenengwa - MRV district Officer				
Lumezi - MRV district Officer				
Lundazi - MRV district Officer				
Lusangazi -- MRV district Officer				
Mambwe - MRV district Officer				
Sinda - MRV district Officer				
Vubwi - MRV district Officer				
Nyimba- MRV district Officer				
Petauke- MRV district Officer				
Other				

* List of data collectors for the agriculture sector per district is provided in Annex VI.

Table 15 Forestry Sector

Position	Organization	Contact(s) [Name]	Contact Information [E-mail, Phone, etc.]	Responsibilities
MRV provincial sector leader				
Chadiza-MRV district Officer				
Chasefu - MRV district Officer				
Chipangali- MRV district Officer				
Chipata - MRV district Officer				
Katete - MRV district Officer				
Kasenengwa - MRV district Officer				
Lumezi - MRV district Officer				
Lundazi - MRV district Officer				
Lusangazi -- MRV district Officer				
Mambwe - MRV district Officer				
Sinda - MRV district Officer				
Vubwi - MRV district Officer				
Nyimba- MRV district Officer				
Petauke- MRV district Officer				
Other				

* List of data collectors for the forestry sector per district is provided in Annex VII.

Table 16 GHG Review Team

Position	Organization	Contact(s) [Name]	Contact Information [E-mail, Phone, etc.]	Responsibilities
MRV GHG Review leader				
MRV GHG Review officer-Energy				
MRV GHG Review Agriculture				
MRV GHG Review Forestry				

4 DATA MANAGEMENT

4.1 DATA COLLECTION PROCESS

Sector leads will be responsible for data collection in their respective sectors which may be passed on to other sectors if necessary. All data will be collected and maintained on external databases at ZEMA. Sector leads will continue to ensure the accuracy of these data. The metrices of data to be collected are provided in Annex I.

4.2 INFORMATION AND DATA QUALITY ASSURANCE/VERIFICATION

Quality assurance is the process of ensuring the integrity of the process and methods used. It includes a planned system of review procedures conducted by personnel not directly involved in the inventory compilation development process. The Project shall contract external experts to undertake Verification. Verification would involve the following among others:

a) Review of calculations and assumptions by experts in relevant technical fields
b) Reviewing the documentation associated with methods and results
c) Verify that data quality objectives were met,
d) Assess whether the results, assumptions, and methods are reasonable

4.3 INFORMATION AND DATA SECURITY SYSTEM

Data and information once submitted for archiving will be secured and can only be accessed by the Archiving and IT Officers. Summaries of the data will be kept in a Shared folder available to the whole team working on the GHG emissions estimates, but all copies of the data maintained in this folder will be saved in a read-only format.

All records of verified data and registry contents will be archived and maintained by ZEMA. Hard copy records will be stored in a secure location and electronic copies will be located on a dedicated server that is accessible to the MRV Coordinator, archiving officer and IT officer. The inventory coordinator may assign any other relevant officer to access information and data on the system. Retrieval shall be only by the designated officers.

4.1 DATA ELEMENTS/METRICES/INDICATORS

Elements of data metrices are provided for in the standard operating procedures

5 MRV SCHEDULE

Provided in Table 17 is the overall MRV data collection, emissions preparation and reporting schedule.

Table 17 Overall Inventory Schedule

Date	Task and Deliverable	Responsible party(ies)
Week 1 January	MRV data collection planning	MRV Coordinator, sector lead
February Week 2	Kick-off meeting to ensure team readiness distribute overall standard operating procedures and other supporting materials to inventory team.	MRV Coordinator, sector lead
Week 3 February	Conduct training/refresher training for data collectors	MRV Coordinator, sector lead, district officers and supervisors
March Week 1	Deploy data collectors(Energy to collect wet season data)	MRV Coordinator, sector lead, district officers and supervisors
March Week 3	Internal Quality Control. Review woodfuel consumption data	MRV Coordinator, sector lead, district officers and supervisors
April Week 4	Deploy data collectors(Forestry, Agriculture, Livestock)	Inventory Coordinator, District Forest and Agriculture teams, Community forestry Teams,
June Week 2	Deploy data collectors(Energy to collect Cold Season data)	MRV Coordinator, sector lead, district officers and supervisors
July week 3	Internal Quality Control. Review woodfuel consumption data	MRV Coordinator, sector lead, district officers and supervisors
October Week 2	Internal Quality Control. Review forestry inventory, agriculture, and livestock data	MRV Coordinator, sector lead, district officers and supervisors

Date	Task and Deliverable	Responsible party(ies)
October Week 2	Deploy data collectors(Energy to collect Hot Season data)	MRV Coordinator, sector lead, district officers and supervisors
October Week 2	Internal Quality Control. Review woodfuel consumption data	MRV Coordinator, sector lead, district officers and supervisors
October Week3	GHG emissions Estimates	ZEMA and Consultants
February Week4	Quality Control	ZEMA
March April Week 4	Verification/Quality Assurance	External Consultants
May Week 4	Incorporate external comments and address errors and comments from reviewers	ZEMA and Consultants ZEMA and Consultants
September Week 2	Compiling of final inventory	ZEMA and Consultants
September Week 4	Public workshop to present inventory results and	PIU
October Week 2	Submit final inventory to the Ministry of Green Economy and Environment	PIU
November Week 1	Approval and submission to world bank	MGEE

6 MANAGEMENT SYSTEM

6.1 MRV TRAINING

All trainings related to MRV data collection should be attended by all persons attached to MRV management system. The project shall organise training for all personnel with roles and responsibilities under the MRV Management System.

6.2 ARCHIVING AND CONTROL OF RECORDS

The Archiving Officer will ensure that all archiving procedures are adhered to

Management of files

- Save files with sector, name and year, and track the file version by including the date when the file was last saved.
- Clearly establish and communicate the file management procedures and name conventions for version control.

Data Retention

Spreadsheets and other electronic files used to create inventory estimates should be provided to the Archiving Officer. The following are essential components of the archive:

- Data and calculation spreadsheets and other electronic files for every category used to create inventory estimates.
- QA/QC plan with completed checklists.
- Key category analysis spreadsheets.
- Internal and external review comments and responses.
- Latest draft and final electronic versions of the inventory document (for use as a starting point to update the inventory in the future).

6.3 GUIDANCE ON ADJUSTMENTS/CHANGES

The MRV coordinator may direct sector lead institutions to alter their MRV processes. The MRV Coordinator will communicate any new requirements by updating the guidelines. Changes may include:

- Changes to data collection frequency
- Modification to the sampling framework

6.4 Quality Control/Quality Assurance

The QA/QC Officer is the main person responsible for implementing the QA/QC plan. In this role, the QA/QC Officer:

- Clarifies and communicates QA/QC responsibilities to inventory members.
- Develops and maintains QA/QC checklists appropriate to various inventory team member roles.
- Ensures the timely and accurate completion of QA/QC checklists and related activities. .
- Manages and delivers documentation of QA/QC activities to the Inventory Lead and Archive Coordinator.
- Coordinates external reviews of the inventory document and ensures that comments are incorporated into the inventory.

6.5 Management Review

The Project Manager will be responsible for the final review and approval of the MRV output This review is required by 1st January of every year.

6.6 Correction and Action

If corrective action is required, the corrections will be undertaken in consultation with the relevant stakeholders.

ANNEX

ANNEX I: METRICES FOR MRV SYSTEM

Provided as separate Excel package

ANNEX II: STANDARD OPERATING PROCEDURES FOR ENERGY

EPJSLP_ENERGY SOP.pdf

ANNEX III: STANDARD OPERATING PROCEDURES FOR AGRICULTURE

EPJSLP_SOP for Agriculture.pdf

ANNEX IV: STANDARD OPERATING PROCEDURES FOR FORESTRY

EPJSLP_Forestry_SOP Biophysical Assessment.pdf

ANNEX V: STANDARD OPERATING PROCEDURES FOR MAPPING

EPJSLP_ SOP Mapping.pdf

Ministry of Green Economy and Environment

Zambia Integrated Forest Landscape Project

Improving lives through Sustainable Management of Natural Resources

The Zambia Integrated Forest Landscape Project is a Government initiative which provides support to rural communities in the Eastern Province to allow them to better manage the resources of their landscapes so as to reduce deforestation and unsustainable agricultural expansion; enhance benefits they receive from forestry, agriculture, and wildlife; and reduce their vulnerability to climate change.

Simultaneously the project is creating the enabling environment for emission reduction purchases to be done through the subsequent phase - the Zambia Eastern Province Jurisdictional Sustainable Landscape Programme (EP-JSLP).

The ZIFL- Project is a product of cooperation between the Government of Zambia, the World Bank & partners.

For further information, please contact:

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