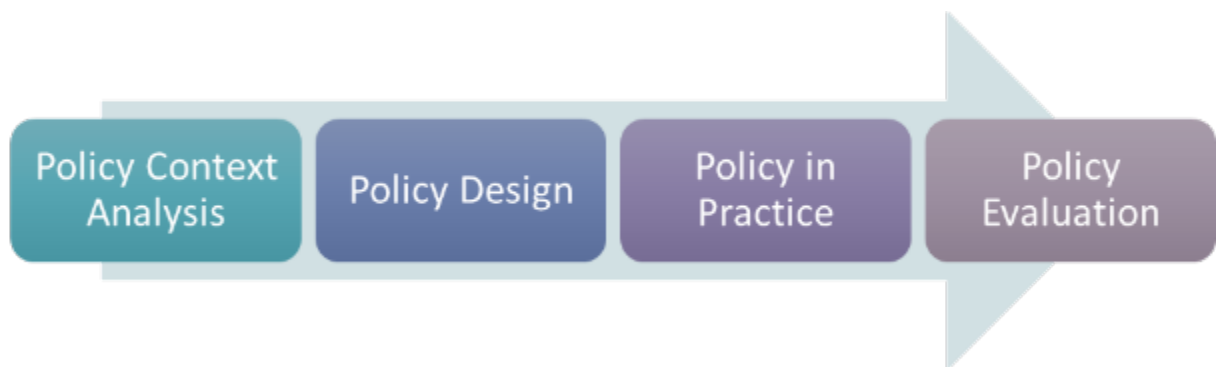# EU Technical Assistance Complementary Support Project – Bhutan

Service Contract N° ACA/2019/404-700

Study on Developing an RNR Sector M&E Framework and Dashboard System

Final Report
20th May 2022

DAI
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DISCLAIMER

ACKNOWLEDGEMENTS

Final Report

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ABBREVIATIONS

APA	Annual Performance Agreement
A-QAF	Annual Performance Agreement-Quality Assurance Framework
AWPB	Annual Work Plan and Budget
DPA	Department of Public Accounts
GPMD	Government Performance Management Division
GPMS	Government Performance Management System
GDP	Gross Domestic Product
GNHC	Gross National Happiness Commission
KPIs	Key Performance Indicators
MOAF	Ministry of Agriculture and Forests
MOF	Ministry of Finance
M&E	Monitoring and Evaluation
MYRB	Multi-Year Rolling Budget
NMES	National Monitoring and Evaluation System
NSB	National Statistical Bureau
PLAMS	Planning and Monitoring System
PPD	Policy and Planning Division
PMU	Project Management Unit
PEMS	Public Expenditure Management System
RNR	Renewable Natural Resources
RBM	Result-Based Management
RNR-GNHC	RNR- Gross National Happiness Committee
RAA	Royal Audit Authority
RCSC	Royal Civil Service Commission
SIs	Success Indicators
TOC	Theory of Change

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1. INTRODUCTION

1.1. Rationale for study

Bhutan is a small and mountainous country with a total geographical area of 38,394 square km (NSB 2018). The country's landscape is dominated by mountain ecosystems and changes within a distance of 170 km from elevations of about 100 meters in the foothills to over 7,500 meters above sea level. Over 51.1 percent of the Bhutanese population live in rural areas and rely mainly on agriculture and livestock farming for their livelihood. The RNR sector continues to be a predominant player in improving the country's economy, livelihood, and environment. It contributes 19.23 percent to national GDP (NSB 2021). More than 71% of country's total geographical area is maintained under forest cover with abundant biodiversity resources. The share of RNR Sector to National GDP in absolute terms has increased from Nu. 12,178 million in 2010 to Nu. 32,997.45 million in 2020. The RNR sector has also recorded the highest growth of 4.57% in 2020 in decades where agriculture (crop) sector has 5.07% contribution followed by Livestock and Forestry at 4.57 and 3.29% respectively. Considering these scenarios, a drive to achieve national self-reliance and self-sufficiency has placed RNR Sector's importance and the backbone of the economic recovery at the time of COVID-19.

For the Renewable Natural Resources (RNR) sector, monitoring and evaluation (M&E) are the cornerstones of strategic planning and are important aspects in tracking progress development, performance and results. Therefore, all the RGoB five-year development plans have recognized M&E's importance, especially since the 10th FYP.

In 2014, RGOB instituted a major M&E reform by creating the Government Performance Management Division (GPMD), an independent institution under the Prime Minister's Office. The GPMD set up a system to ensure the monitoring of critical indicators (prioritized on an annual basis) but does not cover all aspects of program and project monitoring, let alone major Agency Key Performance Indicators (KPI) of each five-year plan (FYP). The latter is the responsibility of the MoAF to be carried out through its Policy and Planning Division under the Secretariat.

The Prime Minister signs an Annual Performance Agreement (APA) with the Ministers and heads of different agencies that is cascaded down to the sub-sectoral levels. This system has allowed the alignment of sectoral plans and programs with the overall national strategic plans and objectives of the government. The system includes planning and setting targets at the beginning of the year, followed by mid-term monitoring and review, and then performance evaluation at the end of the year. However, due to the constant changes in the system there are issues of inconsistency between the plan and the result indicators identified, e.g., the results indicators that were part of the APA initially do not always get captured in each plan's progress during the evaluation. Therefore, it has become an imperative to develop a comprehensive Monitoring and Evaluation (M&E) System to keep track of plans, programs and projects.

1.2. Background and History of M&E in Bhutan

The need to streamline and institute an effective system for monitoring and evaluation of development plans in the country has been recognized for a long time. In response to this need, the Gross National Happiness Commission developed the National Monitoring and Evaluation System (NMES) as a standard system for monitoring and evaluating the development plans by line ministries, agencies, Dzongkhags and Gewogs during the 10th Five Year Plan (2008-2013). The Gross National Happiness Commission (GNHC) Secretariat, the central coordinating agency for development planning, monitoring and evaluation has developed a standardized monitoring and evaluation system for efficient and effective undertaking of monitoring and evaluation of development policies, programs, and projects. The system has been developed in conformity with the *Good Governance plus Report 2005* which requires GNHC to develop a clear Planning Framework and support Monitoring and Evaluation. NMES adopted the Results based Monitoring and Evaluation Approach based on the principles of Results-Based Management (RBM). A results-based M&E system tracks results at each level of the program or project cycle. It helps to systematically identify and guide the assessment of achievement of macro results and the means for achieving them. The key focus of the Results-Based Monitoring and Evaluation System called the Planning and Monitoring System (PlaMS) focuses on the Outcomes and Impacts of the various programs and projects, as well as the means of achieving them through Inputs, Activities and Outputs.

The Planning and Monitoring System (PlaMS) was first introduced during the 10th five year plan, and was developed into a web-based (real-time data entry) system, used by all the Planning Officers, Program and Project Managers of Ministries, autonomous agencies, Dzongkhags and Gewogs for managing their results based on five-year plan programs, for preparing annual work plans based on the approved five-year plans, and for tracking plan performance on a weekly, quarterly, semi-annual and annual basis. The system was developed with the intent to integrate the PlaMS with that of the Multi Year Rolling Budget System (MYRB) of the Department of National Budget, and the Public Expenditure Management System (PEMS) of Department of Public Accounts, Ministry of Finance. However, integration of these three systems never materialized due to technical issues and information sensitivity due to the open access nature of the systems involved.

Therefore, during the 12th plan, the PlaMS was used as an off-line version for planning the programs, while a new system called the Government Performance Management System (GPMS), which was introduced during the 11th plan has completely replaced the PlaMS for reporting on a key minimum data set of performance indicators that changes from year to year. The GPMS is implemented through signing of Annual Performance Agreements (APA) where agreed targets/indicators are tracked on an annual basis. However, the new system was not able to adequately and consistently capture the progress of all activities under the RNR Master Plans for each five-year plan, as there were constant changes in the APA system, content, and implementation modalities.

Figure 1: Problems linking PlaMS with MYRB and PEMS

With an implementation of the Result Based Management (RBM) Strategy in the 10th Five Year Plan (FYP), the Gross National Happiness Commission Secretariat designed a web based centralized information management system for planning and monitoring called PlaMS. The system has been targeting at diverse users including decision makers, planners, programme and finance officers in the central agencies as well as in the dzongkhags to enhance efficiency in planning, budgeting and reporting. Further, the web-based information management system has been working towards producing accurate and reliable information in a coordinated manner and making it readily available for our decision makers and other end users. The five-year programme profiles, Annual Work Plan and Budget (AWPB) and progress reports can be prepared and accessed by legitimate users of the system from any place with good internet connection. However, the drawback of the system was that the programme/project Officers had to submit AWPB to the budget officer in hard copies, which was later entered into the Multi-Year Rolling Budget (MYRB) for the Department of National Budget's approval. The approved budget could not be entered into PlaMS as the activities and sub-activities in PlaMS and MYRB are different. Similarly, the incurred expenditure had to be entered into PlaMS manually although the required information existed in the Public Expenditure Management System (PEMS). The lack of integration within the existing systems made plan review exercise more tedious and time consuming.

Source: PlaMS Assessment Report 2014, Policy and Planning Division, MoAF

1.3. **Objectives and Scope of Study**

The primary objective of this study on M&E Systems at MoAF is to guide the Ministry of Agriculture and Forests to measure the degree to which RNR sector programs and projects are implemented as planned, and how successfully MoAF achieves its intended results through evaluations. The M&E system should also provide readily available information to policy makers for informed decision making, and it should serve as a guide to improve understanding of M&E in general and to improve competency in key aspects of practicing M&E in the field. The new system will primarily be used by Planning Officers, relevant M&E technical staff in the departments, M&E officers of the programs/projects, and project managers who are responsible for collecting, analyzing and distributing information on programs and projects.

The basic components of M&E Frameworks are outlined in Figure 1 below. Starting with goal, objective and result setting in the RNR Master Plan for each five-year plan, through preparing a global M&E Framework Document for the five years, to preparing Annual M&E Action Plans and Budgets, to actual monitoring of the process of implementation of the plan, culminating in an evaluation of the plan (from design to implementation to impacts, outcomes and outputs achieved).

Figure 2: Simplified Conceptual M&E Framework

The guiding principles for a M&E system framework that focuses on the needs of all stakeholders at MoAF and that does not attempt to recreate the complexity of the former on-line PlaMS with all its process management issues should include the following:

- A **simple and clear architectural design of the M&E system** and its modules and components, taking as its base the existing Results Based Planning and Monitoring System used in the RNR Master Plans for each five-year plan

- Provision for **continuous tracking of Key Result Indicators (KRI) under programs and projects of the RNR sector** with equal emphasis on impact, outcome and output indicators (with less emphasis on activity and input indicators, unless they are critical indicators) and that will allow translation into necessary policy changes.

- Establish **what types of institutional changes will be required at MoAF**, including: structures, systems, processes, human resources management, and training.

- A **clear definition of M&E institutional structures needed** in managing an improved M&E system. This will include defining mandates, roles and responsibilities of the RNR-GNH Committee, the Policy and Planning Division at the Secretariat, the Directorate Offices in each of the four technical Departments, and M&E focal points in Non-Departmental Agencies and other large independent programs and projects at MoAF.

- The **creation of M&E concepts, processes, manuals, and guidelines** followed by core competency capacity training in using the improved M&E system framework.

- **Continued engagement of officials involved in M&E at flagship programs, regular programs, and projects of MOAF agencies** through continuous M&E awareness creation activities.

2. STUDY METHODOLOGY

1. **Document study** – This activity entailed a review of available documents related to Programmes and Projects (listed in Annex A). Documents include the government Five-Year Plans -particularly RNR sector's programmes and projects, M&E Framework of GNHC, programme and project appraisal documents (of important programmes and projects). The reason for the documents review is to understand M&E status, and approaches to M&E by different agencies (RGOB and Donor agencies), identification of Key Result Indicators (KRIs) for the Centralized M&E Dashboard, and data points/sources for defining/collecting/measuring the indicators.

2. **Stakeholder Consultation** – The following stakeholders were consulted to understand the current practices of M&E in their institutions. The stakeholders consulted were:

Figure 3: Stakeholders Targeted for Key Informant Interviews	
Stakeholder Group	Focus of discussion
PPD, MOAF	• Current issues and challenges • Expectation from the M&E system to be developed • Current tools and systems used • Expected tools and systems
GNHC	• Monitoring and evaluation approach from planning perspective • Current situation on plan monitoring and evaluation • Issues and challenges • Expectations and collaboration between MOAF and GNHC
GPMD	• Understand the monitoring and evaluation of annual performance agreements • Issues and challenges of including programme and project indicators
Important RNR Programs and Projects	• Understand the M&E frameworks and systems used specific to the projects • Tools and techniques used • Data management systems used • Issues and challenges. • Expectations on the tools and systems to report to PPD MOAF.

The documents' review and stakeholder consultations have helped the Study Team to understand the various issues and challenges of M&E faced by the institutions and explore diagnostics for the existing situation. The desk review and stakeholder consultations included:

i. Historical development of the different M&E systems in Bhutan

ii. Objectives of the M&E systems (budget support, policy making, programme / project improvement, accountability)

iii. Processes, tools and products (indicators, evaluations, quality of information)

iv. Relationship with other M&E Systems (system integration and data exchange)

v. Institutional architecture (components, cooperation, willingness to act on results, centralization versus decentralization)

vi. Organizational structure of M&E

vii. Quality, credibility and accessibility of M&E data and the results

viii. Impact of the M&E system in ensuring realization of goals and objective of the programmes and projects.

3. KEY FINDINGS AND CONCLUSIONS RELATED TO CURRENT M&E SITUATION AT MOAF

1. **Revision of the Monitoring and Evaluation (M&E) Framework has become an emerging priority for the Ministry of Agriculture and Forests** since the on-line PlaMS became defunct during the 11th FYP, and the Prime Minister's Office M&E system (GPMS and A-QAF) is not comprehensive enough to provide a clear overview of total performance throughout all MoAF programs and projects.

2. The **on-line results-based Planning and Monitoring System (PlaMS)** used for preparing and monitoring the five years plans, and established in 2009, was found to have a number of implementation problems at MOAF (and in other ministries) and is no longer used as a workable system after the 11th FYP.

Figure 4: Problems with Using On-Line PlaMS

Problems with implementing the PlaMS version of a results based monitoring system were brought to the attention of the Prime Minister's Office (PMO) during the 11th FYP with the following issues being highlighted: (a) FYP targets were not broken down into annual targets, (b) agencies were not assigned clear annual performance (AP) targets, (c) there was no process for aligning annual budgets to AP targets, (d) there was no process for aligning individuals performances (IP) to AP on an annual basis, (e) there was weak monitoring and problem solving of implementation during each fiscal year, and (f) there was almost no performance evaluation carried out at the end of each fiscal year (except for financial auditing).

Source: Government Performance Management System (GPMS) and Managing for Excellence (MAX), Royal Civil Service Commission (2017)

3. The **Government Performance Monitoring System (GPMS) was recently established (during 11th FYP) by the Prime Minister's Office** to address M&E issues within the government ministries in order that the Cabinet Office (CO) could better monitor higher level indicators (Outcome and Impact), however, this system doesn't adequately accommodate the needs for a comprehensive M&E system for all the programs and projects at MoAF and some Key Performance Indicators (KPI) are not reported.

4. Despite the fact that capacity in the use of results-based planning and monitoring systems (RBPMS) has been built at MoAF through the efforts of GNHC and the various M&E focal points at the Policy and Planning Division at MoAF (especially over the 10th and 11th five-year planning periods), **there are still on-going problems with inter-agency standardization of applying proper M&E taxonomic definitions in the RNR Master Plans** e.g., whilst most Departments and Non-Department agencies are familiar with Inputs and Outputs (especially financial inputs), many agencies still have problems in defining Outcomes and Impacts related to National and Agency Key Result Areas (KRA) and in defining SMART Key Performance Indicators (KPI). This is still obvious in the RNR Master Plan for the 12th FYP.

Figure 5: Government Performance Monitoring System (GPMS)

The GPMS has evolved from and replaced the PlaMS that was developed by GNHC as the main national monitoring system. It was developed by the Prime Minister's Office and focuses on the higher-level indicators (outcomes and outputs) in the results-based planning system used for preparing each Five-Year Plan.

The GPMS includes:

- Annual Performance Agreements (APA) that include all Outcome and Output indicators in each FYP as well as a series of mandatory indicators (signed by the Secretary and Heads of Department)
- Monthly reporting on indicators rated as with issues or no issues
- Quarterly reporting on indicators rates at risk, on track or achieved
- Mid-Year Reviews (MYR) at Minister and Prime Minster levels and only at this reporting stage can indicators be changed
- Annual reports are approved at the Ministry level through the Internal Review Committee (FD, PPD, HRMD, RSD) before a written report can be made
- The National Technical Committee (NTC) then endorses the report for submission to the Prime Minister's Office (PMO)
- The A-QAF (APA - Quality Assurance Framework) system was piloted in 2019 and was to be up-scaled during 2020.

Source: *Dialogue Briefing Note 4 on M&E prepared by EU-TACS Project (2019)*

5. One of the major findings of this study is that there are **nine major thematic areas for which M&E is important to MoAF** and these are elucidated in Figure 7: *A Nine Module Monitoring and Evaluation Framework at MoAF*. Each module is defined through its purpose, tools to be used, responsible agency, oversight and quality assurance agency, and key end user(s) of outputs. Integration/correlation/coordination of the different approaches to M&E as defined in the 'nine-module approach' is important to MoAF, otherwise there will be a 'scatter-

gun approach to M&E system development and management by different stakeholders.

6. **Gaps in the M&E approaches from the PPD point of view are mainly under Modules I, IV and VIII**. Module II fall under the mandate of the Prime Minister's Office. Module III currently falls under the EU through their budget support programs. Module V is under the mandate of individual externally funded projects. Module VI requires major integration of different data sources and has not yet been mandated to any agency at MoAF, although PPD at the Secretariat could be the relevant agency. Module VII is managed by the HRD under the DoS at MoAF. Module IX is the responsibility of the RCSC.

Figure 6: A Nine Module Monitoring and Evaluation Framework at MoAF

Module	Details
I. Planning and Monitoring System (PlaMS) - *on-line system became defunct after 11th FYP and is now in need of a replacement system at MoAF*	• Purpose: Preparing Five Year and Annual Plans • Tools: Results Based Planning and Monitoring, Planning and Monitoring System (PlaMS) • Responsible: All departments and non-department agencies • Oversight and Quality Assurance (QA): Policy and Planning Division • Key End User: GNHC
II. Government Performance Management System (GPMS)	• Purpose: Reporting on High Level Outcome and Output indicators from PlaMS and Additional Mandatory Indicators • Tools: Annual Performance Agreements (APA), APA-Quality Assurance Framework (A-QAF), Monthly Report on Indicators with Issues, , Quarterly Indicator Reporting (rated at risk, on track or completed), Mid Year Reviews, Annual Reports • Responsible: Policy and Planning Division • Oversight and Quality Assurance (QA): MoAF Internal Review Committee and National Technical Committee • Key End User: Prime Minister's Office
III. Sector Budget Support Performance Agreement System	• Purpose: Preparing Sector Budget Support Financing Agreements and Verifying/Approving Donor Budget Releases • Tools: Indicator Sheets with historical data and projections for each KRI, Annual Consolidated KRI Tracker Reports • Responsible: Policy and Planning Division • Oversight and Quality Assurance (QA): RNR GNH Committee and International M&E experts • Key End User(s): GNHC, MoF, Donors involved in Sector Budget Support (currently EU and directly involved EU member countries)
IV. Policy, Flagship Programme and Programme Evaluation	• Purpose: Evaluate policies, flagship programmes and programmes and suggest corrections • Tools: Basic Evaluation Models (relevance, efficiency, effectiveness, impact, sustainability, replicability), Quantitative and Qualitative Approaches • Responsible: Policy and Planning Division through external consultants • Oversight and Quality Assurance (QA): RNR GNH Committee • Key End User(s): PM Office, Cabinet Office, GNHC, MoF
V. Externally-funded Projects Monitoring and Evaluation	• Purpose: Standardised Project Performance Monitoring Indicators • Tools: Project Monitoring Sheets, Projects' Dashboard for Real Time Monitoring • Responsible: Policy and Planning Division • Oversight and Quality Assurance (QA): RNR GNH Committee and MoAF Website Manager at ICTD • Key End User(s): GNHC, MoF, and International Donors
VI. Integrated Training Monitoring and Evaluation System	• Purpose: Standardised and Integrated Training Monitoring and Evaluation • Tools: Training Meta-Database, Training Evaluation Sheets, Knowledge Attitude Practice (KAP) Approaches with Trainees • Responsible: Policy and Planning Division and external consultants • Oversight and Quality Assurance (QA): RNR GNH Committee • Key End User(s): GNHC, Department and Non-Department Heads, Educational Institutions, and International Donors
VII. Human Resources Management System	• Purpose: Monitoring Human Resources Plantilla at MoAF and Professional Development of All Staff • Tools: HR Management Information System (MIS) • Responsible: Human Resources Division and external consultants • Oversight and Quality Assurance (QA): RCSC, Secretary at MoAF, and RNR GNH Committee • Key End User(s): RCSC, GNHC, Department and Non-Department Heads at MoAF
VIII. Evidence-based RNR Statistics Monitoring	• Purpose: Standardised RNR Statistics Collection and Special Statistical Surveys and Monitoring Key RNR Thematic Indicators • Tools: RNR Census, Annual RNR Statistics Survey, Administrative Data Collection using CAPI • Responsible: Vacant since RNR Statistics Division was dissolved in 2012 and staff transferred to NSB • Oversight and Quality Assurance (QA): RNR GNH Committee • Key End User(s): PM Office, GNHC, Department and Non-Department Heads at MoAF, Educational Institutions, and International Donors
IX. Organisational Development Exercise (ODE)	• Purpose: Institutional evaluation for organisation structural reform • Tools: Various evaluation tools through external consultants • Responsible: Royal Civil Service Commission (RCSC) • Oversight and Quality Assurance: Prime Minister's Office • Key End User: Minister and Secretary at MoAF

7. There is **one Apex focal agency responsible for M&E at MoAF (*PPD Handbook, 2018*), and this has always been the Policy and Planning Division under the Secretariat**. Several issues at MoAF relate to: (i) limited human resources at PPD (gaps against planned staff levels occur from time to time creating M&E management vacuums), (ii) focus mainly on planning and monitoring and little consideration given to evaluation or impact assessments), (iii) little emphasis given to mentoring staff in Departments and Non-Departmental Agencies, and (iv) lack of a formal structure for identifying and training M&E and Information Management focal points in Departments and Non-Departmental Agencies.

8. **Two sections at PPD are currently responsible for M&E.** These two sections at PPD are responsible for the overall planning, management and monitoring of policy, plans and programs of the Ministry. As such they have to work closely with the Departments and Agencies of MoAF, the Gross National Happiness Commission Secretariat, development partners and other stakeholders. Focus is mainly on planning, monitoring and reporting. However, evaluation as a distinct discipline is still hardly visible at PPD.

- ☐ Planning and Monitoring Section (PMS) – primary roles: planning and **monitoring and evaluation of programs and projects**
- ☐ Policy, Environment and Research Section (PERS) - primary roles: policy assessments, research studies, and **evaluations of policies**.

Figure 7: PMS and PERS Mandates at PPD, MoAF
PMS Mandates
1. Review, coordinate, analyze, guide and formulate plans, programs and projects
2. Develop strategic planning framework and technical planning guidelines
3. **Monitor & Evaluate the plans, programs and projects**
4. Provide policy decision advice and feedback
5. **Represent at national and international fora on planning and M&E issues**
6. **Facilitate and engage on feasibility, appraisal, MTR and terminal reviews**
7. **Coordinate preparation of annual progress report and the other national reports**
8. Review and revise sector and sub-sector plans
9. Initiate and review plan budgets
10. **Coordination of APA formulation, monitoring and reporting**
11. Coordination of IWP formulation & related tasks
PERS Mandates
1. Carry out policy and legislation need assessments and studies
2. Develop Policy Formulation Framework (PFF) and procedures for the sector, sub-sectors and cross-sector agencies

3. Coordinate and facilitate formulation of policies
4. Coordinate and facilitate dissemination of related policies
5. Alignment of policies with existing national and international policies
6. Provide strategic directions and interventions for the thematic policy issues
7. Coordinate/conduct policy and economic studies
8. Conduct policy reviews and analysis
9. Compile and document related policies to serve as a repository
10. Secretariat to the RNR-GNH Committee
11. Prepare policy briefs for the sector
Source: *Policy and Planning Handbook*, prepared by Policy and Planning Division, MoAF (2018)

9. At DoA one of their new mandates is to carry out Monitoring, Evaluation and Knowledge/Information Management, however, there is no Section or Unit **Under each Departmental and Non-Departmental Agency, there is generally a weak capacity in using M&E and in Information/Knowledge Management**. established to carry out this function at the present time. At DoL, an Information Management Section is listed on the DoL web-site, but contains no content as of early June 2022. At DoFPS, a Forest Information Reporting and Monitoring System (FIRMS) has been established with restricted access. DAMC has developed an Agriculture Market Information System (AMIS) targeting SME and small farmers. There is no standard approach to information management between Departments at MoAF, nor an effective independent unit available to support the Directorate offices at the four key departments.

10. The capturing of evidence-based data and statistics for GPMS and the former on-line PlaMS was previously carried out through census, annual surveys, special surveys, and from administrative data at Departmental and Non-Departmental agency levels, with their collection and compilation mandated through the RNR Statistics Division under the Directorate of Services, however, the **RNR Statistics Division (RSD) was recently (2022) merged with the National Statistics Bureau (NSB) and this has created a vacuum at MoAF** especially in data, statistics, and information management for the RNR sector. Quality and duplication of data collection (especially evidence-based statistics from administrative data sources) had already been highlighted by a variety of stakeholders as an issue within MOAF, and this has been exacerbated by the recent removal of the RSD from MoAF.

11. **Externally funded projects develop their own standalone M&E systems** which tend to use donor-owned models with some mandated to use logical frameworks

(Logframe Matrices), Results-based Monitoring Models, Theory of Change (TOC) techniques, and Indicator Fiche Tracking Sheets for performance indicators. As such there is no standardized system of M&E for comparison of performance between and amongst projects. RGoB's Results-based Planning and Monitoring System evident in the Master Plans for each five-year plan and those of projects e.g., the EU Sector Reform Contract

Figure 8: Externally Funded Projects

The EU-TACS project has up-dated the information related to donor assisted projects in the RNR sector prepared by PPD in 2015. There are now almost 40 donor assisted projects, and some of the larger ones have their own M&E units with their own M&E frameworks and systems. Some of the key larger projects with M&E officers are:

- CARLEP (full time M&E officer based at PMO (Mongar, Eastern Region)
- WB Food Security and Agricultural Productivity Project (full time M&E officer for 5 years)
- Bhutan 4 Life (full time M&E officer for 3 years)
- Japan/WB Rural Enterprise and Youth Employment Project (full-time M&E officer 3 years)

Source: Dialogue Briefing Note 4 on M&E at MoAF prepared by EU-TACS Project (2019)

performance indicator framework already uses the Key Performance Indicators (KPI) found in the MoAF five-year planning framework to advise on budget releases.

4. RECOMMENDATIONS

4.1. M&E Organization and Structures

1. **Strengthening of the PPD to allow it to better support Departments, Non-departmental agencies, Flagship Programs, Programs, Sector Reform Contracts (EU), independent donor assisted projects with a common and well correlated approach to M&E, initially focusing on improvements to the *GPMS* and on developing the new Program and Projects *M&E Dashboard*.**

Figure 9: Four Levels of M&E Stakeholders at MoAF (Modified)

RNR GNH Committee

Policy and Planning Division [PMS & PERS]

Directorates at Departments [Monitoring, Evaluation, Research and Learning Units]

Non-Departmental Agencies [M&E Focal Points]
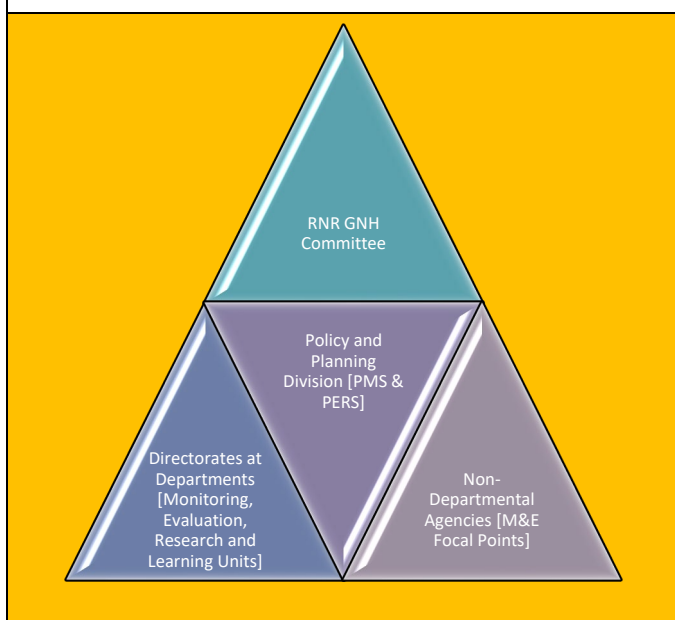
This is especially important after the dissolution of the on-line PLAMS during the 11th FYP. Visions, mandates, and roles of various M&E all agencies in MoAF by PPD. In particular the Policy Environment Research (and Evaluation) Section (PERS) be strengthened to carry out formative and summary evaluations as required by the Secretariat, and the Planning and Monitoring Section (PMS) be strengthened to enable it to better support Departments and Non-Departmental Agencies with improved planning and monitoring systems.

2. **Each of the four Departments establishes a Monitoring, Evaluation, Research and Learning Unit (MERLU) under each of the four Directorates to replace the former Information Management Sections** in order to coordinate and correlate all M&E activities with the PPD at the Secretariat, and to monitor and report on learning and training activities within each department which are currently not well coordinated or integrated.

3. **Each Non-departmental agency, Flagship Program, Technical Program, Budget Support Program (EU), and independent donor assisted project establishes either a Monitoring, Evaluation, Research and Learning Unit**

(MERLU) or a M&E Focal Point (depending on the size of each organization) to coordinate and correlate all their M&E activities with Departmental MERLUs and PPD at the Secretariat.

4.2. M&E Systems, Processes, and Guidelines

4. PPD to lead and be proactive in encouraging all Departments, Divisions, Sections, Centres and Agencies to **adopt a medium term (5 year) and annual *System for Preparing Monitoring Frameworks and Monitoring Plans with a* focus on a set of mandatory key performance indicators (KPI) in each five-year plan**, and that form part of each organisation's overall mandates.

5. PPD **coordinate and correlate preparation of the *(Integrated) RNR Annual Progress Reports* and the other *(Sectoral) Annual Progress Reports*** to assure quality and to avoid duplication of reporting.

6. PPD **ensure that *Annual Performance Assessment (APA)* formulation, monitoring and reporting under GPMS and *A-QAF* contain a minimum data set of highly relevant KPI** in conjunction with the Prime Minister's Office, with reliable and non-duplicated evidence-based statistics reporting.

7. PPD, through PERES, **initiate and be proactive across the Ministry together with MERLU in preparing *Formative Evaluations* under each FYP (conducted during the implementation) and *Summative Evaluations*** (conducted immediately after implementation) to assess policy performance.

8. The PERES also **establish the preparation of a series of *RNR Policy Briefs* targeting decision makers and aid agencies**. The policy briefs will be prepared based on research and evaluation studies carried out for key emerging RNR development themes.

9. PPD ensures that **each Department, Non-departmental agency, Flagship Program and Program prepares *M&E frameworks* for each FYP and prepares *Annual M&E Action Plans***, supported and coordinated by the PMS and PERES at PPD. These should correlate well with the FYP and the AWP of all the agencies.

10. PPD initiate and **be proactive in carrying out *Evaluative Case Studies* for Key Performance Indicators (KPI)**, especially where KPI are at risk or are failing and

where a better understanding is required to gain lessons learnt. *Evaluative Case Studies* should also be carried out for KPI that are at the piloting and demonstration stage to gain any best practices from well-performing KPI for future up-scaling.

11. Develop **an approach leading to a** *Minimum Set of Key Result Indicators (KRI)* **for which detailed** *Indicator Management Fiches (IMF)* **are prepared and updated annually in the form of** *Statistical Impact Assessment Charts (SIAC)* where historical trends in each KRI are updated and projections for the next five-year plan are decided. A Ministry-wide Compendium of IMF should be prepared and annual reports on SIAC should be coordinated and prepared by PPD together with MERLU and agency M&E Focal Points.

12. Identify a **minimum set of KRI that are impact-oriented and/or outcome-oriented from across all agencies to be tracked** and that require special nation-wide studies to be carried out by the National Statistics Bureau (Agricultural Statistics Division -recently transferred from MOAF) and that are beyond the capacity of MoAF to carry out itself.

13. **PPD and MERLU to regularly report progress with a small set of highly important KRI on the newly established** *M&E On-Line Dashboard* using Departmental, Non-Departmental agencies, Flagship Program and Program priorities. Case studies and tracking of evidence-based RNR statistics are also to be posted on the Dashboard.

14. **Improve the system for periodic evaluations, midterm reviews and final evaluations** at Departments, Non-Departmental agencies, Flagship Programs, Programs, and donor assisted projects.

15. **Improve the regularity of reporting of the minimum set of Key Result Indicators (KRI) to the GNH Committee, the Secretary and the Minister, and on the Dashboard for public use (in real-time up-dates).**

16. PPD **develop guidelines and prepare a** *Compendium of Indicator Fiches for Key Performance Indicators (KPI) under each Five-Year Plan*, including the tracking of historical trends for each indicator and future projections to form sets of solid and reliably analysed evidence-based statistics that are found in one location and not scattered across all departments. The compendium should focus equally on

impact, outcome, output and input indicators to balance the current focus on output and financial indicators.

17. **PPD develops a *Sourcebook on Tools and Methods for Monitoring in the RNR Sector* that will be useful to MERLU, M&E Focal points, and Dzongkhag planners**. The latter in support of the Decentralisation Policy where major funding programs are to be put in place to the benefit local communities at Dzongkhags and Gewogs.

18. PPD **develop a *Sourcebook of Tools and Methods for Evaluating Programs and Projects in the RNR Sector* that will be useful to PPD, MERLU staff, and Dzongkhag planners**.

19. PPD **develop,** together with the DLG, **a *Manual on E-RNR Participatory Tools and Methods For Monitoring and Evaluation of RNR Services Delivery* targeting local government planners, Gewogs, and farmers' groups.** This is in support of the RGoB Decentralisation Policy where major development programmes are to be put in place to the benefit of both RNR extension staff and local communities at Dzongkhags and Gewogs.

4.3   M&E Knowledge Learning and Training Events

20. PPD to **design and deliver an integrated M&E training program for PPD, MERLU and M&E Focal Point staff throughout the 13th FYP period** focusing on: the Theories of Change Concept, induction and refresher training in Results-based Planning and Monitoring (understanding Impact and Outcome oriented monitoring), M&E Framework preparation, Annual M&E action plan preparation, how to prepare a minimum KRI data set, preparing Indicator Fiches for tracking historical trends and planning future targets, preparing and up-dating Statistical Impact Assessment Charts, reporting KRI and case studies to the M&E Dashboard, preparing special case study reports on KRI, improving collection methods for improving quality of administrative data/statistics, preparing formative and summative evaluations for policy performance and programs etc.

21. HRD to **allocate funds for six overseas one-year Masters Degrees or Diplomas** for senior staff at PPD (x2) and the MERLU (x4) to strengthen capacity in skills for M&E.

4.4 M&E Activities Budget Support

22. The **Secretariat ensures that 3% (based on the minimum requirements for effective M&E in the natural resource management sector) of each Department's capital investment costs over each five-year planning period is allocated/embedded/ring-fenced for running the PMS, PERES, and MERLU activities**, and adequate operating costs are also available for supporting M&E Focal Points.

4.5 Recommendations for M&E Action Plan at MoAF

23. A recommended proposed course of action for strengthening M&E structures, systems and procedures at MoAF after the dismantling of the on-line PlaMS, which was originally set up to carry out results-based monitoring of each RNR Master Plan is presented in the following Table 1.

Table 1: Recommendations for an M&E Action Plan for the Period 2022-2028				
#	RECOMMENDATIONS	ACTIVITIES	TO BE LED BY	STAKEHOLDERS INVOLVED
A: SUPPORT TO M&E STRUCTURES AT MOAF				
1.	Steered by the RNR GNH Committee **'MoAF Endorses Improved Structures for Monitoring, Evaluation, Policy Research and Learning at MoAF'** to cover the period up to 2040	● Form a Working Group with stakeholder representatives to examine the future direction for improving monitoring, evaluation, policy research, and knowledge learning at MoAF.	Jointly by RNR GNHC, Secretariat, PPD	All MoAF Department and Non-Departmental Agencies
2.	Capacity building to **'Strengthen Planning and Monitoring Section (PMS) and Policy Environment and Research Section (PERS) at PPD, MoAF'**	● Strengthen the <u>Planning and Monitoring Section (PMS)</u> by ensuring that the required human resources are in place at all times as per the *PPD Manual of 2018* (i.e.; Head of Section, 3 Planning and Monitoring Officers, 1 Assistant Planning and Monitoring Officer (for Dashboard data entry support) ● Strengthen the <u>Policy Environment and Research Section (PERS)</u> by ensuring that the required human resources are in place at all times as per the *PPD Manual of 2018* (i.e.; Head of Section, 2 Policy Development Officers, 1 Research and Evaluation Officer, 1 Assistant Resarch and Evaluation Officer ● Provide up-to-date IT and digital software related to Monitoring, Evaluation and Reporting tools and methods ● Hire a local consulting firm to design/up-date and maintain a digital *Programs and Projects M&E Dashboard* through a sustainable digital platform and to provide training to staff ● Hire an international M&E expert for one year to provide innovative M&E tools and methods through a mentoring, on-the-job, and Training of Trainer (TOT) support	Secretariat, PPD	PMS, PERS, ICTD

#	RECOMMENDATIONS	ACTIVITIES	TO BE LED BY	STAKEHOLDERS INVOLVED
		programme for PMS, PERS, MERLU and M&E focal point staff		
3.	Establish **'Monitoring, Evaluation, Research and Learning Units (MERLU)'** at all Departments in MoAF to act as focal information collecting hubs for programs and projects in each department as well as cross-cutting areas such as education, training, other adult learning events, and gender and social equity issues.	● Establish MERLU at each Department under the Director's Office ● Provide each MERLU with mandates to collect data on KRI from programs and projects, prepare annual/mid term/final reports of programs and projects, carry out research/evaluative case studies on programs and projects, monitor and integrate all information on learning events (education, TVET, farmer training etc.), and coordinate with PPD to transfer program and project data to the *Program and Projects M&E Dashboard* ● Include the MERLU activities in the RNR Master Plan for the 13th FYP together with any budget implications	Department Directors, Secretariat, PPD	DoA, DoL, DoFPS, DoAMC
4.	Establish **'Monitoring and Evaluation Focal Points'** at all Non-Departmental Agencies, Programs, and Projects in MoAF to act as M&E hubs (full-time for larger agencies and programs and part-time for smaller agencies and programs)	● Provide computers and up to date and relevant IT/M&E software to all M&E focal points to help them carry out their M&E work effectively and efficiently e.g., Microsoft package, virtual platform software. ● Provide training in new software packages as needed following on from a Needs Assessment	PPD and Heads of Non-Departmental Agencies, Programs, and Projects	All Non-Departmental Agencies, Programs, and Projects in MoAF
B. SUPPORT TO M&E SYSTEM AND PROCESS DEVELOPMENT				
5.	**'Strengthen the Capacity of PPD to Develop and Manage a *Program and Projects M&E Dashboard*,** to enable MoAF to disseminate information on real-time performance trends at flagship programs, regular programs, and projects [Module 1 under the Nine Module M&E System]	● Carry out a study of existing RBM at all programs and projects at MoAF to identify the minimum key information set to be entered into the *Programs and Projects M&E Dashboard* at PPD at the beginning of the 13th FYP using the *RNR Master Plan for the 13th FYP* as the baseline data source ● Continue to re-design and up-date the *Programs and Projects M&E Dashboard* started during the EU-TACS Project from 2021-2022 ● Develop a system for information identification, verification, quality assurance and data entry into the *Programs and Projects M&E Dashboard*. ● Provide a full-time dedicated M&E official with IT skills to manage the *Programs and Projects M&E Dashboard*. ● Provide sufficient funds on an annual basis for re-designing, up-grading and maintaining the *Programs and Projects M&E Dashboard* through an external consullting firm ● Prepare a *Compendium of Key Result Indicators (KRI) at MoAF based on Indicator Fiches* for all Programs and Projects under the Master Plan for the 13th FYP ● Prepare a *Sourcebook on Tools and Methods for Monitoring and Reporting for*	PPD	All MoAF Department and Non-Departmental Agencies, Dzongkhag planners, IT consulting firm for Dashboard development/ maintenance

#	RECOMMENDATIONS	ACTIVITIES	TO BE LED BY	STAKEHOLDERS INVOLVED
		Programs and Projects in the RNR Sector ● Prepare a *Sourcebook on Tools and Methods for Evaluating Programs and Projects in the RNR Sector* ● Prepare a *Guideline for Participatory E-RNR Tools and Methods for M&E of Service Delivery under MoAF Programs and Projects* covering both Centralised and Decentralised interventions		
6.	**'Strengthening the Capacity of PPD to Monitor the Government Performance Management System (GPMS) at MoAF'** [Module II under the Nine Module M&E System]	● On an annual basis ensure that the Key Performance Indicators (KPI) established under the GPMS are entered into the *Programs and Projects M&E Dashboard* whilst at the same time avoiding any duplication of data entry by Departments and Non-Departmental Agencies	PPD	Prime Minister's Office
7.	**'Strengthening the Capacity of PPD to Monitor any Externally-sourced RNR Sector Budget Support Program at MoAF'** [Module III under the Nine Module M&E System]	● Ensure that indicators under the Performance Agreement Framework (PAF) for initiating fixed or variable budget releases that are tracked on an annual basis correlate with the KRI in the Master Plans for the 12th and 13th FYP ● Ensure that all budget support PAF indicators are entered into the *Programs and Projects M&E Dashboard* and show historical trends from an agreed baseline and future projections for the whole of the 13th FYP	PPD/PMS	All MoAF Department and Non-Departmental Agencies
8.	**'Strengthening the Capacity of PPD to Evaluate Performance of Policies, Flagship Programs and Regular Programs'** [Module IV under the Nine Module M&E System]	● Establish a system for carrying out policy briefs, evaluative policy performance case studies, formative evaluation during implementation, and summative evaluation after implementation ● Ensure that funding is availabe to carry out evaluation research studies on an annual basis in prioritized key thematic areas e.g., failing or weak programs or projects	PPD/PERS	All MoAF Department and Non-Departmental Agencies
9.	**'Strengthening the Capacity of PPD to support M&E Systems in Training and Education'** [Module IV under the Nine Module M&E System]	● Support provided by PPD to establish a MERLU for the cross-cutting RNR training sub-sector as previously defined in the *Study on the Impact of Farmer Training in Bhutan* (EU-TACS, 2021) ● Integrated M&E carried out for education, training, TVET, farmer training in all RNR sectors	PPD	Secretariat, RDTC
10	**'Strengthening the Capacity of PPD to Improve Management of RNR Statistics derived from Adminstrative Sources under MoAF and Dzongkhags in Bhutan'** [Module VIII under the Nine Module M&E System]	● Carry out a study on administrative sources of RNR data and statistics in all Departments, Non-Department Agencies and Dzongkhags ● Improve the capacity of new MERLU, M&E focal points, and Dzongkhag planners to provide quality control over important evidence based statistics that will be included in the *Programs and Projects M&E Dashboard* ● Identify and eliminate duplication of data sources by improving correlation of data types and coordination between all agencies	PPD and local consulting firm (for a 1 year contract)	All MoAF Department and Non-Departmental Agencies, Dzongkhag planners

Table header: Table 1: Recommendations for an M&E Action Plan for the Period 2022-2028

Table 1: Recommendations for an M&E Action Plan for the Period 2022-2028				
#	RECOMMENDATIONS	ACTIVITIES	TO BE LED BY	STAKEHOLDERS INVOLVED
		● Establish a regular and strong linkage between the Agricultural Statistics Division at NSB and MoAF		
C. SUPPORT TO M&E EDUCATION, TRAINING, LEARNING, AND AWARENESS AT MOAF				
11	**'Induction and Refresher Training in RBM and using the M&E Dashboard"**	● Identification of PPD, MERLU, and M&E Focal Point Staff ● Carry out Training Needs Assessment with potential trainees ● Design appropriate training courses ● Evaluate training courses	PPD	PPD, RNR Departmental Directorates, All RNR Program and Project management offices
12	**'Thematic 1 day M&E workshops'** targeting PPD, MERLU, M&E focal point staff, and Dzongkhag planners	● Identify workshop themes (e.g. M&E Dashboard Data Identification and Entry, KRI Sheet Management, Impact and Outcome Oriented Indicators, Evaluation Tools and Methods, Participatory M&E) ● Design workshops and decide mode of delivery (face to face or virtual) ● Design workshop training materials ● Conduct training or awareness workshops for different groups	PPD	PPD, RNR Departmental Directorates, All RNR Program and Project management offices, and Dzongkhag RNR Planners
13	Create a **'MSc/Diploma Studentship Program'** for PPD (x2) and Departmental MERLU staff (x4)	● Identify relevant one year Impact Oriented RBM Tools and Methods course (x5 students from PPD and 4 MERLU) ● Identify relevant one year Evaluation Tools and Methods course (x1 student from PPD) ● Provide funds from HRD master plan program or elsewhere	PPD, HRD	PMS and PERS at PPD and 4 Departmental Directorates with functioning MERLU
14	**'Awareness Seminar on Using M&E Dashboard for Reporting on RBM'** for RNR-GNHC members	● Identify officials from the MoAF's RNR GNH Committee, plus their deputies ● Design a half day awareness seminar ● Evaluate seminar	PPD	RNR GNHC members and their deputies

5. ANNEXES

5.1. ANNEX A: Documents Consulted During Study

CS (2018) *Government Performance Management Policy (Draft)*, Government Performance Management Division, Cabinet Secretariat, Thimphu, Bhutan

EuropeAid (2012) *Policy Steering: The Role and Use of Performance Measurement Indicators,* Aid Delivery Methods Guide, European Commission, Brussels, Belgium

DAI (2019) *Towards Improving M&E Systems at MoAF*, Briefing Note No.4, EU-TACS Project, Policy and Planning Division, MoAF, Thimphu, Bhutan

Dale, Reidar (1998) *Evaluation Frameworks for Development Programmes and Projects*, Sage Publications, New Delhi, India

GNHC (2017) *Development Evaluation – Protocol and Guidelines (Draft)*, Gross National Happiness Commission, Thimphu, Bhutan

MoAF (2014) *Assessment of the Use of the Planning and Monitoring System (PlaMS) at MOAF,* Policy and Planning Division, MoAF, Thimphu, Bhutan

MoAF (2017) *RNR Master Plan for 12th Five Year Plan*, MoAF, Thimphu, Bhutan

MoAF (2018) *Policy and Planning Handbook*, Policy and Planning Division, MoAF, Thimphu, Bhutan

NSB (2019) *National Strategy for the Development of Statistics 2019-2023*, National Statistics Bureau, Thimphu, Bhutan

RCSC (2017) *Government Performance Management System (GPMS) and Managing for Excellence (MAX),* Prime Minister's Office, Thimphu, Bhutan

RSD (2018) *Strategic Plan for Renewable Natural Resources Statistics in Bhutan*, RNR Statistics Division, Directorate of Services, MoAF, Thimphu, Bhutan

RSD (2018) *RNR Statistical Framework*, RNR Statistics Division, Directorate of Services, MoAF, Thimphu, Bhutan

ANNEX B: RNR Sector Monitoring and Evaluation Conceptual Framework

Introduction

In order to address the need to streamline and institute an effective system for monitoring and evaluation of development plans, programs and projects, the Gross National Happiness Commission (GNHC) Secretariat, as the central coordinating agency for development planning, monitoring and evaluation, has developed a standardized system for efficient and effective undertaking of monitoring and evaluation of development policies, programs and projects. The system has been developed in conformity with the Good Governance Plus Report 2005 which requires GNHC to develop a clear Planning Framework and support Monitoring and Evaluation. Cascading from the national M&E Framework, and to contextualize to the need of the RNR sector, a sectoral M&E system for the MoAF is developed aligning to the National M&E Framework (NMES). The NMES adopts the Results based Monitoring and Evaluation Approach based on the principles of Results-Based Management (RBM). The RBM is a management approach by which an agency seeks to ensure that its inputs, processes, products and services contribute to the achievement of clearly stated results. A results-based M&E system tracks results at each level of the program or project cycle. It helps to systematically identify and guide the assessment of achievement of macro results and the means for achieving them. The key focus of the Results-Based M&E system is on outcomes and impacts of the programs and projects, as well as the means of achieving them through outputs, activities, and inputs.

Figure 1: Example of a Results Chain Model
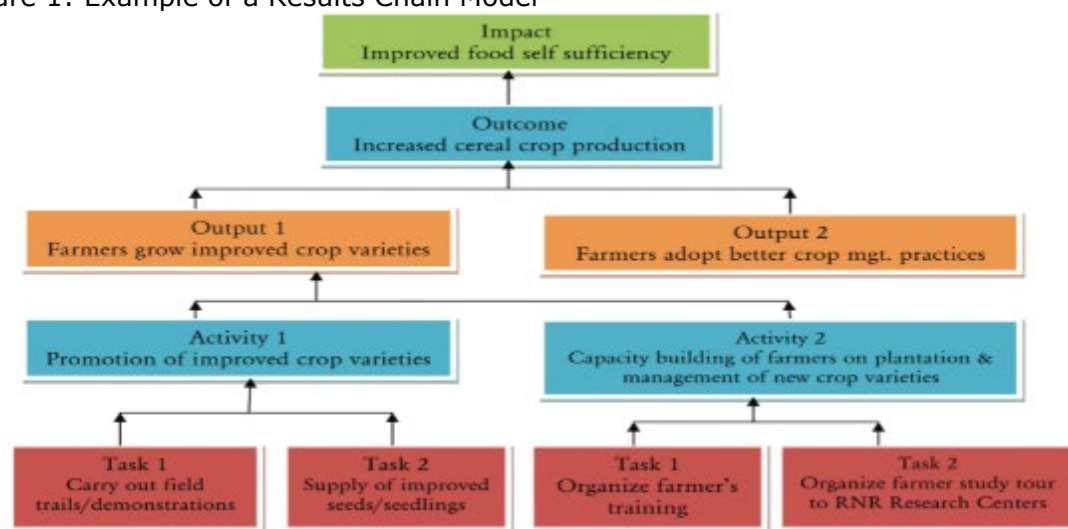
Institutional Structures for M&E Framework

Three layer of the institution is a minimum requirement for implementation of the M&E system. The institutes include: (i) RNR-GNH Committee as oversight and review committee, (ii) Policy and Planning Division as the nodal agency for the implementation of the M&E system, and (iii) Departmental/sub-sectoral or projects management units responsible for reporting, data collection and analysis. This institutional set-up is only a minimum requirement for managing the M&E system. The Departments, Non-Departmental Bodies, Divisions, Regional Centers, Programs and Projects within the Ministry can also set up appropriate internal management structures and procedures for efficient management of their programs and projects cascading this system. The implementing entities may also be required to follow the M&E procedures of the donors for externally funded programs and projects. However, donor agencies shall be encouraged to harmonize their M&E systems with NMES and the RNR sector M&E system to minimize duplications.
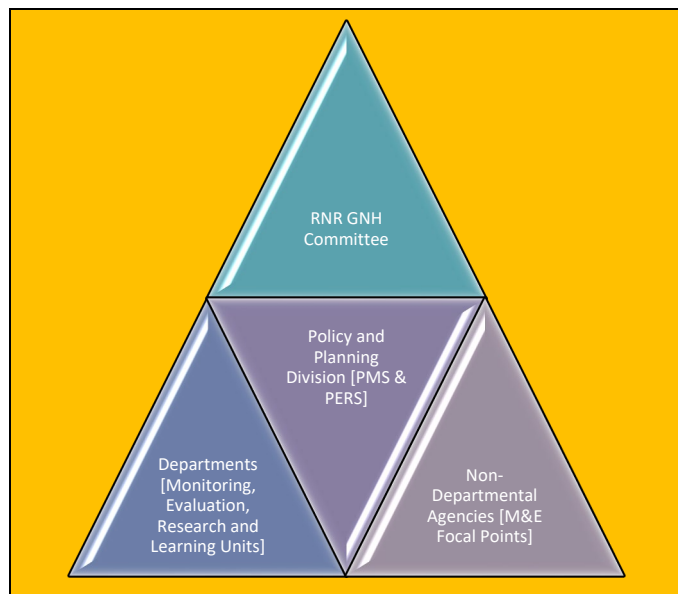
[Figure: Pyramid diagram showing RNR GNH Committee at top; Policy and Planning Division [PMS & PERS] in middle; Departments [Monitoring, Evaluation, Research and Learning Units] and Non-Departmental Agencies [M&E Focal Points] at bottom]

Institutional Roles and Responsibilities

The roles and responsibilities of the RNR Sector M&E institutional layers are as shown in the Table 1 below.

Table 1: Roles and Responsibilities of M&E Institutional Layers at MoAF

Institutions	Roles and responsibilities
RNR-GNH Committee	**The M&E Review Committee at the Ministerial level.** • Heads of the Departments/Non-Departmental Bodies within the Ministry/Agency will be the members of the RNR-GNH Committee. • The Secretary of the Ministry shall chair the Committee meetings. • The GNH Committees shall meet at least bi-annually to review the progress of the plans within the Ministry. **The Specific roles and responsibilities of the M&E Review Committee**

	(RNR-GNHC) at the Ministry level shall include: • Review and approve plans, programs and Annual Work Plans and Budgets of the Departments, Non-Departmental agencies, Divisions, Regional Centers, Programs and Projects before submitting to the Ministry of Finance; • Review the implementation status of programs and projects within the Ministry and agencies under MOAF on a periodic basis; • Review the achievements of programs and project against results (outputs, outcomes and impacts), including financial achievements; • Review specific sector policies, strategies and operational issues of programs and projects; • Issue directives for readjustment or reprioritization and resolve operational issues of programs and projects; • Endorse the Sector Mid-Term and Terminal Progress Reports for submission to GNHC; • Ensure that the implementing entities are accountable for the performance of their respective programs and projects; and • Informed decision and policy directives based on the M&E reports including evaluation reports of the program and projects.
Policy and Planning Division (PPD)	**The PPD is designated as the Coordinator for M&E at the Ministry and Agency level. A strengthened M&E section(s) shall be established for day-to-day management and coordination of M&E activities. The key M&E roles and responsibilities of PPD shall be to:** • Institute procedures and requirements of the RNR M&E system, including requirement of NMES, and GPMS within the Ministry; • Provide technical guidance and support on M&E to the Program or Project Managers/M&E officers and other implementing entities within the Ministry; • Coordinate implementation, reporting, analysis of the RNR Sector through the *M&E Programs and Projects Dashboard*; • Ensure that the implementing entities submit data or progress reports as per the prescribed schedules; • Verify data submitted by the implementing entities; • Coordinate with Finance Division at the Directorate of Services during the preparation of plans and budgets for each AWPB and verify the progress/performance data for the Ministry; • Lead formulation of sectoral plans, programs and projects, including reviews; • Identify the actual or potential implementation problems and issues encountered by implementing entities for timely remedial actions; • Analyze and prepare consolidated progress reports and table them to the GNH Committee; • Coordinate regular/periodic M&E Review Meetings and take up to the RNR GNHC for decisions and directives and communicate to the implementing entities and other relevant agencies; • Follow-up actions on all M&E related decisions and directives • Conduct evaluations of (selected) programs and projects within the Ministry in accordance with the Evaluation Protocol; • Coordinate the preparation of Mid-Term and Terminal Progress Reports of programs and recommends/review MTR/TPR or conduct of special evaluation of RNR projects;

	• Liaise with the GNHC-Secretariat on NMES implementation and other related issues;
	• Liaise with GPMD, Office of the Prime Minister on APA progress reporting and review; and
	• Undertake regular field visits to monitor and assess the implementation of programs and projects.
	• Prepare policy briefs based on M&E reports/progress for submission to RNR-GNHC for directives and decision.
Departments, Non-Departmental Agencies	**The Departments, Non-Departmental Bodies, Divisions, Regional Centers, Programs and Projects shall be responsible for implementing the programs and projects.** **The main M&E roles and responsibilities of Program or Project Managers/Program or Project M&E units and other implementing staff of the Departments, Non-Departmental Bodies, Divisions, Regional Centers, Programs and Projects shall be to:** • Prepare respective AWPB and submit to the PPD for review and recommendations; • Collect and record the progress data on a regular basis and report in the RNR Program and Projects M&E Dashboard; • Liaise with the Finance Division at DOS for collecting accurate and timely budget and expenditure information; • Readjust or reprioritize the plans, programs, projects whenever necessary based on the directions and recommendations of the M&E review committee of the Central-Ministry level (RNR-GNHC);

PART A: Monitoring Procedures

Synopsis of Monitoring stages, responsibilities, schedules and methods is as in the Table 2 below.

Table 2: Monitoring Stages and Responsibilities

Monitoring Stages	**Responsibilities, Schedules and Methods**		
	Who	**When**	**How**
Stage 1: Data Collection, Verification & Reporting			
1.1 Collect and record physical & financial data of completed activities & outputs that are implemented by Ministry/Agency as per the approved AWPB.	Program or project managers and other implementing entities of Ministry and Agency in collaboration with Finance Division, DOS	Weekly or monthly as appropriate	Enter the data using the GPMS, MYRB, PEMS and M&E Dashboard
1.2 Monitor and ensure that the implementing agencies enter data in the M&E system regularly	PPD, APA/Plan focal within Departments (where relevant)	Quarterly or when appropriate	
1.3 Verify and update the data submitted by implementing entities	PPD, and focal units/points in departments (where relevant)	Quarterly (by the 3rd week of the month after each quarter)	Data to be retrieved from the system for verification. Data could be verified by checking records/ publication/field visits
Stage 2: Data Analysis and Preparation of Progress Reports			
2.1 Analyze the data & prepare consolidated summary progress, reports, detailed progress reports for records and submission to relevant authorities	Program/ project managers & other implementing entities of the Ministry/Agency coordinated by PPD with Finance Sections & IMS	Every six months (1st Semi-Annual Progress Report (July-Dec.) by Jan. 31st; 2nd Semi-Annual Progress Report (Jan-June.) by July 31st	The system can be used to do selected data analysis and generate progress reports
Stage 3: Progress Review & Feedback Mechanism			
3.1 Review the Ministry and Agency progress reports	PPD, PSC, RNH-GNHC Committee	Quarterly	RNR GNH Committee members deliberate on the issues and make decisions
3.2 Communicate the feedback to the relevant authorities & staff, take follow-up actions	PPD, agencies, PMU	Within two weeks after the communication of recommendations	Through letters, minutes, reports or office memos
Stage 4: Conducting Monitoring Visits for Field Assessments & Supervision			
4.1. Conduct monitoring visits to verify data & to monitor the implementation progress, particularly infrastructure development programs & projects	PPD, Departments, responsible M&E officers	Annually	PPD shall form a team comprising of finance and representatives from relevant departments. Visit the sites; interview the beneficiaries, stakeholders and other relevant agencies.

Monitoring Activities

The approved Annual Targets (results), Key Result Indicators (KRI), and Annual Budgets of Central Departments, Non-Departmental Bodies, Divisions, Regional Centers, Programs and

Projects within the Ministry and agency for each fiscal year shall form the main basis for monitoring. The AWPB shall be prepared based on the plan priorities of each sector. The Departments, Program or Project managers and other implementing entities of Central Departments/Non-Departmental, and Regional centers etc., within the Ministry shall be responsible for implementing the budgeted activities for the year.

Data Collection, Verification and Reporting

- The program or project managers and other implementing entities of central departments, Non-Departmental Bodies, and Regional Centers shall be responsible for collecting and recording data on implementation status of their programs and projects. The data shall be uploaded in the GPMS system, M&E dashboard and any other relevant system as relevant.
- The data shall be entered in the GPMS and M&E Dashboard (system) on a regular basis (weekly or monthly as appropriate).
- The data shall include physical and financial data of completed activities and outputs and other related higher-level results and information.
- The implementing entities shall enter the data in collaboration with FD, APA and plan focal points where applicable.
- The PPD, Finance Division shall monitor and ensure that the implementing agencies enter the data in the system regularly.
- The PPD and Finance Division, DOS shall verify and validate the accuracy of the data by the second week of the month after every quarter.
- Data can be verified and validated through different means such as the procurement/expenditure records, publications, if any, and field visits.
- The PPD shall ensure that all the data in the system are verified and updated by the second week of the month after every quarter.

Data Analysis and Reports

- The PPD shall process and analyze the data received from the implementing agencies. The system (M&E Dashboard) can be used to do the pre-determined data analysis. Additional analysis and interpretations may be done, if necessary, using the data from the system. The analyzed data shall be presented in suitable graphs and tables – one of the features in the Dashboard.
- The PPD shall prepare a consolidated summary progress report to be presented to the GNH Committee on programs and projects of the sector.

- The implementing entities shall prepare detailed progress report of their respective sectors every six months. Reports can be generated from the M&E Dashboard system.
- The PPD shall ensure that the implementing agencies complete the preparation of progress reports for submission to the GNH Committee on time.
- The semi-annual progress report of each Department and other entities shall present the information as indicated in the Figure 3 below:

Figure 3: Progress Review and Feedback Mechanisms
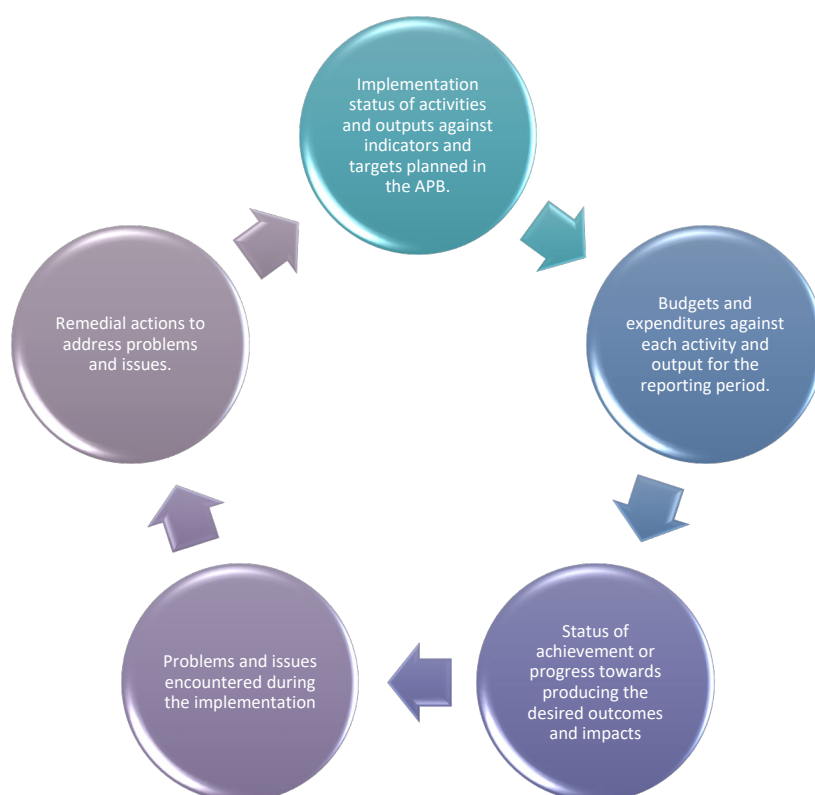
- The RNR-GNH Committee shall review the status of program and project implementation at the Ministry or Agency level on an annual basis.
- The PPDs, Departments and PMU and other entities shall organize internal reviews frequently (monthly or quarterly) to facilitate efficient decisions-making.
- The respective Departments shall ensure the quality of activities of programs and projects executed and will be required to carry out routine on-site supervision and monitoring.

- The PPD shall table the progress reports to GNH Committee for review and decision making.
- The GNH Committee shall address reports based on the following criteria:
  - Availability of inputs as planned (budget and other resources)
  - Deadlines - Completion of activities carried out or completed as per schedule
  - Desired results - alignment of activities contributing to outputs
  - Are the outputs likely to contribute to achieving desired outcomes and impacts?
  - Implementation issues (actual and potential) and provide remedial actions to improve the implementation of programs and projects.

- The RNR GNH-Committee shall make decisions for correcting problems and issues that are within its authority. For those problems and issues beyond its authority (e.g., that require major re-planning or re-designing of programs and projects), the RNR GNH Committee shall refer them to the GNHC through GNHCS.
- The PPD shall coordinate the meeting and communicate the decisions and recommendations to concerned agencies for actions.
- The PPD shall form monitoring team of professionals to carry out field visits on an annual basis to sites for monitoring of implementation progress, validation and verification of progress reported.

PART B: Evaluation Procedures

Evaluation is a periodic assessment, as systematic and objective as possible, of on-going or completed development interventions, programs, or projects (including designs, implementation status, and achievement of results). Evaluation is a useful management tool for policy-makers, implementers and other stakeholders. Evaluations of all Ministry development plans, programs, projects and policies shall follow the *Development Evaluation Protocol and Guidelines* as laid down in nine steps (GNHC, 2017).

Purposes of an evaluation

- To determine the relevance, efficiency, effectiveness, impacts and sustainability of the intervention, programs and projects.
- To identify remedial measures to improve the performance of on-going development programs and projects.

- To provide lessons from the past experience for future planning and decision-making. Evaluations can be conducted for lessons regarding replications or sustainability, identifying what methods and strategies work best over time.
- To identify remedial measures to improve the performance of on-going development interventions
- To provide lessons from the past experience for informed decision making and future planning. The evaluation can be conducted for lessons regarding replications or sustainability for methods and strategies that work best over time.
- To ensure accountability, Evaluations will be conducted to account for use of resources by the implementing agencies, projects to the government and the funding agencies.

Types of Evaluation

Evaluations can be categorized into different types, and these types depending on: (i) Timelines (when they take place), (ii) Responsibilities (who conducts them); and (iii) Priority thematic area (where they focus).

Summative and Ex-post Evaluations

Evaluation may be conducted at different times during either the planning, implementation or completion of development interventions. Depending on when they are conducted, there are three main evaluations.

Formative Evaluations

Formative evaluations are evaluations that are often conducted during the implementation phase of the programs or projects. They are usually carried out as self-evaluation by people involved in the program or project, supported as necessary by experts in particular aspects of evaluation design, data collection and data analysis.

The main aim of the formative evaluation is to improve the program or project performance by alerting the implementing agencies to problems or unexpected results so that timely responses may be taken. Mid-term evaluations are often conducted to provide the basis for mid-course corrections.

Summative Evaluations

Summative evaluations are conducted when the development interventions are completed or have reached a major milestone to determine the extent to which the planned results were produced. Summative evaluations are used to provide information about the worth or appropriateness of the interventions. Conclusions and recommendations from summative evaluations are intended to help policy makers formulate future policies and plans.

Ex-post Evaluations or Impact Assessments

Ex-post evaluations or impact assessments are evaluations carried out at some time after development interventions are completed usually after two or more years. The main aim of the ex-post evaluation or impact assessments is to identify the factors of success or failure, to assess the sustainability of results and impacts. These evaluations are useful for policy makers to assess the extent to which a development intervention has produced the mandated or intended outcomes and impacts, as well as apparent causal factors. Lessons learned can be used as inputs for future decision making and planning.

Internal, External and Joint Evaluations

Depending on who conducts evaluations, there shall be three approaches to evaluations: a) Internal Evaluations, b) External Evaluations and c) Joint Evaluations.

Internal Evaluations

Internal or self-evaluations are evaluations carried out by those who are involved in executing and implementing a program or project. It is often conducted during the implementation phase for timely identification of achievements, problems and improvements of the performance of the program or project.

External Evaluations

External or independent evaluations are evaluations that are conducted by agencies that are outside the implementing agencies of programs and projects. There is clear distinction

between those who conduct evaluations and those whose programs or projects are evaluated.

Summative evaluations and ex-post evaluations may need to be carried out by qualified external consultants due to the technical knowledge and skills that are needed. However, such evaluations may be complemented by internal self-evaluations by the implementing agencies.

Joint Evaluations

Joint evaluations are evaluations where different donor agencies and/or partners participate. Under NMES, joint evaluation shall be defined as collaboration between the PCS (and other national counterparts) and the donor agency for conducting evaluations of programs and projects funded by the donor agency. This may be relevant for Flagship programs that include several implementing Ministries.

Policy, Sector, Program, Project Thematic Evaluations

Evaluations can also be categorized according to the level of focus as given below:

Policy Evaluations

Policy evaluations may look at the changing policy environment/contexts within the country as they affect policy, the design of the policy, how the policy is being put into practice.

Policy Context Analysis	Policy Design	Policy in Practice	Policy Evaluation
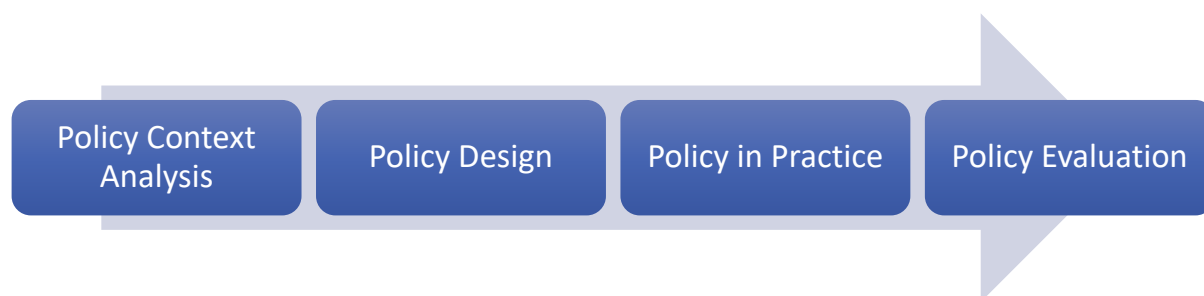
Sector Evaluations

Sector evaluations are evaluations of a sector in terms of sector policies, objectives, strategies and programs. Sector may be defined broadly like agriculture sector, livestock sector, forestry sector, RNR sector. It may also include sub-sectors such as irrigation, horticulture, poultry, social forestry etc.

Program Evaluations

Program evaluations are evaluations of a coherent set of projects or activities within a particular sector, which have a common focus in terms of desired results, e.g., food and nutrition security, organic farming, etc.

Project Evaluations

Project evaluations are evaluations of a set of planned, interrelated activities designed to achieve specific objectives within a given budget and a specific period of time and locations. They may often be used to pilot and demonstrate new and innovative ideas, before these are mainstreamed into regular programs.

Thematic Evaluations

Thematic evaluations are evaluations of selected new development concepts or cross-cutting issues in different types of development policies and interventions. They may involve a cluster evaluation of projects or programs, development polices, objectives and strategies addressing a particular theme that cuts across sectors or geographical boundaries e.g., climate change and disaster resilience cultural preservation, green waste management, gender and social equity, governance etc.

Identifying Priorities for Evaluation

Conducting comprehensive evaluations of all development policies, programs and projects could be highly complex, time consuming and expensive. Hence, it is important to make strategic choices to undertake selective evaluations that are most useful for learning and decision-making. These choices should be determined by the resources available, issues or areas deemed necessary by the Government. The selection of priority areas for evaluation shall be guided, among other things, by the following factors:

- The strategic importance of the sector, development policies/strategies, program or project.
- The size of the program or project. The program or project shall be classified as large in terms of costs, geographic coverage, beneficiaries or program or project duration.
- The program or project that is multi-sectoral in scope.

- Whether the program or project shows signs of running into problems. Monitoring data could be used to indicate that the program or project is facing significant problems.
- Whether the program or project or any development intervention is innovative and has the potential for replication and major up-scaling.

RGOB Protocols for Carrying Out Evaluation Research Studies

Evaluations of all RGoB development plans, projects, programmes and policies implemented by agencies or organizations within and outside the Government shall follow the Development Evaluation Protocol and Guidelines as laid down below in Figure 4.

Figure 4: Nine Step Approach to Achieving Evaluations (GNHC, 2017)
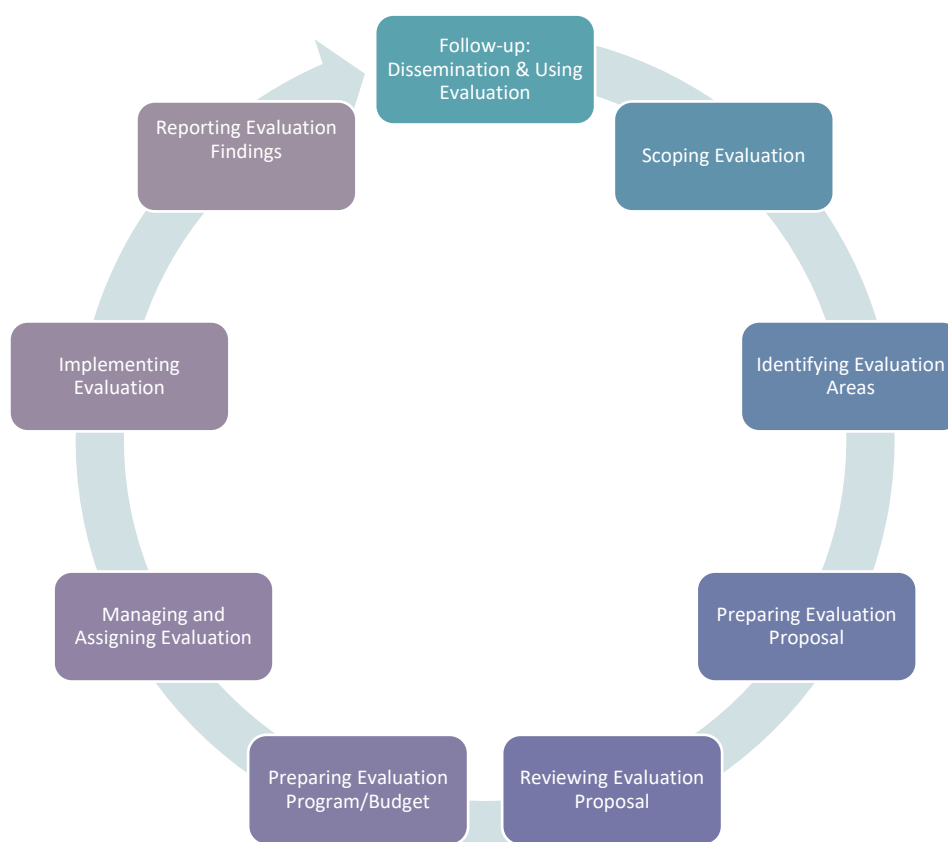
The process is to be managed by the concerned Agency together with an Evaluation Team or Consulting Firm (if appropriate). Oversight would be provided by the Policy and Planning Division, and by the Policy Environment and Research Section in particular where they are mandated to carry out research studies and where

Evaluation Officers would be located. All steps under Figure 4 would be carried out by MoAF, however, the GNH Commission will also be involved when reviewing the evaluation proposal and in the follow up activities e.g., disseminating and using evaluation findings.

ANNEX C: Work Flow of M&E Data for the Food Security Agriculture Productivity Project, Bhutan

This work flow is sampled from FSAPP (Food Security Agriculture Productivity Project under the Ministry of Agriculture), executed by the Department of Agriculture.

The following work flow illustrates the general workflow of the system for Annual Work Plan and Budgeting and Activity Implementation:
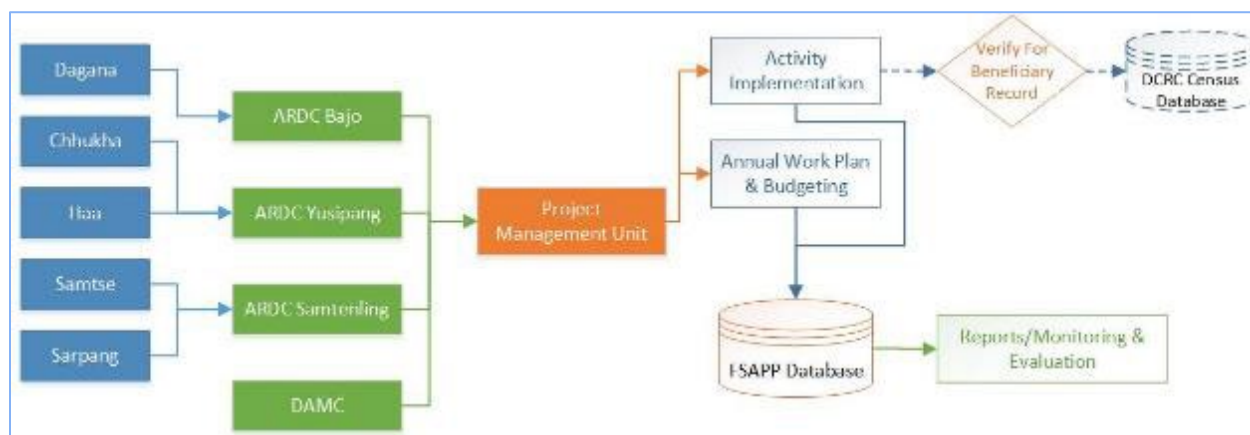
The Dzongkhag focal will submit to their respective ARDC, the ARDC will verify and forward to PMU for verification and endorsement. As ARDC also functions as PIU, the ARDC focal will also submit to PMU for verification and endorsement. DAMC will also submit to PMU like ARDCs. PMU also functions as one of the PIU, so it will also have its own Annual Work Plan & Budgeting and Activity Implementations.

When it comes to Annual Work Plan & Budgeting work flow, the application can be amended when send for verification and endorsement and once endorsed, the budget will be released for proposed activities.

1. **Flow 1: Annual Work Plan & Budgeting**

Following are the information captured for the annual work plan & budgeting:

FOOD SECURITY & AGRICULTURE PRODUCTIVITY PROJECT (FSAPP)

WORK PLAN (July, 2021 - June, 2022)

Project Implementing Unit: ARDC Bajo

Serial No	Components/Sub-components/Activities	Reference to Project Development Indicator[9]	Indicators[1]	Unit[2]	Annual Target[3]	Budget Code	Budget (Nu.mil)	Implementation			Time frame[7]					Write up
								Location/Area[4]	Lead Agency[5]	Collaborator[6]	Q1	Q2	Q3	Q4	Total	
1	Component 1: Strengthening Farmers and Producers Group															
	Component 1 A. Group Formation and Producer Group Strengthening															
1	Develop linkage of lower farmer group (Chewog) to higher group Gewog level) and Capacity development of farmers group through refresher course		No. of groups trained	No	10	45.02	0.500	all five gewogs	ARDC Bajo	Dza/ DAMC		0.300	0.200		0.500	
2	Capacity development of live-fencing farmers' group on management of crop damage by elephant through bee keeping.		No. of groups formed & trained	HHs	150	45.02	0.300	Lhamoizingkha/Nichula/Karmaling	ARDC Bajo	Dza/ DAMC		0.300			0.300	
	Sub total						0.800				0.000	0.600	0.200	0.000	0.800	
	Component 1 B. Awareness Raising for Dietary Diversity															
	Sub total										0.000	0.000	0.000	0.000	0.000	
2	Component 2: Enhancing Farmer Productivity														0.000	
	Component 2 A. Farm Services and Management - Activities without beneficiary Contribution														0.000	
	Promote climate-smart agriculture technologies		No of hhs covered	HHs	100	45.02	0.300	all six gewogs	ARDC Bajo	Dzo		0.200	0.100		0.300	
	Sub total						0.300				0.000	0.200	0.100		0.300	
	Component 2 A. Farm Services and Management - Activities with beneficiary Contribution														0.000	
	Sub total						0.000				0.000	0.000	0.000	0.000	0.000	
	Component 2 B. Institutional Support														0.000	
6	Repair and maintenance of Internal Irrigation channel for rice trial/research and seed production		area covered km	KM	5	51.04	1.000	ARDC Bajo	ARDC Bajo			0.500	0.500		1.000	The internal irrigation channel that was constructed about 6-7 years ago need

i. **Components/Sub-components/Activities:** As per the FSAPP Operational Manual (August 2018), under project implementation, the scope and implementation of components are:

Component 1: Strengthening Farmers and Producer Groups and Nutrition Capacity Building
　　　Component 1A: Group Formation and Producer Group Strengthening
　　　Component 1B: Awareness Raising for Dietary Diversity

Component 2: Enhancing Farmer Productivity
　　　Component 2A: Farm Services and Management – Activities without beneficiary Contribution
　　　Component 2A: Farm Services and Management – Activities with beneficiary Contribution
　　　Component 2B: Institutional Support

Component 3: Enhancing Access to Markets
　　　Component 3A: Post-harvest and Market Infrastructure Support – Activities without beneficiary Contribution
　　　Component 3B: Post-harvest and Market Infrastructure Support – Activities with beneficiary Contribution
　　　Component 3B: Linkage to Domestic and Export Markets

Component 4: Project Management

The activities can be different annually but these activities should fall under these components and sub-components.

ii. **Reference to Project Development Indicator:** the proposed activity must be mapped with the result indicator of PDO (Result Framework of FSAPP). It can be selected from indicator master data.

iii. **Indicators:** It will be entered/defined by the user.

iv. **Units:** It will be selected from the defined UOM master data. Following are the required UOM as of now:
- HH (No. of Household)
- Pkts (Packages)
- Acres
- Rolls
- KM
- MT
- Sets
- Others

v. **Annual Target:** It will be entered by the user based on the entered indicator and unit of measurement selected.

vi. **Budget Code:** Budget code will also be selected from the budget code master data, which shall be prepared from the MOF budget code. Commonly used budget will be indicated in the master itself to avoid long list of budget code while preparing AWPB.

vii. **Budget (Nu. Mil):** This figure will be entered in millions.

viii. **Implementation Location/Area:** Most commonly the area is avoided but the location shall be entered accordingly. For example, PMU, will have all locations available for selecting; DAMC will also have all locations. ARDC NCOA will have 2 dzongkhags, i.e. Haa, Chhukha, their respective gewogs and NCOA itself; ARDC Bajo will have Dagana dzongkhag, gewogs and Bajo ARDC itself; ARDC Samtenling will have Sarpang, Samtse dzongkhag, their respective gewogs and Samtenling ARDC itself; However Dzongkhags will have their respective gewogs only.

ix. **Lead Agency:** It will also be selected from the master data and the expected lead agencies are EA, Dzongkhag, ARDC, PMU and DAMC. It will be a single select.

x. **Collaborator:** It will be same master data as lead agency but it can have multiple collaborating agencies.

xi. **Time Frame:** It consists of 4 quarters, and the user has to divide the budget implementation in these 4 quarters if required. The same of 4 quarters will be reflected in total column which should be equal to the proposed budget.

xii. **Remarks (Write up):** This field will be used to explain the activity and any conditions or issues that need to be raised.

Type of support field will also be included before entering the activity, so that it can link the activity implementation with the annual work plan and budgeting.

Following is the abstract report of AWPB required:

Component & Sub-components								Quarter Forecasts				
								Q1	Q2	Q3	Q4	Total
Component 1.Strengthening Farmers and Producer Groups and Nutrition Capacity Building								-	0.600	0.200	-	0.800
Component 1A. Group Formation and Producer Group Strengthening								-	0.600	0.200	-	0.800
Component 1B. Awareness Raising for Dietary Diversity								-	-	-	-	-
Component 2. Enhancing Farmer Productivity								0.350	0.700	1.900		2.950
Component 2 A. Farm Services and Management - Activities without beneficiary Contribution								-	0.200	0.100	-	0.300
Component 2 A. Farm Services and Management - Activities with beneficiary Contribution								-	-	-	-	-
Component 2 B. Institutional Support								0.350	0.500	1.800	-	2.650
Component 3. Enhancing Access to Markets								-	0.400	0.250	-	0.650
Component 3 A. Post- harvest and Market Infrastructure Support - - Activities without beneficiary Contribution								-	0.400	-	-	0.400
Component 3 A. Post- harvest and Market Infrastructure Support - Activities with beneficiary Contribution								-	-	0.250	-	0.250
Component 3 B. Linkage to Domestic and Export Markets								-	-	-	-	-
Component 4: Project Management								0.085	0.160	0.175	0.171	0.591
							Total	0.435	1.860	2.525	0.171	4.991

2.   Flow 2: Activity Implementation

The Activity Implementation basically captures the data required for Result Framework Matrix which include beneficiary information, farmer group information, type of supports implemented, budget utilization and beneficiary contributions. It will also capture the data required for Activity Progress Report to view the activity progress and budget utilization.

The type of support is categorized into input supply, capacity building and farmer group formation, which is further mapped with Project Development Objective Indicators and Intermediate Results Indicators in Result Framework Matrix as follows:

SL	Input Supply	Contribution to which PDO/Result Indicator?
1	Seed	IV & 2.3
2	Vegetable seeds	IV & 2.3
3	Paddy seed	IV & 2.3
4	Low-cost poly house	IV & 2.3
5	Potato seed	IV & 2.3
6	Brush cutter	IV & 2.3
7	Electric fencing materials	IV & 2.3
8	Mulching plastic	IV & 2.3
9	Polyhouse	IV & 2.3
10	Drip sets	IV & 2.1 (b) & 2.2 & 2.3
11	Cardamom seedlings	IV & 2.3
12	Fertilizers	IV & 2.3
13	Black pepper seedlings	IV & 2.3
14	crates	IV & 2.3
15	Sprinkler sets	IV & 2.1 (b) & 2.2 & 2.3
16	Citrus seedlings	IV & 2.3
17	HDPE	IV & 2.3
18	Cardamom dryer	IV & 2.3
19	Mini-tiller	IV & 2.3
20	Paddy drum seeder	IV & 2.3

21	Secateurs	IV & 2.3
22	Knapsack sprayer	IV & 2.3
23	Green net	IV & 2.3
24	flexible pipe	IV & 2.3
25	Potato	IV & 2.3
26	Vegetable seeds	IV & 2.3
27	Gator sprayer	IV & 2.3
28	watering can	IV & 2.3
SL	**Capacity Building**	**Contribution to which PDO/Result Indicator?**
1	Paddy cultivation	IV
2	Organic Agriculture	IV
3	Study Tour	IV
4	Using Plastic mulching	IV
5	Ginger Pests and Diseases	IV
6	Vegetable cultivation	IV
7	WUA formation	1.1
8	Fruit fly management	IV
9	Citrus Canopy Management	IV & 2.3
10	Mushroom cultivation	IV
11	Processing	IV
12	Quinoa cultivation	IV
13	Black pepper cultivation	IV
14	Paddy drum seeding	IV
15	cardamom cultivation	IV
16	Post-harvest management	IV
17	Kitchen gardening	IV & 1.3
18	Black pepper cultivation	IV
19	Paddy cultivation	IV
20	Water harvesting	IV
21	Nutrition	IV & 1.3
22	Citrus fruit drop	IV
23	Market linkage	IV & 3.3
24	Cardamom cultivation	IV
25	Citrus cultivation	IV
26	Water harvesting	IV
27	Potato cultivation	IV
28	Vegetables cultivation	IV
29	Orchard Management	IV
SL	**Group Formation**	**Contribution to which PDO/Result Indicator?**
1	EFS Group Formation	IV & 1.1 & 1.2
2	Strengthening of FG	IV & 1.1 &1.2
3	FG formation	1.1 & 1.2
4	Youth Group formation	IV & 1.1 & 1.2

The activity implementation captures with following details like:

- Date of Activity implementation
- Type of support implemented
- Location
- Budget Utilized.

As per the type of support of the activity implemented, if beneficiary record is required, following beneficiary details of the activity implemented will be captured:

- Name
- Gender
- Permanent address (Dzongkhag, Gewog, Village)
- House Hold No.

The Census API will be used to fetch beneficiary details. Now, if the type of support involves farmer group formation, the farmer group details will also be captured as follows indicating if the farmer group is newly formed or is an existing farmer group where the activity is to strengthen the farmer group.
The final output of the activity implementation record will be the Result Framework Matrix of FSAPP.

Project Development Objective:

Project Development Objective Indicators

Indicator Name	2017 Baseline	MTR	June 2021	2024 Revised End Target	2022 Original End Target	Remarks
					Cumulative Target Values (unless, indicated otherwise)	
Productivity of targeted crops increased by at least 25 percent in project areas (Percentage)	0	20		25	20	
Increase in volume of produce marketed by at least 25 percent (Percentage)	0	8		25	20	
Increase in value of produce marketed by at least 25 percent (Percentage)	0	17		25	20	
Number of direct project beneficiaries (Number)	0	6,526		11,938	10,400	This will be updated
Female Beneficiaries (Percentage)	0	29		34	30	This will be updated

Project Development Objective:

Intermediate Results Indicators

Indicator Name	2017 Baseline	MTR	June 2021	2024 Revised End Target	2022 Original End Target	Remarks
					Cumulative Target Values (unless, indicated otherwise)	
1.1 Number of beneficiary groups receiving technical trainings and other capacity building support (Number)	0	89	9 (98)	310	300	5 New Groups formed in Sarpang 1 Group strengthened by Sarpang 3 Groups strengthened by Chhukha
1.2 Number of farmers who are members of an association including producer groups, cooperatives	0	4,498	154 (4652)	11,788	10,400	

The activity progress report will also generate in the same format as AWPB with extra columns like total expenditure and beneficiary contribution. The conditions of budget utilization are like, there will be no inter component budget utilization but there can be intra

component budget utilization. The actual budget utilization (expenditure) and total beneficiary contribution will be entered along with the activity implementation and beneficiary record.

ANNEX D: Example of a Template for Key Result Indicator Tracking

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Key Result Indicator Sheet Template

INDICATOR CODE: *A unique code for ease of tracking the indicator from a basket of indicators under MoAF RNR Master Plan for 13th FYP.*

SIMPLIFIED NAME OF INDICATOR: *A 2-4 word description of the result area that the indicator contributes to measuring*

TYPE OF INDICATOR: *Indicators should preferably be Impact, Outcome or Output indicators as defined in EuropeAid (2011) Policy Steering: the Role and Use of Performance Measurement Indicators, Aid Delivery Methods Guide, European Commission, Brussels, Belgium. In certain cases where there are new activities being supported under a sector budget support programme then Input indicators may be acceptable.*

INDICATOR DESCRIPTION: *The description of the indicator must be SMART as defined in EuropeAid (2011). It must therefore be specific, measurable, accurate, reliable, and time-bound.*

SMART Element	Definition
Specific	*Clearly articulated and attributable to objectives, outcomes, results/outputs relative to the Bhutanese 10th FYP or its amendments after the 2010 Mid Term Review. For example, how well are the target group, the project geographical area, the technical intervention and the target quantities defined in the indicator?*
Measurable	*How easy it is to measure the proposed indicator in a given area over a specific time period (difficult to measure indicators may use proxy indicators or may be avoided)?*
Accurate	*To what level of accuracy the indicator can and should be measured? Is the sampling method sufficiently accurate for purpose of measuring the indicator? Also can it be measured with the same accuracy when made by different people using the same method?*
Realistic	*How viable/feasible it is to measure the indicator in terms of available resources within the Ministry of Agriculture and Forestry (staff, finances, time, and equipment)?*
Time-bound	*By when and how frequently the indicator of change has to be monitored? In particular it should synchronise with the decisions on budget release by the EU at the beginning of each Financial Year e.g. July/August/September and be available at the Joint Annual Review for the RNRSP in September of each year.*

RATIONALE FOR INDICATOR: *The rationale for using this indicator amongst the many others that may be available or that could be collected is to be described here. It should correlate well with the degree of achievement of its associated planning intervention. It should provide information that will be relevant to policy makers and resource managers.*

INDICATOR HISTORICAL TRENDS AND FUTURE PROJECTIONS: *A reference value or baseline figure is to be defined against which progress with the indicator during the planning period will be measured. This figure is usually based on an annual reported figure one year prior to the start of the planning period e.g. 2017 for the 12th FYP or 2022 for the 13th FYP. In some cases where the data under question can vary from year to year due to natural hazard/environmental factors a 5 or 10 year average can be used; this is often the case with RNR data where variability of data between years is likely. Indicators related to animal health such as vaccination rates can be more predictable since they are more under the control of human managers and trends are easier to project and achieve.*

Historical and Projected Trends for 'KRI x': 'definition of indicator' *[Table Status as of 'd'/'m'/'y']*														
	Historical Performance Achievement (11th FYP period or longer if data are available)					Historical and Projected Performance Achievement (12th FYP)					Projections for indicator (KPI targets) under 13th FYP			
Calendar Year	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027
Targets related to 11th/12th/13th FYP														
Actual achieved by year														

In the above table as many reliable figures that are available from historical data are to be entered here. Preference should be given to published data that have been validated by statisticians/programmers familiar with RNR data sources. Projected targets are to be entered by a focal RNR technical person who is familiar with past trends, knows the resource area well, and can give realistic projected targets; this will avoid unnecessary changes in targets during MTR or annual reviews.

ANALYSIS OF INDICATOR BEHAVIOUR: *This section attempts to look at historical trends that have occurred, preferably over a period or 5 or 10 years. The trends whether positive or negative or with major deviations between years need to be explained in terms of the reasons behind the trends e.g. deviations due to natural hazards, accelerated positive trends due to extra resource inputs, declining trends due to poor adoption rates by farmers etc. This analysis should be carried out by the focal point person responsible for the RNR indicator; statisticians/programmers may not have the necessary technical skills to analyse the trend behaviour but they will be able to assess the quality of the data from enumeration, raw data, and processing points of view.*

OTHER RELATED INDICATORS: *Using the simplified name of the indicator as a basis there will be other related or linked indicators that may add 'information value' to the key indicator being tracked in this sheet. These related indicators may be more reliable and accurate and can act as proxies for the main indicator, if the main indicator source data is suspected to be unreliable for whatever reason.*

INSTITUTION RESPONSIBLE FOR INDICATOR: *This is the Department within the Ministry of Agriculture and Forestry responsible for the programme under which the indicator is being tracked/ measured.*

KEY PERSON RESPONSIBLE FOR INDICATOR MANAGEMENT: *This is the person responsible for the programme under which the main indicator is measuring the programmes results. The person is termed the 'RNR Indicator Focal Point'. The focal point will be responsible for ensuring that the Indicator Fiche for which he is responsible is up-dated regularly and reported to the Chief Policy and Planning at MOAF either in June for the end of the relevant financial year or in December for the end of the calendar year, up to the end of the current five year plan, which is June 2023 (for 12th FYP).*

METHODOLOGY FOR INDICATOR MANAGEMENT:

Stage in Data Management	*Description*
Data type selection	*(What are the data to be collected and their level of aggregation?)*
Data sources	*(What is the collection instrument?)*
Data collection (who is responsible for collecting)	*(Who is responsible for collecting; how and when is it collected?)*
Data processing	*(Who carries out data entry and data processing and how; what statistical formulae are used if any?)*
Data presentation (how)	*(How are data presented; in form of published statistics, internal Department database outputs etc.?)*
Data reporting (by whom to whom)	*(By whom to whom; and how if there is need for synchronisation between reporting periods and budget years?)*
Inputs required for data management	*(When and by whom and how much?)*
Cost of verification	*(Provide data on actual costs of verification if new resources are required; if costs are internalised within Department costs, then just say so)*
Data quality and projection risk assessment	*(Who provides the Quality Assessment (QA) for the data and how is this done. Estimate the potential risk(s) in achieving the projected targets and the reasons)*

ANY SUPPLEMENTARY INFORMATION:

Any additional supplementary material can be added the Indicator Fiche in the form of maps, other indicator statistics, photos, and case study reports related to the Simplified Indicator Name provided that it supports the trends in the indicator and its quality assessment.

5.5. ANNEX E: Development of the RNR Dashboard at MoAF

TABLE OF CONTENTS

LIST OF ABBREVIATIONS/ACRONYMS

RGoB	Royal Government of Bhutan
MoAF	Ministry of Agriculture and Forests
DAI	Development Alternatives Incorporation
BPV	Bhutan Philanthropy Ventures
FYP	Five Year Plan
FY	Fiscal Year
ARDC	Agriculture Research and Development Centre
ICT	Information and Communications Technology
MTR	Mid-term Review
GDC	Government Data Center
DITT	Department of Information Technology and Telecom
TWAN	Thimphu Wide Area Network
API	Application Program Interface
GIS	Geographic Information System
ID	Identity Document
CID	Citizen Identification
HTTP	Hypertext Transfer Protocol
SSL	Secure sockets layer
IP	Internet Protocol
ZF	Zend Framework
PHP	PHP: Hypertext Preprocessor
SQL	Structured Query Language
HTML	HyperText Markup Language
CSS	Cascading Style Sheet
JS	JavaScript

1. OUTLINE OF THE PROJECT

1.1. Relevant Background

During the 12th FYP for the RNR sector, monitoring and evaluation of programmes and projects are expected to be carried out in line with the Government Management Performance System (GPMS) with the signing of Annual Performance Agreements (APA) where agreed targets/indicators are tracked on an annual basis. In addition to these APA mandatory indicators defined by the Prime Minister's Office, each programme and projects has its own set of Key Result Indicators (KRI) developed through a results-based planning exercise and embedded into the Planning and Monitoring System (PlaMS) in the FYP, these are reported annually, however PlaMS as an online management system is not functional after 11th plan, it is more or less replaced by the GPMS.

Currently, PPD, MoAF is also using MoDA (Mobile Operational Data Acquisition), which is a data collection platform which allows to determine where and when to take actions, monitor performance, assess the results of interventions and improve for the future. MoDA system is very specific and focused on components of the programmes or projects. So, there was a requirement for an online dashboard for RNR sector which displays at a glance information about all the programmes and projects at MoAF.

DAI Belgium has been contracted by the European Union to implement a project in Bhutan titled: *Technical Assistance for Renewable Natural Resources and Climate Change Response and Local Governments and Decentralization* (EuropeAid/139521/DH/SER/BT). The project involves provision of long and short term local and international technical assistance to the RGoB and other non-state stakeholders to contribute to national development objectives. So, as part of the project component, Athang IC Tech, Athang Private Limited was selected after competitive selection process to carry out Development of M&E System and an Online Digital Dashboard for RNR Sector Programmes and Projects at MoAF.

There are two objectives of this project, which are as follows: **Part A**: Development of Monitoring and Evaluation Framework and System for RNR Programmes, (including Flagship Programmes) and projects at MoAF and **Part B**: Design and Establishment of an Online Dashboard for Programmes and Projects at MoAF. This report is basically for Part B of the project.

The main objective of Part B of this project it to *"Design and establish an on-line dashboard that captures key indicators for RNR sector programmes and projects that will enable information/statistics on historical, current and future projections of key result indicators to be tracked on real time basis in the form of charts, tables and text etc."*

The dashboard shall be accessible in the MoAF website and initially maintained by the focal persons in PPD, MoAF for data management and monitoring project activities, with technical support from ICTD. This system will facilitate better reporting and resource sharing. The usage of this system will also be provisioned to cover other agencies involved in RNR sector.

1.2. Scope of Work

The scope of work for development of Online Dashboard for RNR programmes and projects at MoAF, salient features and required services of the dashboard system are as follows:

i. A programme and Project Monitoring Dashboard in a new visually enhanced presentation format is established online to provide a better experience for project/program monitoring.

ii. Following contents are developed on the Dashboard:

   a. Summary list of all projects under MoAF (implementing agency, donor's information, project period, project fund size, activities, status, expenditure status with KRI statistics, charts, maps and photographs to enhance the visual content).

   b. Agency wise programme and project details (project fund size, activities status, expenditure status with KRI statistics, charts, maps and photographs to enhance the visual content).

iii. Develop a user manual and deliver a webinar for the support staff and system administrators.

iv. Source code handover where full source codes including all developed libraries shall be handed over MoAF.

1.3. Expected Outputs

The expected outputs of RNR programmes and projects dashboard on the MoAF website are as follows:

i. Collect data from PPD and relevant agency on programmes and projects in three categories: (a) on-going, (b) completed within the 11th and 12th five-year plans, and (c) currently in the pipeline with committed funding.

ii. Design the Projects' Monitoring Dashboard for insertion in the MoAF website. Dashboards contain key data sources, data visualizations, filters for exploring data sets, key performance indicators (KPIs), and navigation menus to allow users to move from dashboard to dashboard.

iii. Ensure that the following functionalities are included: (a) comment and feedback links to each project; (b) social media sharing features; (c) search function by project name, types of activities, key words, donors; (d) print out and download features; (e) sign-up features, user rights and, password protected pages.

iv. Add content, together with staff at the ICTD in MoAF, for all on-going projects and a sample of completed and pipeline projects to enable PPD and platform managers to continue content entry in future.

v. Prepare a Dashboard User Manual.

vi. Train PPD, and ICTD staff in managing the dashboard.

2. PROJECT IMPLEMENTATION APPROACH

2.1. Documents Review and Stakeholders' Consultation

For analysis and design of the RNR Dashboard System, following activities were conducted:

1. **Document Study:** This activity entails review of available documents related to RNR sector. One of the initial study was **Twelfth Five-Year Plan 2018-2023, Renewable Natural Resources Sector, PPD, MoAF**. Keeping this document as the basis for study, we also studied **Annual Work Plan 2022-2023, MoAF** and **Profiles of the Ongoing Projects in the RNR Sector, PPD, MoAF, April, 2022**.
   Along with these documents provided by PPD, we also referred the User Manual of **Government Performance Management System (GPMS)** for better understanding the process and procedures of monitoring and evaluation. We also referred PlaMS user manual to understand the past programmes and projects, though the system has not been functional since 11th Five Year Plan and is more or less replaced by GPMS.

   For quick reference on the organogram of Ministry and programmes and projects implementation arrangements we referred the ministry's website. For initial design idea of dashboard, we took **Dewa** website as a sample. For details on Flagship programmes we referred **GNHC** and **PMO** website.

   Our guideline for the study and understanding of the conceptual idea of RNR dashboard came from the Terms of Reference of this project itself. We also tried to embed ideas and recommendations from the Research Study on Development of M&E system for programmes and projects at MoAF, which is Objective A of this same project.

2. **Stakeholder Consultation:** Stakeholder consultation to understand the current practices especially the challenges in the ministry for collecting data for monitoring. Consultations also allowed us to understand the required services, features and tools in RNR Dashboard. Following were the main stakeholder consultations:

Stakeholder	Expectation
Policy and Planning Division (PPD) Ministry of Agriculture and Forests	□ AS-IN Data Collection practices. □ Current issues and challenges. □ Clear understanding on Terms of Reference. □ Expectations from the RNR Dashboard system. □ Monitoring and Evaluation strategies. Project Implementation and Implementation Arrangements. □ Clear understanding on the 12th Five Year Plan and 7 programmes of RNR sector. □ Clear understanding on Annual Work Plan and Budgeting. □ Clear understanding on Result Framework Matrix.

	☐ Clear understanding of Crosscutting projects and Agency wise distribution of projects.
DAI Belgium, EU, EU-TACS (Experienced Key Expert in RNR Sector)	☐ Experience and practices ☐ Issues and challenges. ☐ Understanding higher level indicators (Outcome and Impact Indicators). ☐ Recommendation on continuity of the Dashboard. ☐ Expectation from the Research Study.
Information, Communication and Technology Division (ICTD) Ministry of Agriculture and Forests	☐ Understand the production environment for RNR Dashboard. ☐ Other data management system or dashboard system used, if any. ☐ Technical issues and challenges ☐ Ideas on resolving the common technical issues and challenges.

Apart from these mention stakeholders, we also had few brief consultations with Departments, Non-Department agencies and project management units like FSAPP regarding the Annual Work Plan and the Result Framework Matrix of the projects.

Document study and stakeholder consultation allowed us to conduct diagnostics of the existing situation and clear understanding of required services. This allowed us to have clear picture and understanding of the technical and functional requirements of the dashboard system, specified in Terms of Reference.

2.2. Implementation of RNR Dashboard

The RNR Dashboard system is designed and developed using agile methodology called **SCRUM** framework which is used in the development of software based on an iterative and incremental processes. The primary objective of Scrum is to satisfy the customer's need through an environment of transparency in communication, collective responsibility and continuous progress.

The Scrum team consists of the following roles:	
	Product Owner: is the representative of the stakeholders and is responsible for communicating the vision of the product to the development team. (System Analyst will act as product owner)
	Scrum Master: is the person who leads the team guiding them to comply with the rules and processes of the methodology and manages the reduction of impediments of the project and works with the product owner to maximize the ROI. (Project Manager will act as scrum master)

	Team Member: A group of professionals with the necessary technical knowledge who develop the project jointly carrying out the stories they commit to at the start of each sprint. A typical team includes a mix of software engineers, programmers, analysts, QA experts, testers, and UI designers.

Team building is a project focused process that builds and develops shared goals, interdenpendence, trust, commitment and accountability amoung team members.

Based on the Scrum methodology, the project team structure of RNR Dashboard system is as follows:
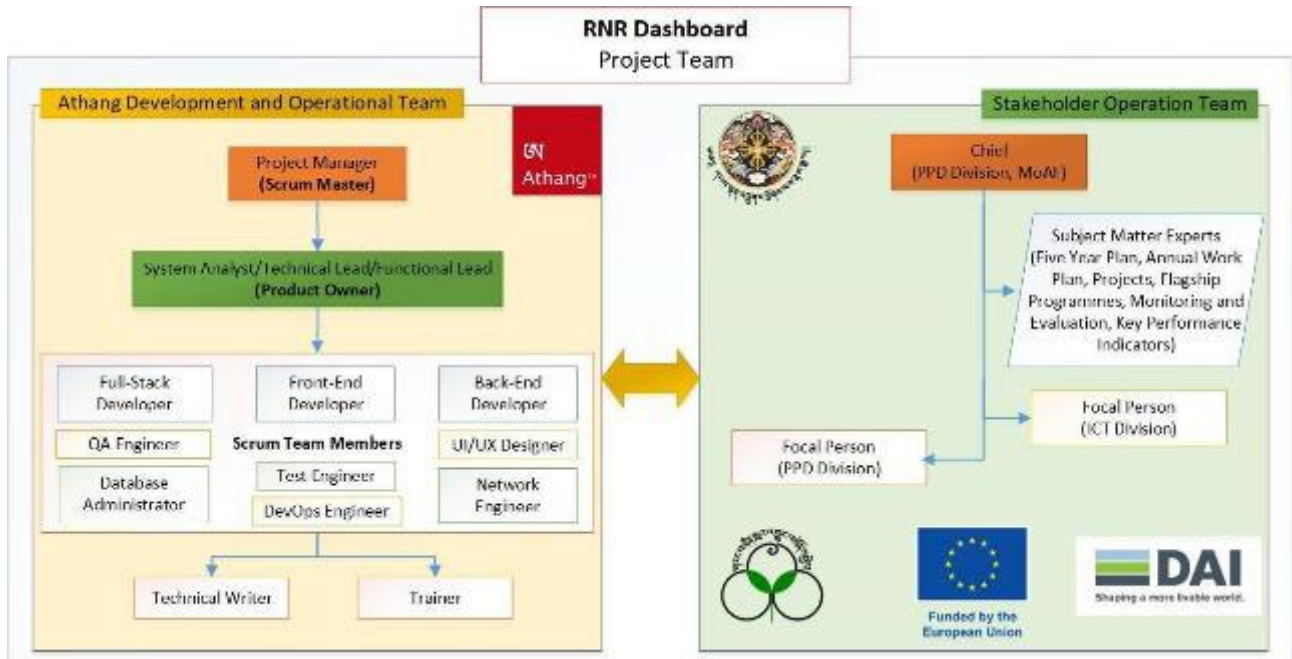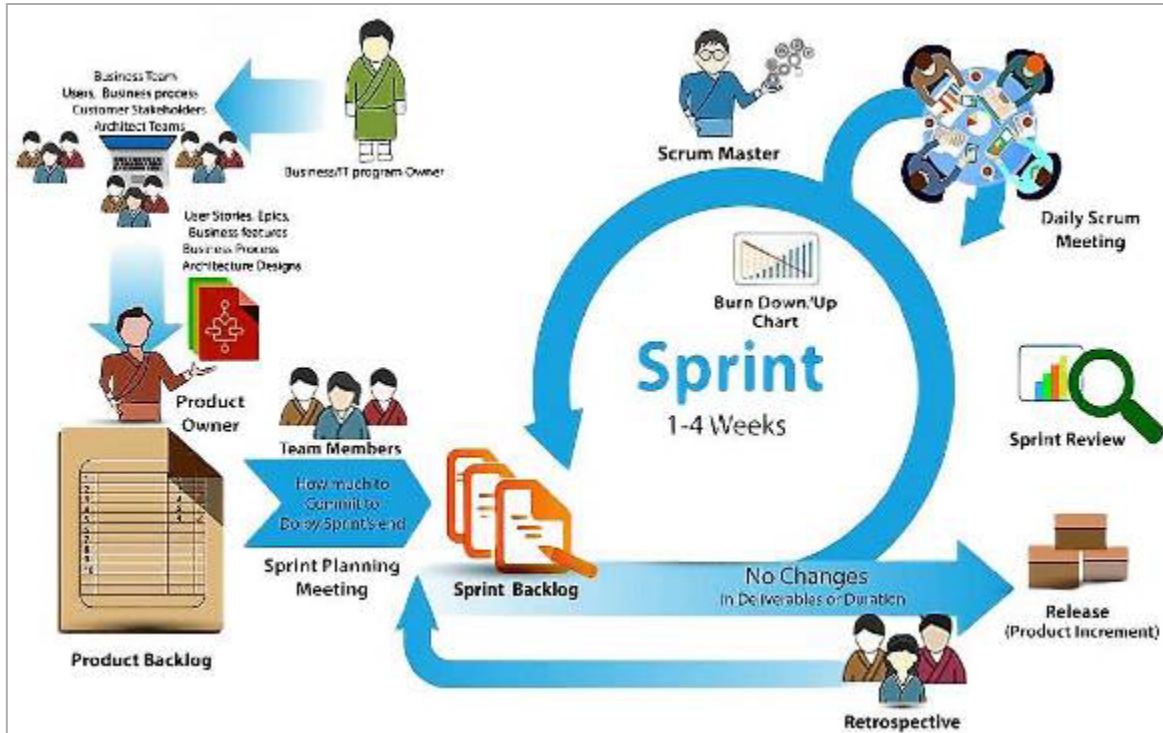
Events in Scrum
Sprint: is the basic unit of work for a scrum team.
Sprint Planning: defines what is going to be done in the sprint and how it is going to be done.
Daily Scrum: is a brief meeting that takes place daily during the sprint period, to evaluate the progress and trend until the end of the sprint, synchronizing the activities and creating a plan for the next 24 hours.
Sprint Review: is to show what work has been completed with regards to the product backlog for future deliveries.
Sprint Retrospective: the team reviews the completed goals of the finished sprint, write down the good and the bad, so as not to repeat the mistakes again. The goal is to identify possible process improvements and generate a plan to implement them in the next sprint

Scrum Artifacts
Product Backlog: is a list that collects everything the product needs to satisfy the potential customers. It is prepared by the product owner and the functions are prioritized according to what is more and less important for the business.
Sprint Backlog: is a subset of items of the product backlog, which are selected by the team to perform during the sprint on which they are going to work.
Increment: is the sum of all the tasks, use cases, user stories, product backlogs and any element that was developed during the sprint and that will be made available to the end user to use.

Product Backlog will basically consist of required services mentioned the terms of reference and tasks planned after requirement study and stakeholder consultations. The product backlog will also include the configuration of technological stack and production environment. These product backlog list will be used for sprint planning and further executed accordingly.

2.3. Project Activity Plan

Project Start Date: 15th September 2021.
Project Duration: 2 Months

SN	Activities	Description
Completed Activities		
1.	Documents Review and Multiple Stakeholder Consultation	• Study of 12th Five-Year Plan 2018-2023, RNR Sector, PPD, MoAF, RGoB • Study of Annual Work Plan 2022-2023 • Study of Profiles of the Ongoing Projects in the RNR Sector, PPD, MoAF, 2022 • Consultation with PPD • Study of materials provided during consultation • Study of 12th Five-Year Plan midterm review • Study of Annual Work Plan • Study of crosscutting projects and agency wise distribution of projects.
2.	Setup Developmental Environment	• Installation of Apache Webserver • Installation of PHP v7.4 • Installation of MariaDB database • Configuration of Webserver to host Laminas MVC (previously known as Zend Framework) • Configuration of MariaDB database to use SQLYOG as client
3.	Prototype 1: Design of UI/UX of RNR Dashboard	• Design UI, taking consideration of user requirements and ease of feature availability in the core layout of the system. • Development of User Interface (CSS and JS) • Integrating necessary libraries like Bootstrap, JQuery, leaflet.js, canvas.js, etc.

4.	Prototype 2: Administrative Modules and Functionalities	☐ Development of Administrative modules and functionalities like: 1. Authentication 2. Access Control List 3. Administration (For Organigram of the system and Master tables)
5.	Categorization of Required Services	☐ The required services and functional requirements categorized into 3 modules: 1. Five-Year Plan 2. Annual Work Plan 3. Projects
7.	Prototype 3: Development of Functional Modules	☐ Development of Functional module and services: 1. Five Year Plan 2. Annual Work Plan 3. Projects

		4. Reports (Dashboard and Customized Reports)
8.	Presentation of Prototype 3	☐ Progress meeting and presentation of 3rd prototype of RNR Dashboard
9.	Data Migration/Sample Data Entry from existing documents	• Data Entry for 12th Five Year Plan • Data Entry of 2022-2023 Annual Work Plan • Data Entry of Ongoing projects in RNR Sector • Data Entry of Flagship programmes
10.	User Manual	☐ Develop User Manual
In Progress		
1.	Setup Production Environment	☐ Setup Production Environment as per the suggestions of PPD
2.	Deployment in Production Environment	☐ Deploy the RNR Dashboard system in production environment
3.	Presentation and Quality Assurance of Final Prototype	☐ Final Presentation and Quality Assurance
4.	Submission of Final Report	☐ Submit Final Report to PPD
Further Planned Activities		
1.	Help and Support	☐ Support in Further Capacity Building and Technical glitches in RNR Dashboard.

3. DASHBOARD ARCHITECTURE AND TECHNOLOGY

3.1. Core Architecture

For the purpose of monitoring dashboard, the data of five year plan, annual work plan, list of projects and programmes including flagship programmes is being collected from all the implementing agencies of RNR sector at MoAF. So, one of the main reason for developing the dashboard is collaboration and resource sharing in a common platform with standard forms to avoid data discrepancy and ease of generating reports.

Considering the requirements of dashboard and the current resources available, the RNR Dashboard System is built with Web Based Architecture. Following diagram best illustrates the **Web Based Architecture** of RNR dashboard in production environment and dashboard system access from different web browsers for clients:
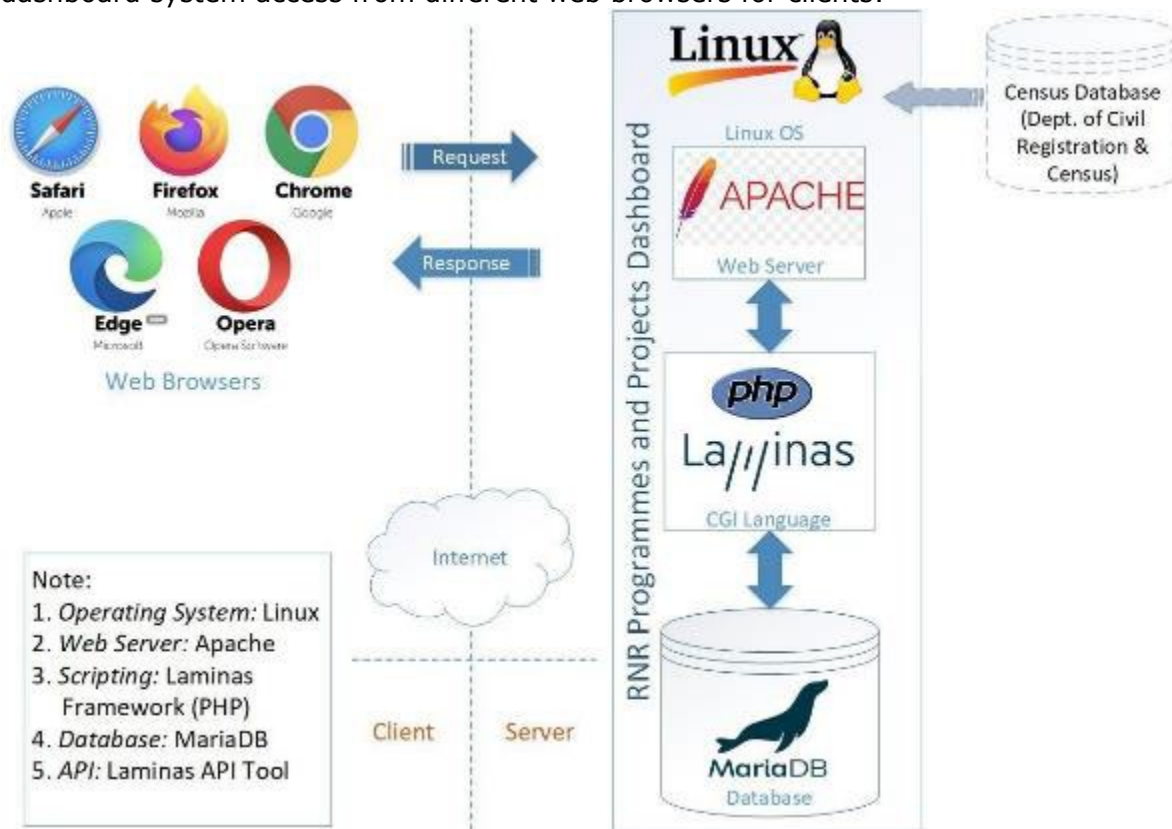
With web applications, we have the server and the client side. In essence, there are two programs running concurrently:
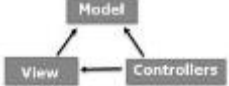
- The code which lives in the browser and responds to user input.
- The code which lives on the server and responds to HTTP requests.

Depending on the total number of servers and databases used in a web application, the model of a web app is decided, so for RNR Dashboard System, the model is **One Web Server, One Database**.

The RNR-Dashboard will also have provisions to consume census database to validate user details in user management.

3.2. Technology Stack

We will be using open source software to develop the web base application and deploy it on Linux environment. Open source software are open for anyone to understand, extend or improve and it's free!

SL	Components	Technology/Software	Trademark
1	Operating Server	Ubuntu 20.04.3 LTS (Focal Fossa)	
2	Web Server	Apache 2.4.48	
3	Database	MariaDB v10.4.1	
4	Programming Language	PHP 8.0.7	
5	Web Framework	Model-View-Controller (MVC)	
6	Framework Application	Laminas MVC	
7	Web Technologies	HTML5, CSS3, JS	
8	Front-End Technologies	Customized Admin Template v2.5.5, Bootstrap v4.6	
9	JavaScript Libraries	jQuery v3.6.0, Form Validator v1.9.0	
10	Charts and Graphs Libraries	Canvas.js v2.3.2 GA	
11	Interactive Map Libraries	Leaf.js v1.7.1	
12	Interactive Table	DataTables.js	
13	Print	TCPDF	
14	Code Editor	Visual Studio Code v1.61.0	

15	Database GUI Client	SQLyog v13.1.1	
16	SSH File Transfer Protocol	WinSCP v5.19.3	

3.3. Deployment Environment

In the absence of production server allocated for RNR-Dashboard system, we are using Oracle
Cloud Infrastructure for hosting the system. The final production server for the RNRDashboard system will be decided as per the decision of PPD but these are few recommendations best suited for PPD, MoAF:

i. Ministry's In-house server: hosting can be done in Ministry of Agriculture and Forest's server room, which will have advantage in routing for users in the ministry and the maintenance has to be carried out by IT team in the ministry.

ii. Government Data Center: DITT provides hosting in Government Data Center for systems which is maintained by ministries or autonomous. So, PPD, MoAF can also available for virtual machine to host the system in Government Data Center. The advantage of hosting in Government Data Center is Thimphu WAN connection. iii. Oracle Cloud Infrastructure: Athang IC Tech is partnered with Oracle Cloud Infrastructure, so, PPD, MoAF can avail Athang's Oracle Services for hosting and maintaining the system. The advantage is that the system security and maintenance can be out sourced to Athang with proper data integrity pact and system security pact.

Link of RNR Dashboard in MoAF Website

Direct Access to RNR Dashboard (With Domain Name or Sub-Domain Name)

Domain Name Server (DNS) Bhutan Telecom

Data Center

RNR DASHBOARD SYSTEM
(dashboard.moaf.gov.bt)

RNR Dashboard (with domain or sub-domain)
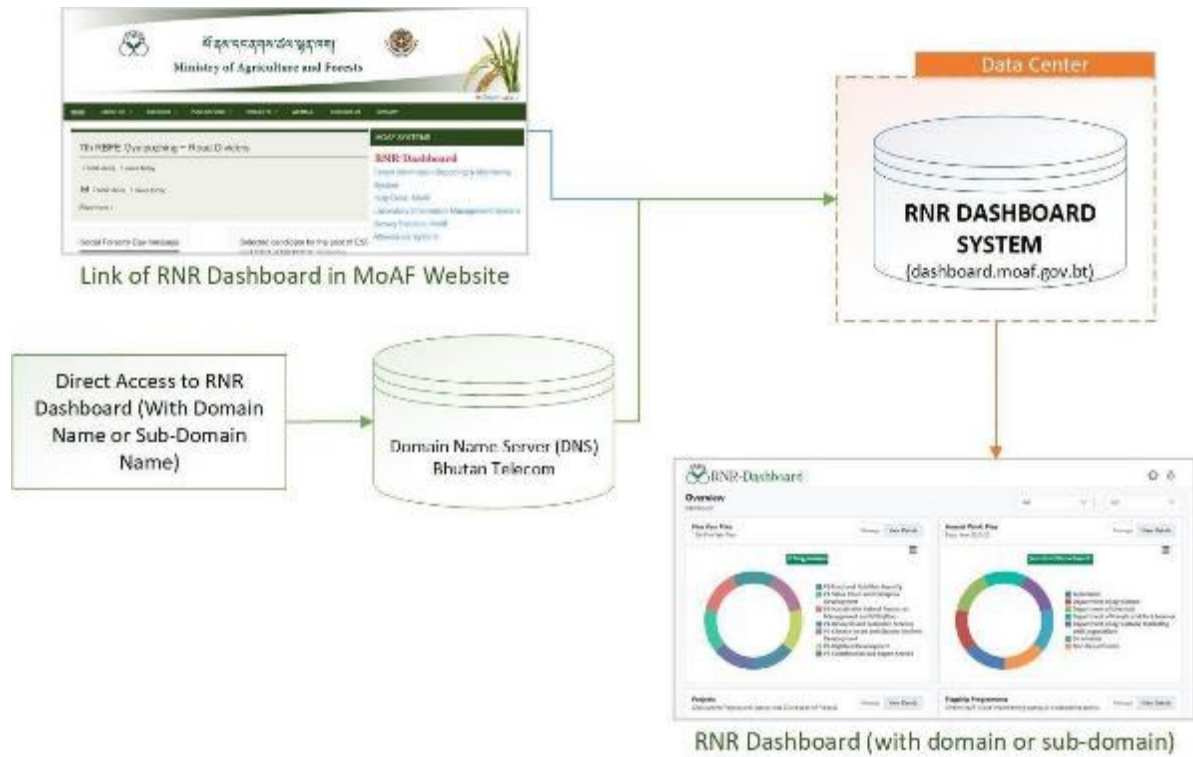
We will use the **latest stable release of Apache HTTP Server version 2.4.48** as web server which was released on 1st June 2021 and **latest stable release PHP version 8.0.7** which was released on 3rd June 2021. The database planned to be used is **MariaDB version 10.4**

4. FUNCTIONAL WORK FLOW

4.1. Approach of RNR Dashboard System

The basic concept of RNR Dashboard system is to have **four quadrant** reporting dashboard for policy makers for informed decision making and to measure the degree to which RNR sector programmes and projects is implemented as planned and how successfully it has achieved its intended results.

1. FIVE YEAR PLAN

12th Five-Year Plan 2018-2023 (Current FYP)

- Programmes
- Outcome and Output Indicators
- Programme Result Matrix
- Programme Activities
- Reports

Create and Manage New Five Year Plan

Archived repository of Past Five Year Plan

Create and Manage Current Five Year Plan (Programmes, Outcome, Output, Activities and Result Matrix)

Past Records

2. Annual Work Plan

Fiscal Year: 2022-23 (Current FY)

- Department/Division/Agency Wise
- Expected Output (Indicator and Target)
- Activities to achieve expected output
- Reports

Create and Manage New Fiscal Work Plan

Archived repository of Past Fiscal Year Plan

Create and Manage Current Fiscal Year AnnualWork Plan (Agency wise Expected Output, Activities)

Past Records

3. Projects

Ongoing Projects: 2022-23 (Current FY)

- Crosscutting Projects
- Agency wise Distribution of Projects
- Funding Agency and Budget
- Project Duration

Create and Manage New Projects

Archived repository of Completed Projects

Create and Manage Project Profile (Funding agency, Budget, duration, objectives, expected outcomes)

Completed Projects

4. Flagship Programmes

Ongoing Flagship Programmes: 2022-23

- Flagship Programmes where MoAF is lead implementing agency or collaborating agency
- Objectives of Programme
- Budget

Create and Manage New Programme

Archived repository of Completed Projects

Create and Manage Flagship Programmes (Budget, Objectives, expected outcomes and results)

Completed Projects

Now, considering the requirements mentioned in the terms of reference, stakeholder consultations and desk reviews, following are the services identified for **Managing RNR Dashboard** system:

Service 1:	**Five Year Plan e-Year Plan Management**: Here we will handle the entry of progressing five year n details like start date and end date. The past five-year plan will be entered as mpleted, the current five-year plan will be entered as Confirmed and the upcoming -year plan will be entered as initiated. Basically the Five year plan data will have ee statuses that are Initiated, Confirm and Completed.
• Fiv pla Co five thr	**gramme Management**: Based on the principles of coordination, consolidation collaboration, the RNR sector had identified and developed seven rogrammes for 12ᵗʰ Fiver year plan. These programmes are cross sectorial n nature a can be erpreted as a group of independent activities that needs
• Pr an the int the pro	o be implemented to realize sector's goal and AKRAs. So, every five-year lan can have their own set of grammes which can be same or different om previous five-year plan.
• Ou def	**tcome Management**: Further the programmes will have their own outcomes ned. **tput Management**: The outcomes are sub-divided into multiple outputs.
• Ou	**gramme Result Matrix (Outcome)**: The outcomes will have key performance
• Pr ind	cators which will be reviewed to monitor if the outcome is achieved or not. **gramme Result Matrix (Output)**: The defined outputs under outcomes, will also
• Pr ha	e indicators which shall be reviewed to monitor if the output is achived.
• Pr mo	**gramme Activity**: The planned activities will also be proposed under Outputs o nitor if the activity is on track or at risk.
Service 2:	**Annual Work Plan**

gencies under the RNR sector submits Annual Work Plan to PPD for review. inates with Finance Division during the preparation of plan budget and he progress data of the ministry. Some Departments submits Departmental plan which includes the annual work plan of all the divisions under the t and in some departments, the annual work plan submitted is division plans.

al Year Management: The process of Annual Work Plan will start with eration of Fiscal Year. So the users of agencies submitting the work plans have the location assigned for submission of work plan. So, the work plan be as per the fiscal year and the location, where location can be a artment, division or any other no departmental agencies.

rk Plan: The work plan date, fiscal year, location, etc. will be the initial ut for creating a work plan. A work plan code will be auto generated as per fiscal year and location.

ected Output: Within the work plan, we will have to define expected output.

ivity: Now, we should be able to enter multiple activities under the ected output.

- **Indicator & Target**: On the defined expected output and each activity, we will have to set indicator and target to be achieved by the end of the fiscal year.
- We will also have to enter in which quarter of the fiscal year, the activity will be implemented, responsible agency, the source of fund, the budget amount, etc.
- After the work plan has been confirmed, PPD can also review each and every activities proposed and planned in the work plan.

Service 3:	Projects

• (and • of •	Basically the projects are of two types, i.e. **Crosscutting projects** like Bhutan For Life BFL), Food Security and Agriculture Productivity Project (FSAPP), etc. and **Agencywise Distribution of Projects** like Conservation of Black-necked Crane for Chumey Tang, Bumthang. Some of the main inputs to be captured for the projects are Funding Agency, Implementing Agency, Project Duration, Area Coverage, Target Beneficiaries, Budget, Objectives, Expected Outcomes, etc. We are actually maintaining the profiles all the projects that are being implemented in RNR sector, past projects and also upcoming projects. Even the **Flagship Programmes** are captured within this same service. We had discussions with PPD and it was concluded that the inputs and details captured for Flagship Programmes will more or less be same as Projects. And it was also uncertain if there will be any Flagship Programmes in the next five-year plan. So, in the RNR Dashboard Management, we will have to capture the details of Flagship Programmes in the Project Management Service itself. However in the Reporting Dashboard, we will be having a separate Quadrant panel for Flagship Programmes, given the priority and importance of these programmes.

Now that the services are defined, one of the main requirement becomes **data migration** from available documents to MariaDB, specially the 12th Five Year Plan, Recent Annual Work Plan and also the Profiles of the Ongoing Projects in the RNR Sector. These data has to be captured as an initial records to be portrayed in RNR dashboard, to have the actual look and feel of the RNR dashboard which is being developed.

So, we will be testing the following data entry:

1. Ongoing programmes and projects
2. Completed programmes and projects
3. Upcoming programmes and projects (currently pipeline with committed funding)

4.2. Work Flow of Services

Following diagram illustrates the strategic work flow of monitoring and evaluation framework of RNR sector. The National Key Result Areas (NKRAs) are aligned to Sustainable Development Goals (SDGs) and National Key Result Areas are further divided into Agency Key Result Areas. For RNR sector, there are 9 AKRAs which are all link with 7 Programmes of the Ministry.
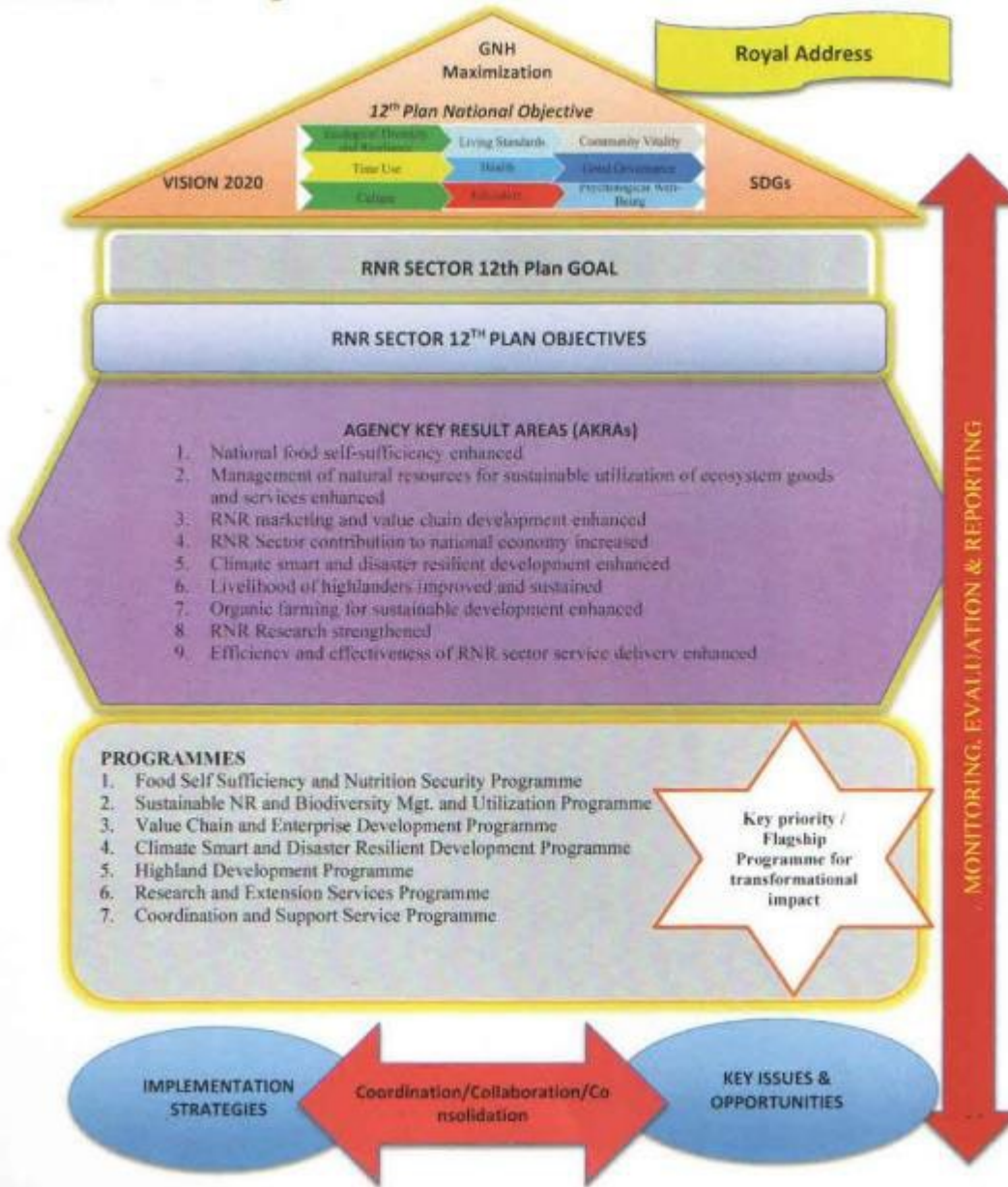
For 12th Five-Year Plan, there are 7 Programmes in RNR Sector which are identified and derived from the AKRAs. However, the number of programmes will vary in different FiveYear Plan. Few of the programmes might repeat or new programmes might come in the upcoming Five-Year Plans. So, the system has the provision to define Programmes as per the registered Five-Year Plan. The system captures the data of monitoring and evaluation framework, starting from the programmes. Along with Five Year Plan, the dashboard system will capture the Annual Work Plan of each agency and profiles of projects and flagship programmes.

1.   **Flow 1: Five-Year Plan**

We register or create a new Five-Year Plan with start date and end date. Then we define the programmes under the newly created Five Year Plan. Following diagram depicts the 7 programmes in 12th Five-Year Plan:

Programme Result Matrix: The **Outcomes** are defined under different programmes and each programme can have multiple outcomes. To achieve the defined outcomes, the outcomes will also have short-term developmental results, i.e. **Outputs**. Both outcomes and outputs will have indicators and planned targets.

Table 22: MoAF/02 – Programme Result Matrix

[No. of Outcome: 2; No. of Outputs: 6; No of activities: 45]

Results (Outcome)	Indicator	Indicator Unit	Baseline (year)	Projected Annual Target					Plan Target
				2018-19	2019-20	2020-21	2021-22	2022-23	
Outcome 1.RNR Marketing & Value Chain Enhanced	Commodity value chain for RNR products established	Number	6	1	2	2	2	2	15
	Volume of RNR products traded domestically	MT	24612	26621	27686	28793	29945	32388	32388
	RNR-based enterprises established (Agriculture, Livestock, Forestry)	Number	n/a	4	4	4	4	4	20
Outcome 2. Increased RNR Sector Contribution to National Economy	RNR sector contribution to national GDP	Nu. Mil	22008 (2016)	23700	25400	27100	28800	30900	30900
	Annual RNR Sector growth rate	Percentage	2.9 (Avg. 2013-,15)	3	3.1	3.5	3.5	4	4
	Annual export of RNR products	Nu in Mn.	2132 (2016)	2390	2520	2660	2790	3050	3050
	Increased productive and gainful employment generated in RNR Sector	Number	3906 (2016)	4400	4900	5400	5900	6600	6600

Results (Output)	Indicator	Indicator Unit	Baseline (Year)	Projected Annual Target					Plan Target
				2018-19	2019-20	2020-21	2021-22	2022-23	
Output 1.1. Commodity Value Chain for RNR Products Established	Formalize Dairy Value Chains	Number	n/a (2016)	0	2	3	2	2	9
	Formalize Egg Value Chain	Number	n/a (2016)	0	0	4	0	0	4
	Formalize Meat Value Chain	Number	n/a (2016)	0	2	2	2	0	6
	Formalize Honey Value Chain	Number	n/a (2016)	0	1	1	0	0	2
	Agriculture Product Value Chain	Number	6	1	1	1	1	1	11
Output 1.2. Increased Domestic Trade of RNR Produce	RNR products traded domestically	MT	24612	26621	27686	28793	29945	32388	32388

Programme Activities: To mobilize the inputs to produce specific outputs, the activities are defined for action taken or work performed to achieve the defined outputs. For every outputs, there will single or multiple activities defined.

RNR-Dashboard
User Manual v1.0

Table 23: MoAF/02 - Programme Activities

Programme Output	Program Activities	Lead Implementing Agency	Collaborating Agency	Plan Outlay in Nu (M) Capital			Priority (High/Medium)
				Priority 1 Activities	Priority 2 Activities	Total	
Output 1.1. Commodity Value Chain for RNR Produce Established	Establish Value Chain for selected commodities	DAMC	DoA/DoL/DoFPS/ Dzongkhags	10		10	High
	Capacity building of value chain actors/ facilitators (90 individuals-post harvest handling, certification etc.)	DAMC	DoL/DoA/DoFPS/RDTC	1		1	High
	Support quality standards formulation and compliance to the standards.	DAMC	DoL/DoA/DoFPS/BAFRA	1		1	High
	Develop Value Chain for prioritized commodities	DoA	DAMC/FMCL		10	10	Medium
	Improve commodity value chain of potato, cardamom, citrus, ginger, areca nut and maize	DoA	DAMC/ARDCs		15	15	Medium
Output 1.2 Increased Domestic Trade of RNR Produce	Establish market linkages (East-West & North-South and facilitation of auction)	DAMC	DoA/DoL/DoFPs/ Dzongkhags	10		10	High
	Develop strategy for domestic trading	DAMC	DoA/DoL/DoFPs/ Dzongkhags	10		10	High
	Buy-back of priority commodities in times of market distress	DAMC	DoA/DoL/DoFPs/ Dzongkhags	5		5	High
	Product Enhancement and Promotion	DAMC	DoA/DoL/DoFPs/ Dzongkhags	5		5	High

Following is the actual monitoring and evaluation matrix on the defined programmes, outcomes, outputs and the indicators defined under outcomes and outputs. As per the achievement of each indicators with regards to their target and implementation plan, it will be reviewed as **Achieved**, **On-Track** or **At-Risk**, followed by remarks. Remarks can be proper write up on major activities, issues and recommendations.

Table 34: MoAF/04 - Monitoring and Evaluation Matrix

Results (Outcome)	Indicator	Unit	Baseline (year)	12 FYP Target	Data Source	Reporting Frequency	Reporting Responsibility
Outcome 1: RNR Research Services Strengthened	Policy research on RNR sector	Number	2015	13	RNR Annual Reports/ GPMS Report	Annually	PPD, MoAF
	RNR technologies adoption	Number	2015	200	RNR Annual Reports/ GPMS Report	Annually	DoA
	RNR research conducted	Number	n/a	427	RNR Annual Reports/ GPMS Report	Annually	DoA

Results (Output)	Indicator	Unit	Baseline (year)	12 FYP Target	Data Source	Reporting Frequency	Reporting Responsibility
Output 1.1. Policy Research Enhanced	Agriculture policy research	Number	0 (2016)	6	DoA/RNR Annual reports/ GPMS reports	Annually	PPD; MoAF
	Forestry policy research	Number	0 (2016)	3	DoA/RNR Annual reports/ GPMS reports	Annually	PPD; MoAF
	Biodiversity policy research	Number	0 (2016)	3	DoA/RNR Annual reports/ GPMS reports	Annually	PPD; MoAF
	Livestock policy research	Number	0 (2016)	1	DoA/RNR Annual reports/ GPMS reports	Annually	PPD; MoAF
Output 1.2. Enhanced Generation of RNR Technologies	Agriculture production research	Number	307 (2016)	427	DoA/RNR Annual reports/ GPMS reports	Annually	DoA
	Livestock production research	Number	2016	85	DoA/RNR Annual reports/ GPMS reports	Annually	DoL
	Forest technology research	Number	n/a (2016)	10	DoFPS Reports	Annually	DoFPS
	Agriculture post-production research	Number	2016		DoA/RNR Annual reports/ GPMS reports	Annually	DoA
	Livestock post-production research	Number	2016	5	DoA/RNR Annual reports/ GPMS reports	Annually	DoL

2. **Flow 2: Annual Work Plan**

The Annual Work Plan can be submitted Department wise and also Division wise. Some of the agencies submits their work plan in department level and others submit in division level. Other non-departments also submit their work plan similar to departments and divisions. So, we have created location access in the dashboard system, which is used to submit the work plan as per the location and can further be applied to project level work plans. Following is the sample of annual work plan proposed by one of the divisions:

EXPECTED CP OUTPUTS and indicators including annual targets	PLANNED ACTIVITIES *List all activities including M&E to be undertaken during the year towards stated CP outputs*	TIMEFRAME				RESPONSIBLE	PLANNED BUDGET		
		Q1	Q2	Q3	Q4		Source of Funding	Budget Description	Amount (Nu.M)
Facilitate certification, technical clearances and accessibility of agriculture inputs	Formulation of Annual Work Plan for commodity programs & APA					APD	NA	NA	0
	Formulation of annual budget proposal for commodity programs					APD	NA	NA	0
	Coordinate Annual Regional Review and Planning Meeting					APD	NA	NA	0
	Compile, review and submitted Annual Research and Development Highlights of Commodity Program.					APD	NA	NA	0

The annual work plan will be captured with following details like:

•   Fiscal year and location of the work plan
•   Expected CP Outputs
•   Indicators and Target
•   Planned Activities
•   Implementation Timeframe (Quarter wise)
•   Responsible agency
•   Planned Budget (Source of funding, budget description and amount)

As of now, the work plan is recorded by single user but there are provisions in the system where every focal persons of the department or division can submit their annual work plan where PPD can review and approve the annual work plan.

3. **Flow 3: Projects**

The projects are categorized into Crosscutting Project and Agency wise Distribution of Projects. And we also manage the flagship programmes in the same work flow by setting the input "Flagship Programee" to YES and for other projects, this input will be No by default.

Some of details captured for project and flagship programmes are as follows:

•   Project Name
•   Funding Agency, Funding Type (Loan/Grants)
•   Implementing agency and implementing partners/collabortors
•   Project Duration (Start Date/End Date), Area coverage and Target Beneficiarites

- Project Contact point/Focal
- Budget (Overall Budget and Available Budget)
- Rationale & short description of the projects
- Objectives
- Components
- Expected Outcomes/Results

Following is the sample of project profile:

Project Name	Bhutan for Life (BFL)	
Funding Agency	Multi-Party (WWF, GCF, BTFEC, RGoB and Pvt.)	
Funding Type (Loan/Grant)	Grant	
Implementing agency	Ministry of Agriculture and Forests	
Implementing partners/collaborators	DoFPS, NCD and PAs	
Project Duration:	14 years	Start Date: July, 2018 End Date: June: 2032
Area coverage	All the PAs/ BC and Royal Botanical Park	
Target Beneficiaries	All the PAs/ BC and Royal Botanical Park (35,000 People living within PAs and over 110,000 people living close to PAs)	
Project Contact point/Focal	Project Director Bhutan For Life (BFL) Ministry of Agriculture and Forests Thimphu	

Budget (US$/Nu. million):
    Overall Budget:
    Available Budget:
	
	Nu. 3600 mn
	Nu. 3212 mn	

Rationale & short description of project (~300words)	1. Help achieve Aichi targets and objectives of United Nations Convention on Biological Diversity; 2. Support Bhutan's commitment to remain carbon neutral under the United Nations Framework Convention on Climate Change;	
Objectives	Ensure a robust network of protected areas and biological corridors in Bhutan	
Components	• A sanctuary for the diversity and persistence of life • A Provider of sustainable, resilient ecosystem goods and services	
Expected Outcomes/Results	• Tiger population increased by 20% over 2015 levels	

Following is the expected summary report of all the projected in RNR sector.

Sl. No.	Project	Total Fund (in Mn Nu)	Fund Balance (in Mn Nu)	Lead Implementing Agency/ PMU	Donor	Timeline
	1. Cross-Cutting Projects					
1.	Bhutan for Life (BFL)	3600	3212	NCD, MoAF	Multi-Party (WWF, GCF, BTFEC, RGoB and Pvt)	July, 2018 – June, 2032
2.	Rural Development and Climate Change Response Programme (RDCCRP)	1569.5	55	Secretariat, MoAF	EU	March ,2017 – June, 2022
3.	GEF-LDCF (NAPA-III)	768	60.456	GNHCS-UNDP	GEF-LDCF	December, 2017 – July, 2023
4.	Supporting Climate Resilience and Transformational Change in the Agriculture Sector in Bhutan - Green Climate Fund (GCF).	1289.82	628.51	GNHCS-UNDP	GCF	January, 2020 – December, 2025
5.	AFACI Support to Agriculture Development in Bhutan	26	4.5	Secretariat, MoAF	AFACI, Republic of Korea	

4. **Reports**

Following are the types of report that shall be generated in the RNR Dashboard System:

1.   Tabular Reports based on parameters.
2.   Graphical Reports (Dashboard Reporting and Analysis Reports) with charts and graphs.

Some of the expected reports are:

•   Programme Outcome Report
•   Programme Output Report
•   Programme Activity Report
•   Annual Work Plan Report
•   Project Summary Report
•   Project Profiles

Dashboard Reports will be mapped with user roles for at a glance reporting to users to view right after the system login and it will also be available for public access. Basically

the dashboard will in four quadrants which will contain Five Year Plan, Annual Work Plan, Projects and Flagship Programmes.
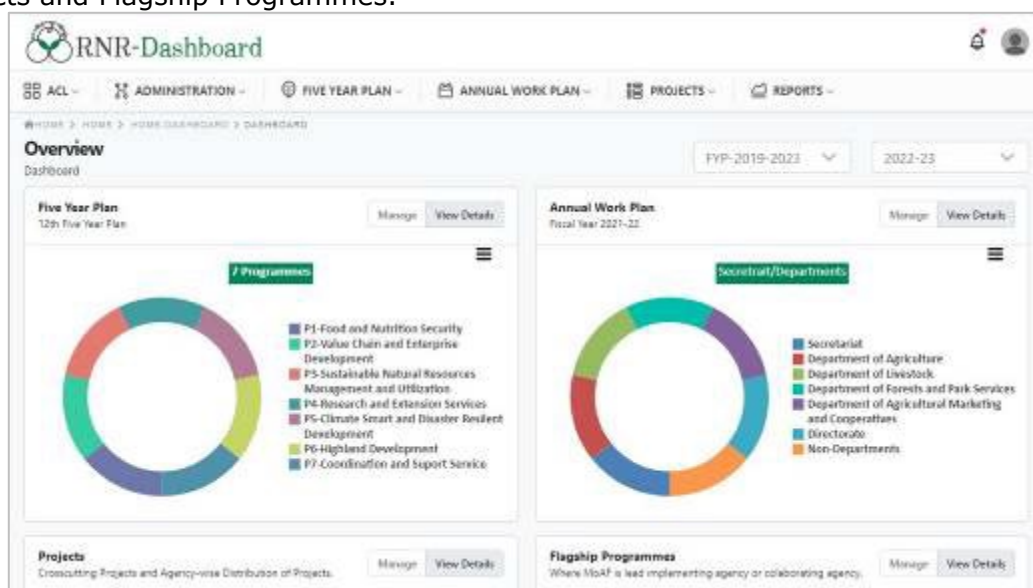
4.3. Administrative Components

1. **Component 1: Authentication**

Authentication will be developed using Laminas-authentication component which provides an API for authentication and includes concrete authentication adapter for common use case scenarios.

Following are the functions covered in Authentication:

- Login with username (mobile or email) and password (encrypted)
- Session (management of RNR dashboard can only be accessed within a session, however there be reports for public access also which doesn't require session)
- Logout
- Forgot password (used by end users, where new password is received in their registered email)
- Reset password (used by admin, where the user has completely forgotten their user credentials)

2. **Component 2: Access Control List**

The access control list is developed on the principle of role-based access control (RBAC). Laminas-permissions-rbac provides a lightweight Role-Based Access Control (RBAC) implementation in PHP projects.

Role-Based Access Control
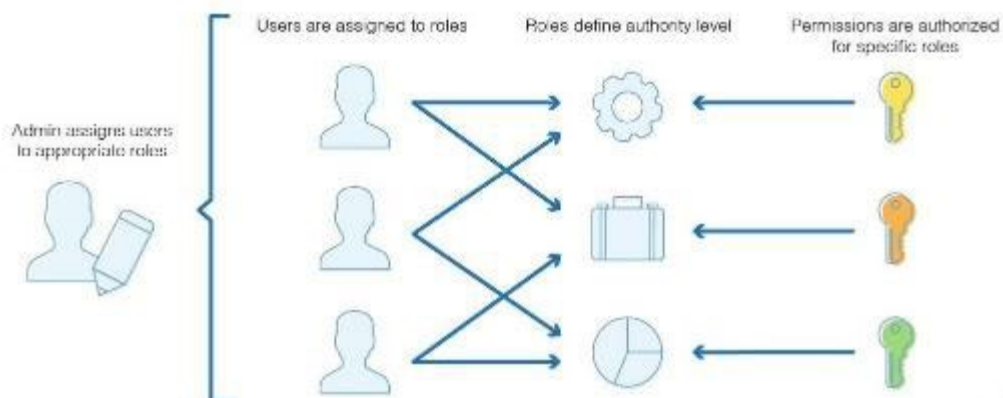
RBAC has the following model:

- Many-to-many relationship between identities and roles.
- Many-to-many relationship between roles and permissions. ◻ Roles can have parent and child roles (hierarchy of roles).

Users will be categorized into **Roles** and the roles will be mapped with the System Processes. The **modules** and all the actions (**forms**) in the system will be mapped with the roles. The access control is not only till the forms of the system but it will go till the **buttons** available in the forms. So, even the buttons have to be defined and mapped with the roles.

Following are the access controls in the system:

- Role based access control
- Location access control (Different Departments/Divisions/Non-Departments)

Roles expected are:

- Admin
- System Manager
- Report Viewer
- PPD Focal
- Department Focal
- Division Focal
- Project Focal

3. **Component 3: Administration**

This component will include the following service:

- User Management (Creation of new users, amendment of user profile, blocking users and assigning roles and location access)
- Domain Management (Dzongkhag, Gewog, Department, Division, Location Type, Location, Unit of Measurement)

RNR-Dashboard
User Manual v1.0

4. **Component 4: Audit Trails**

Audit trail records contain elements defined by the organization which include:

- What the event was
- What the user, system, or application launched the event (this information will include IP address)
- The data and time the event occurred

This log can pinpoint elements such as specific changes to a database or information contained therein.

Each table in the database will have three common fields, i.e. author, created and modified which will store the user id and timestamp for creation and recent modification to the particular row data. We shall have separate tables to record login sessions.

For processes which require history of data modification for the course of time, we shall maintain history table for these processes. It is not recommended to keep history table for each and every processes because it will drastically increase the size of database just for audit trail.

5. SCREEN SHOTS OF RNR DASHBOARD

RNR-Dashboard
User Manual v1.0

5.6. ANNEX F: RNR Programmes and Projects Dashboard-User Manual (Ver.1)

RNR Programmes And Projects Dashboard

User Manual

Five year Plan

Annual Work Plan

Projects

Flagship Programmes

TABLE OF CONTENTS

6. 1. RNR DASHBOARD

- ✓ The home displays a dashboard with four quadrants.
- ✓ The **first quadrant** displays the five year plan.
- ✓ The **second quadrant** displays the annual work plan.
- ✓ The **third quadrant** displays the projects.
- ✓ The **fourth quadrant** displays flagship programmes.

Note: If you have sign in to view the dashboard, you will have the options to "**Manage**" the dashboard by adding or amending the dashboard report but without login credentials, you can only access the detailed reports by clicking details.

7. 2. AUTHENTICATION

7.1. 2.1. How to Login? (Sign In)

- Enter your registered email address or your phone number in the User name field.
- Enter your verified password and login.

2.2. Forgot Password?

- Press forget password in sign in page to regenerate a new password.
- Enter your registered email to retrieve your password. You will receive a new system generated password, which should be changed using "Change Password" to create your own password.

1

8. 3. ACCESS CONTROL LIST (ACL)
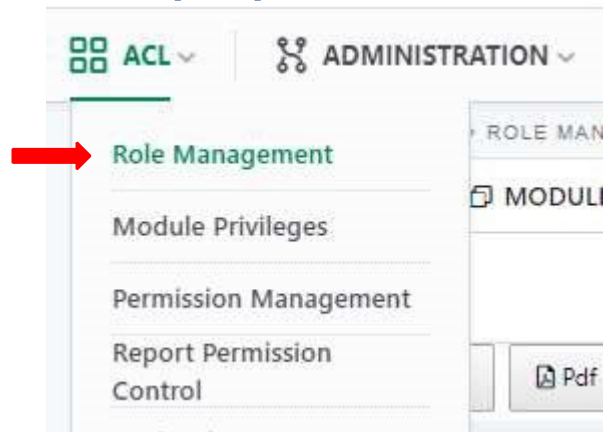
Fig 1.1

8.1. 3.1. Permissions

Permissions is further dissected into Role Management, Module Privileges, Permission Management and Report Permission Control.

3.1.1. Role Management
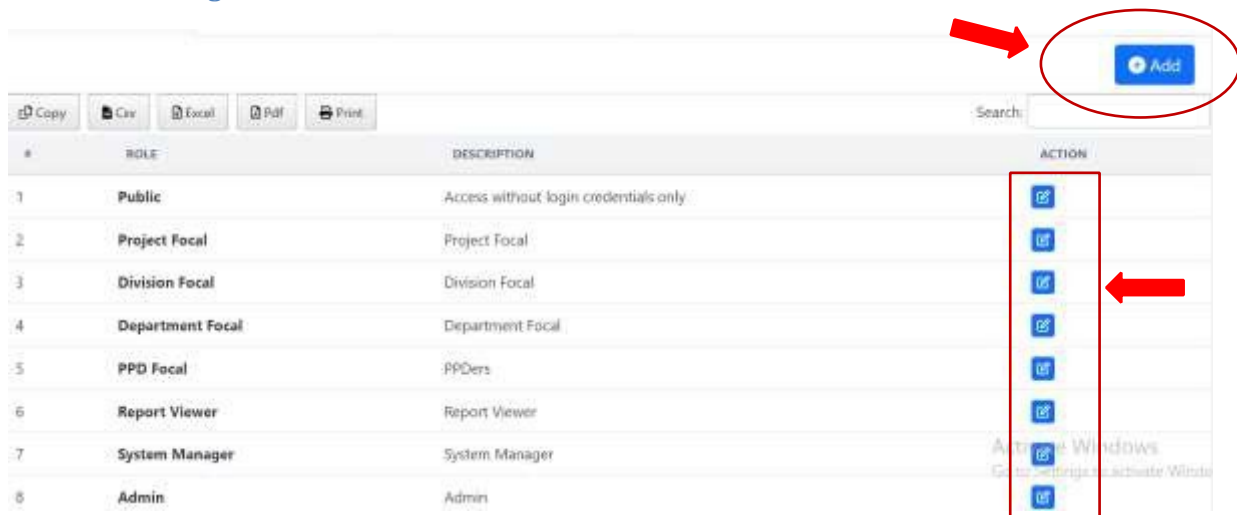
Fig 1.2

- ✓ **Add** button at top-right corner allows the user to add new roles.
- ✓ **Edit** button in action column is to edit the existing roles and description.
- ✓ The existing roles are the main roles.

3.1.2. Module Privileges

There are collectively five modules in the system so role of the admin is to assign the modules to specific rules according to company's policies.

- ✓ The first column has a list of roles and modules display horizontally where the system admin simply checks the module in order to give an access as shown in fig 1.3.

#	ROLE	ACL	ADMINISTRATION	FIVEYEARPLAN	WORKPLAN	PROJECT	REPORT
1	Public	×	×	×	×	×	×
2	Project Focal	×	×	×	×	×	×
3	Division Focal	×	×	×	×	×	×
4	Department Focal	×	×	×	×	×	×
5	PPD Focal	×	✓	×	×	×	×
6	Report Viewer	×	×	×	×	×	×
7	System Manager	×	×	×	×	×	×

1.8.1.   Fig 1.3

3.1.3. Permission Management

- ✓ The roles created in the above tab has to further be given access to the **process** of specific module. **Process** are division of activities or tasks in single module. Every module will have multiple processes.
- ✓ The process is further broken down to Read, Write Create, Upload, Delete, and Amend. Permission Management helps the **system admin** to permit the access by simply checking the given actions.

Fig 1.4

- ✓ The **create permission** button on the top-right corner will allow the **system admin** to create new permission.

Fig 1.5

- ✓ The above model will be display upon clicking the button.
- ✓ Select the module, process and the role.
- ✓ The buttons on the last column is to **update access** and **transfer access.**

- ✓ The below form is to transfer the access of the process of specific module to another role by simply changing the role.

Fig 1.6

3.2. Audit Trails

This sub-menu simple helps us to view **login history** and **audit logs** as shown in **Fig 1.8** & **Fig 1.9.**
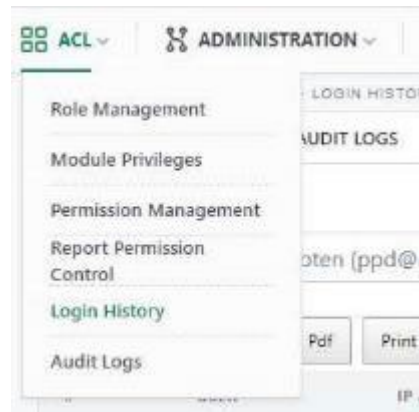
2.8.1.   Fig 1.7

3.2.1. Login History

2.8.2.   Fig 1.8

✓ Select the user from the selection box at the top of the panel as marked in **Fig 1.8** in order to see the login history of the selected user

3.2.2. Audit Trails

2.8.3.   Fig 1.9

✓ Similarly under audit trials the system admin can view the whole activities users. ✓ Select the user from the selection box to view the activities

9. 4. ADMINISTRATION

Administration is further dissected into **User Management** and **Domain Management**.

Administration ∨

User Management

Domain Management

9.1. **Fig 2.1**

4.1. User Management
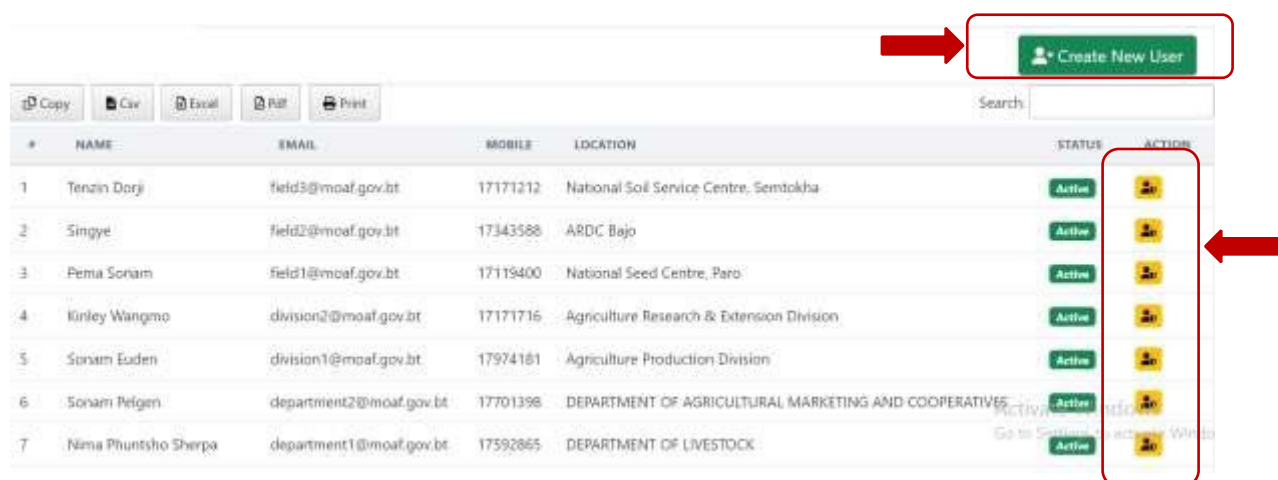
9.2. **Fig 2.2**

✓ Admin can add users of the system by clicking on **Create New User** button on the top of the panel.

✓ **Change status** button under the last column is to either block of activate the user of the system.

Fig 2.3

✓ The above is the fields to be filled while creating a new user.
✓ The fields such as date of birth & full name is auto fetched when you enter a valid CID number.

9.3. ## 4.2. Domain Management

✓ In this section under administration, admin can add dzongkhag, gewog, department, division, location type, location, unit of measurement.
✓ Every tab has an **Add** to create new data and an **Edit** button update the existing data.

10.   5. FIVE YEAR PLAN

Under five year plan module has two sections.
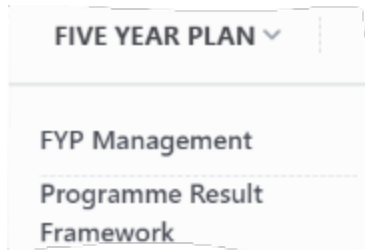
Fig 3.1

10.1. 5.1. FYP Management

Fyp Management allows the user to initiate a five year plan, create programme, outcome and output.

5.1.1. Five year plan Management

Fig 3.2

- ✓ The **Add** button allows to create new plan.
- ✓ The last column has three buttons: **Edit**, **Confirm** & **Complete**.
- ✓ The **Edit** button to update the changes if any.
- ✓ **Confirm** will confirm the plan
- ✓ Once plan is confirmed the **Complete** button will appear.

5.1.2. Programme

Fig 3.3

✓ User can **Add** programs using the button at the top right corner.
✓ User can **Edit** programs using the button under action column.

5.1.3. Outcome

Fig 3.4

✓ User can **Add** outcome using the button at the top right corner.
✓ User can **Edit** outcome using the button under action column.

5.1.4. Output
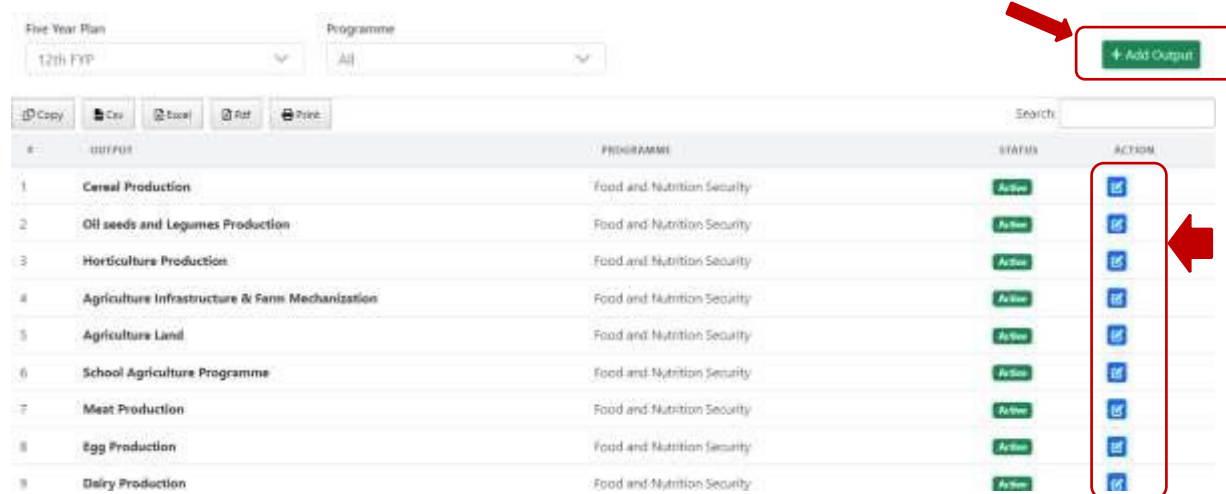
Fig 3.5

- ✓ User can **Add** output using the button at the top right corner.
- ✓ User can **Edit** output using the button under action column.

10.2. 5.2. Programme Result Framework

5.2.1. Programme Result Framework (Outcome)
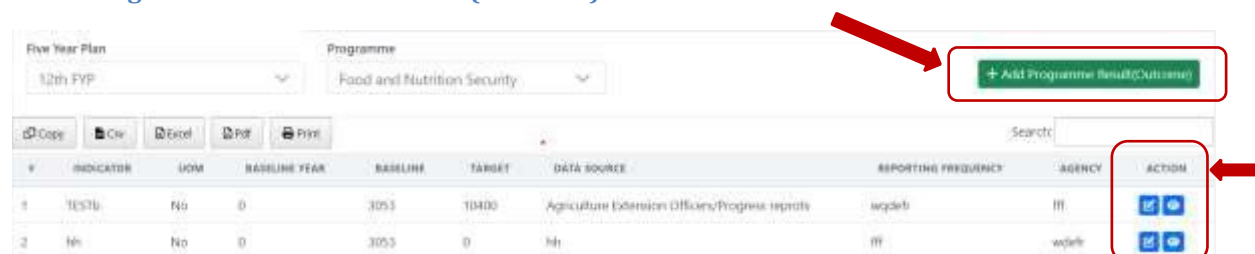
2.10.1. Fig 3.6

- ✓ User can **Add** details using the button at the top right corner.
- ✓ User can **Edit** details using the button under action column.
- ✓ User can **Review** the details using the eye button under action column. **Fig 3.7** shows the details added under **review** button.

Fig 3.7

5.2.2. Programme Result Matrix (Output)

2.10.2. Fig 3.8

✓ User can **Add** details using the button at the top right corner. **Fig 3.9** shows the model view with fields which needs to be added.

✓ User can **Edit** details using the button under action column.

✓ User can **Review** the details using the eye button under action column. **Fig 3.10** shows the details added under **review** button.

✓ User can also view the data based on the attributes or values from the top tables.

Fig 3.9

Fig 3.10

5.2.3. Programme Activity

Fig 3.11

- ✓ User can **Add** details using the button at the top right corner. **Fig 3.12** shows the model view with fields which needs to be added.
- ✓ User can **Edit** details using the button under action column.
- ✓ User can **Review** the details using the eye button under action column. **Fig 3.13** shows the details added under **review** button.
- ✓ User can also view the data based on the attributes or values from the top tables.

Fig 3.12

Fig 3.13

11. 6. ANNUAL WORK PLAN
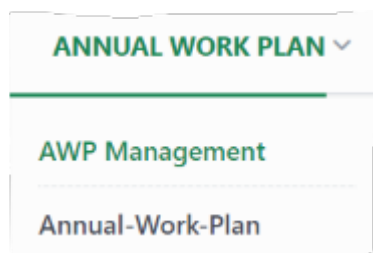
11.1. 6.1. AWP Management
6.1.1. Fiscal Year

Fig 4.1

- ✓ The **Add** button allows to create new fiscal year.
- ✓ The last column has three buttons: **Edit**, **Confirm** & **Complete**.
- ✓ The **Edit** button to update the changes if any.
- ✓ **Confirm** will confirm the fiscal year
- ✓ Once fiscal year is confirmed the **Complete** button will appear.
- ✓ Once the Fiscal year is completed, it cannot be edited.

11.2. 6.2. Annual Work Plan
6.2.1. Work plan

2.11.1. Fig 4.2
- ✓ The **Add** button allows to create new work plan.
- ✓ The last column has **view** button. **Fig 4.3** shows the view page.

Fig 4.3

✓ The view page has buttons to **Edit** and **Confirm** the annual work plan and the top of the work plan detail (**Fig 4.3**).

✓ To each work plan created, expected output is added.

✓ Planned activities are added for each expected output.

✓ **Edit** button against each expected outputs for modification.

✓ There are three buttons**: Edit, Review, Delete** against each planned activity.

✓ The **review** allows the user to add a review and change status of each planned activity.

12.   7. PROJECTS

There two types of project: Crosscutting projects and Agency-wise distribution projects which can be viewed as shown in the **Fig 5.1.**

- ✓ **Add** buttons helps user to add or create new project.
- ✓ The **view** button under action column helps user to view the project details individually.
- ✓ The project view shown in **Fig 5.2.**

12.2. **Fig 5.2**

- ✓ The project view displays three buttons i.e **Edit, Confirm, Complete Project.**
- ✓ The **edit** button allows the user to edit the project.
- ✓ The **confirm** button to confirm the project.
- ✓ Once confirmed, **Complete Project** button appears. ✓ Confirmed projects cannot be edited.

13. 8. REPORTS

REPORTS ∨

FYP Report

AWP Report

Project Report
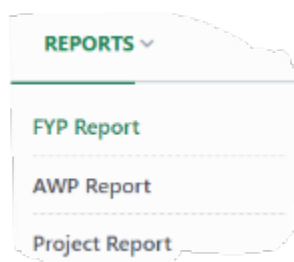
13.1. 8.1. FYP Report

8.1.1. Programme Result Report (Outcome)

Fig 6.1

- ✓ Select **Five year plan** and **Programme**.
- ✓ Click on generate to view the result based on values selected.
- ✓ It displays the programme result of outcome.

8.1.2. Programme Result Report(Output)

1.13.1.   Fig 6.2

✓ Select **Five year plan** and **Programme**, **Outcome, Output.**
✓ Click on generate to view the result based on values selected.
✓ It displays the programme report of output.

8.1.3. Programme Activity Report

1.13.2.   Fig 6.3

✓ Select **Five year plan** and **Programme**, **Outcome, Output.**
✓ Click on generate to view the result based on values selected.
✓ It displays the programme activity report of output.

8.2. AWP Report

2.13.1.   Fig 6.4

- ✓ Select **Ficsal year** and **Location.**
- ✓ Click on generate to view the result based on values selected.
- ✓ It displays the annual work plan.

8.3. Project Report

3.13.1.   Fig 6.5

- ✓ Select **Type of Project** and **Project.**

✓ Click on generate to view the result based on values selected.
✓ It displays the list of projects.