# Background analytical study (Draft)

on
a framework that will enable regular and systematic update
of forest data, beyond the bio- physical information
to
address gaps on the national and international reporting
requirements on forests and other forest related goals and
targets

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# Executive Summary

This report presents analysis on the on availability of forest data, beyond the bio- physical information, including socio-economic forest related data, mapping of existing gaps and identifying tools to address these gaps; and the national and international reporting requirements on forests and forest related goals and targets as a first step towards the development a national monitoring and evaluation framework for international forest-related goals and targets (serving the UN Forest Instrument, GFGs, SDGs and FRA2020).

Uganda is a relatively well endowed East African country that occupies a total area of 241,550km$^2$ out of which open water and swamps cover about 17% and forests 12%. The forest sector is estimated to contribute 3.7% of the GDP or even more if all the ecosystem services provided by forests are considered (MWE, 2015). The forestry estate and sub-sector is managed by four institutions: Forestry Sector Support Department (FSSD), National Forestry Authority (NFA), and Uganda Wildlife Authority (UWA). The District Forestry Services (DFS) is mandated to manage Local Forest Reserves (LFR) and all forests on private land. In the period 2000 to 2015 Uganda suffered high rates of deforestation, resulting in a big percentage of the forests that are outside protected areas to be lost. Currently the remaining natural forests (about 2 million hectares) are shared almost equally between UWA and NFA.

In this study mapping of data and analysis is categorized in three parts as follows; **Part A**-biophysical data includes the first five thematic areas i) extent of the forest resource, ii) forest biological diversity, iii) forest health and vitality, iv) protective function of the forest resource and v) productive functions of the forest resource. **Part B-** Socio economic functions of the forests and **Part C**- Legal policy and instructional framework.

Much of the biophysical data is collected and managed by government institutions. NFA manages the National Forest Inventory (NFI) and maintains a Geographical Information System (GIS) of key biophysical databases mainly; roads and rail, rivers, elevation, precipitation, soils, protected areas and land use / cover for years 1990, 2000, 2010, 2015 and 2017. Thus, NFA is the de facto custodian of the National Forest Management System (NFMS) for Uganda's REDD+ programme and plays a central role in the management of the biophysical database that are related to the five thematic areas of the SFM.

Much as the system for biophysical data collection is reasonably well established there are still a number of challenges that need to be addressed. The data is not regularly collected, tools for data analysis and archiving need refinement. There is no mechanism for collecting and integrating data form local government. Productive forestry data and economic data from the commercial forestry is not linked to the system. Also not integrated into the existing systems is the socio-economic data that would inform and promote SFM.

Thus, there is a need for resource mobilization and strengthening of the data management systems to support periodic data collection. Intuitions need to be better coordinated so that all available data and information is well utilized. There is need for the establishment of a strong data sharing mechanisms that includes MoUs and data sharing protocols.

These improvements need to build on existing systems such as the NFMS for the REDD+ programme so as to leapfrog towards operationalization of Monitoring, Assessment and Reporting (MAR) for socio-economic and forest related data for sustainable forest management (SFM).

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# Acronyms

| | |
|---|---|
| AAC | Annual Allowable Cut |
| C&I | Criteria and indicator |
| CFP | Collaborative Partnership on Forests |
| CPF | Collaborative Partnership on Forests ( |
| CSO | Civil Society Organization |
| DFS | District Forestry Services |
| DLG | District Local Governments |
| EI | Exploratory Inventory |
| EU | European Union |
| FRA | Forest Resource Assessment |
| FRMCP | Forest Resources Management and Conservation Programme |
| FSSD | Forest Sector Support Department |
| GFFFN | (the UNFF) Global Forest Financing Facilitation Network |
| GFG | Global Forest Goals |
| GOFs | Global Objectives on Forests |
| HLPF | High-level Political Forum on Sustainable Development |
| IAF | International Arrangement on Forests |
| ISSMI | Integrated Stock Survey and Management Inventory |
| IUCN | International Union of Conservation of Nature |
| LFR | Local Forest Reserves |
| MAR | monitoring, assessment and reporting |
| MEMD | Ministry of Energy and Minerals Development |
| MFPED | Ministry of Finance Planning and Economic Development |
| MWE | Ministry of Water and Environment |
| NBS | National Biomass Study |
| NCCP | The National Climate Change Policy |
| NFA | National Forestry Authority |
| NORAD | Norwegian Agency for International Development |
| NWFP | Non Wood Forest Products |
| SDGs | Sustainable Development Goals |
| SFM | Sustainable Forest Management |
| UBOS | Uganda Bureau of Statistics |
| UNFFS | United Nations Forum on Forests Secretariat |
| UNFI | United Nations Forest Instrument, |
| UNSPF | The United Nations Strategic Plan for Forests |
| WCS | Wildlife Conservation Society |
| WWF | World Wide Fund for Nature |

# 1 Introduction

This report presents analysis on the on availability of forest data, beyond the bio- physical information, including socio-economic forest related data, mapping of existing gaps and identifying tools to address these gaps; and the national and international reporting requirements on forests and forest related goals and targets. The results from the study will be used to develop a national monitoring and evaluation framework for international forest-related goals and targets (serving the UN Forest Instrument, GFGs, SDGs and FRA2020).

## 1.1 Background

Since the 1992 earth summit, significant progress has been made since then in terms of developing the global policy framework for achieving sustainable forest management. The Intergovernmental Panel on Forests (IPF), from 1995 to 1997, and the Intergovernmental Forum on Forests (IFF) from 1997 to 2000 and the process culminated into the establishment of the United Nations Forum on Forests (UNFF) with the main objective to promote "… *the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end*". Over two decades of negations resulted in more than 270 proposals for action to translate international goals into country actions (figure1)
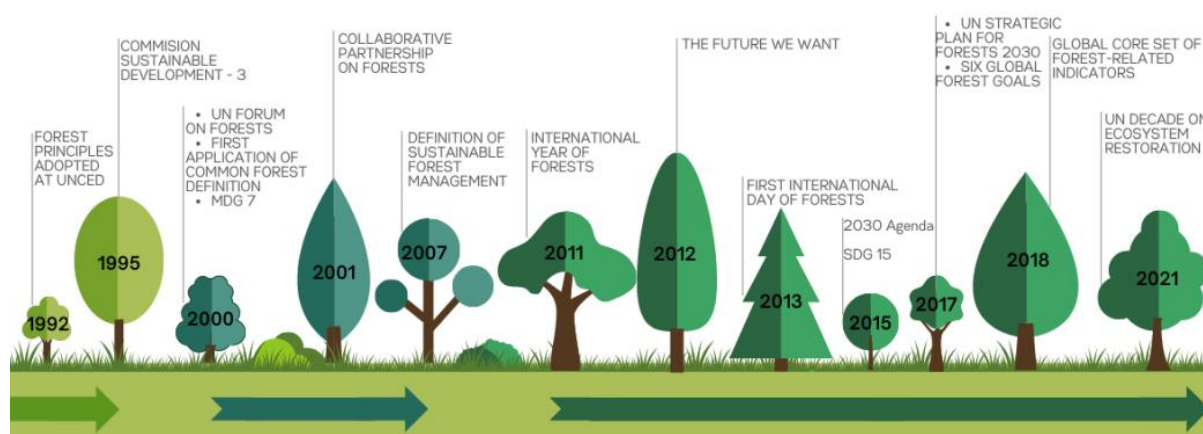


*Figure 1. Milestones of forest-related issues in the global international agenda 1992-2021, Adapted from UNECE, FAO*

In 2001, the Collaborative Partnership on Forests (CPF) network was established to help facilitate interaction with a wide range of other interested parties involved in forests, including NGOs, private sector entities and other major groups which include; Indigenous Peoples, Women, Youth and Children, Forest Workers and Trade Unions, Farmers and Small Forest Landowners, Local Authorities, Scientific and Technological Community, Business and Industry and Non-Governmental Organizations"

The Non-Legally Binding Instrument on All Types of Forests (NLBI) of 2007 agreed to an international instrument for sustainable forest management and called for further support to CPF to develop and implement joint initiatives.

From 2011 to 2012, the UNFFS and FAO organized regional capacity building workshops aimed at strengthening and supporting the capacity of UNFF focal points and other relevant

stakeholders in six developing countries in reporting to the UNFF on the progress made in the implementation of the forest instrument; and to streamline and simplify the reporting format facilitating voluntary national reporting to UNFF10 on the implementation of the forest instrument and a balanced reporting on its four Global Objectives on Forests (GOFs).

At UNFF11 in 2015, the instrument was renamed to the United Nations Forest Instrument (UNFI) and in addition, the Forum adopted its resolution on the International Arrangement on Forests beyond 2015 (IAF for the period of 2017 to 2030). The Strategic Plan aims at guiding the work of the Forum, its Secretariat, and the Collaborative Partnership on Forests, and other components of the IAF. The Forum plays an active role in contributing to the High-level Political Forum on Sustainable Development (HLPF), and to the implementation, follow-up and review of the forest-related aspects of the 2030 Agenda for Sustainable Development. The IAF has five main components: the UN Forum on Forests (UNFF) and its Member States, the UNFF Secretariat, the Collaborative Partnership on Forests (CPF), the UNFF Global Forest Financing Facilitation Network (GFFFN), and the UNFF Trust Fund.

The first-ever UN Strategic Plan for Forests was agreed (by the UNFF) and adopted by the UN Economic and Social Council (UNESC). The Strategic Plan features

- A set of six Global Forest Goals (Box 1) and 26 associated targets to be reached by 2030, which are voluntary and universal.
- It includes a target to increase forest area by 3% worldwide by 2030, signifying an increase of 120 million hectares, an area over twice the size of France.
- It builds on the vision of the 2030 Agenda and recognizes that real change requires decisive, collective action, within and beyond the UN System.

*Box 1. Global Forest Goals*

**Global Forest Goals**
1) Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation and contribute to the global effort of addressing climate change.
2) Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest dependent people.
3) Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests, as well as the proportion of forest products from sustainably managed forests.
4) Mobilize significantly increased, new and additional financial resources from all sources for the implementation of sustainable forest management and strengthen scientific and technical cooperation and partnerships.
5) Promote governance frameworks to implement sustainable forest management, including through the UN Forest Instrument, and enhance the contribution of forests to the 2030 Agenda.
6) Enhance cooperation, coordination, coherence and synergies on forest-related issues at all levels, including within the UN System and across Collaborative Partnership on Forests member organizations, as well as across sectors and relevant stakeholders

The United Nations Forum on Forests (UNFF) is mandated to review the implementation of the United Nations Forest Instrument (UNFI) and the UNSPF by its member states. To do so, the Forum relies on voluntary national reporting from its member states. In the future, these national voluntary reports will have to also capture national efforts to address the impacts of

the COVID- 19 pandemic on SFM and actions taken to build on long-term recovery from the pandemic including the contributions of forests to inclusive sustainable development.

Monitoring, assessing and reporting (MAR) on forest data and information have been part of global and national forest policy and management systems for many decades (Figure 1). The Forum has regularly called upon Member States to develop adequate monitoring systems and also called on international entities, especially member organizations of the Collaborative Partnership on Forests (CPF) to share data and streamline reporting on forests. The Forum has also been a long-time supporter and promoter of criteria and indicators for SFM C&I for SFM.

| UNFFS and FAO | UNFFS | | |
|---|---|---|---|
| Conducted Five regional capacity building workshops in Asia-Pacific, East & Southern Africa, West & Central Africa, North Africa, Mediterranean and Central Asia, and Latin America and the Caribbean. | Began implementation of a capacity development project on "Monitoring Progress towards Sustainable Forest Management (SFM)" aimed at supporting and assisting six project countries (Ghana, Jamaica, Kenya, Mongolia, Peru and the Philippines) in developing a comprehensive and efficient system for monitoring progress towards sustainable forest management | Required countries to make progress in achieving its six Global Forest Goals (GFGs) and 26 targets and forest-related Sustainable Development Goals | **Monitoring Progress towards Sustainable Forest Management** |
| **2011- 2012** | **2016** | **2017** | **2019** |

**The two main objectives were**
- To strengthen and support the capacity of UNFF focal points and other relevant stakeholders in developing countries in reporting to the UNFF on the progress made in the implementation of the forest instrument; and
- To streamline and simplify the reporting format facilitating voluntary national reporting to UNFF10 on the implementation of the forest instrument and a balanced reporting on its four GOFs.

*Figure 2 Mapping UNFF Activities Towards Monitoring Sustainable Forest Management Developing Countries*

Any programme or policy implementation requires periodic monitoring and assessment of its outcome and impact. For this, a robust system of measurement, data collection, data management and analysis are essential. This is equally true for a country with its effort to promote sustainable forest management (SFM) through policy and programme interventions.

The UNFF understands that countries usually have traditional systems of forest inventories to gather biophysical data of their forest resources, but the growing recognition of the role of forests in social, economic and environmental issues has expanded a need to gather new kinds of forest-related data and monitor changes including on climate change, biodiversity conservation, land degradation, economic development, social inclusion and poverty eradication. Accurate, timely and relevant data gathering, management and utilization are key to SFM efforts, national forest policy making, planning and programming.

This will enable countries to provide accurate data-driven assessment of their effort to meet international commitments, including the SDGs. However, many developing countries face numerous challenges in data collection, management and processing for monitoring and

assessing the progress in SFM. Even if relevant data are available in a country, they are often found scattered across different government agencies and private organizations.

Countries have noted many challenges in data collection, data quality and national capacity in generating and systematically managing databases to be used for national-level actions and international-level reporting. There is a need to: (a) develop a better reporting system to adequately and appropriately cover all aspects of SFM as enshrined in UNFI and UNSPF; (b) streamline data collection and reporting obligations, so as to reduce the countries' reporting burden to multiple international and regional processes.

## 1.2   Country context

Uganda is a land locked country in East Africa and it occupies a total area of 241,550.7 square kilometres (sq kms), of which 41,027.4 sq km is open water and swamps, while 200,523.2 sq kms island (UBOS, 2015). In 2015, the forest cover (natural forests and forest plantations) was estimated at 12% of the total land area, or 2.5 million ha. Open dry forests (woodlands) were the dominant forest type, accounting for 64% of the forest area, Tropical High Forests 20% and plantations for 16% (MWE, 2019).

Much of the protected area is under the management of UWA and NFA. The protected wildlife estate, managed by UWA, is estimated at 11,231 km2 of national parks, 7,910 km2 of wildlife reserves, 713 km2 of wildlife sanctuaries, and 3,174 km2 of community wildlife areas. Central forest reserves under NFA cover 11,123 km2 whereas local forest reserves under local government are estimated at 50 km2. Very different deforestation dynamics have been observed on private and public land since the first land cover change assessment in 2009 (FD, 2002). Forest loss has been highest on private land and almost nonexistent in areas managed by UWA. CFRs and LFRs showed lower forest loss than forest on private land.

The forest resources are core to other sectors of the economy, including water provision for domestic and industrial use, agriculture, aquaculture, hydropower, and tourism. In a period from 2011-2014, 25% of GDP was attributed to natural resources, with forestry contributing 3.7%. Agriculture, including forestry, which contributed 22.2% of GDP, is highly dependent on ecosystem services provided by forests (MWE, 2015).

Generally, Uganda's forest cover has been reducing at an estimated rate of 2.3 percent per year, and the trend is expected to continue if urgent interventions are not put in place to reverse the trend. Deforestation and degradation of forests continue to be a global concern because of the threat to both the functioning of ecosystems and the well-being of human communities (MWE & IUCN, 2016).

In Uganda, the Forestry sub-sector is managed by three main institutions: Forestry Sector Support Department (FSSD) of Ministry of Water and Environment (MWE), National Forestry Authority (NFA), the semi-autonomous agency that manages the Central Forest Reserves, Uganda Wildlife Authority (UWA) manages forests under wildlife conservation areas and District Forestry Services (DFS) that is mandated to manage Local Forest Reserves (LFR) in District Local Governments (DLGs). In the 1990s, over 70% of the forest estate was on private land. Even though the forest on private land has reduced tremendously, the private sector still plays an important. Currently, over 60% of the forest plantations are owned and managed by the private sector. The Civil Society Organization's (CSOs) contribution to forestry range from

management, advocacy for good practices and enforcement (The National Forestry and Tree Planting Act, (2003).

## 1.3   Objectives and scope

The main objective of this study is to develop a national monitoring and evaluation framework for conducting inventories of existing forest-related data, mapping data gaps; and addressing these gaps and selecting appropriate national indicators.

### 1.3.1   Specific objectives

The specific objectives of the study under the supervision of UNFFS is to
1.   Conduct analysis on existing forest-related data, mapping of data, data collection, data quality and national capacity in generating and systematically managing databases to be used for national-level actions and international-level reporting.
2.   Facilitate the development of a monitoring system to measure progress towards SFM, implementation of the UNFI, GFGs and forest-related SDGs.

## 1.4   Scope of the study

The scope of the study was categorized under the following tasks
1. Prepared a background analytical study on availability of forest data, beyond the bio-physical information, including socio-economic forest related data, mapping of existing gaps and identified tools to address these gaps; and the national and international reporting requirements on forests and forest related goals and targets;
2. Liaised with the key forest-stakeholders and assist in mobilizing the country team and coordinating national inputs in the project development and formulation and implementation of:
   a) Mapping existing national forest related-databases and identifying potential data gaps and tools to address these gaps - this will include not only "classic forest inventories" but also financial data/flows for forests and contribution of forests to food security and poverty eradication;
   b) Developing the monitoring framework for international forest-related goals and targets (serving the UN Forest Instrument, GFGs, SDGs and FRA2020); and

# 2   Approaches and Methods

Conducting this analytical study was mainly through document and desk review, stakeholder mapping, and identification, development of tools targeting key stakeholders for interviews and data analysis.

## 2.1   Document and desk review

A review of key documents to obtain information on mapping existing national forest related-databases and identifying potential data gaps and tools to address these gaps - this will include not only "classic forest inventories" but also financial data/flows for forests and contribution of forests to food security and poverty eradication. Through the desk review, gaps were identified and will be filled in during interviews and meetings. The broad categories of documents reviewed are listed below and the full list of references. Relevant documents such as

- The National Forestry Policy, (2001),
- National Forestry and Tree Planting Act (NFTPA), (2003),
- National Forest Plan, (2013,
- Uganda REDD+ Readiness Preparation Proposal, (2012),
- Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security Food Agriculture organization (FAO), (2012),
- Guidelines for registration and management of private natural forests in Uganda, Forest Sector Support Department (FSSD), (2015),
- Guidelines for registration and management of Community forests in Uganda, FSSD, (2015),
- State of Forests in Uganda, (2015), among others were gleaned to identify issues and options for REDD+ activities in private and community forests.
- Action Plan and Best Practices for the National Forest Monitoring System institutionalization in Uganda (2019)
- Food and Agriculture Organization of United Nations (FAO) 2019, Support to institutionalization of NFMS for REDD+ in Uganda (2019), PROJECT PROGRESS REPORT, UTF/UGA/052/UGA
- Ministry Of Water and Environment Uganda (2019), National Forestry Authority, National Forest Inventory (NFI)

## 2.2   Stakeholder mapping and identification

The roles and mandates of key stakeholders were identified and mapped during desk review. Mapping of stakeholders and their potential involvement in sustainable forest management based on their mandates is detailed in Table 1.

*Table 1: Matrix of stakeholder categories and their potential roles to influence monitoring of sustainable forest management activities*

| Stakeholders | Potential roles of stakeholders that can influence monitoring of sustainable forest management activities |
|---|---|
| Global Agreements/ Programs Relevant to Deforestation and Forest Monitoring | |
| Ministry of Water and Environment /Climate Change Department | • Prepares Reports to UNFCCC<br>• Coordinates sectors to Update the National Green House Gas Inventory<br>• Ensures that Green House Gases for land use are compiled and included in the National Green House Gas Inventory<br>• Submitting Reports Including those related Forestry such as the Forest Reference Level to UNFCCC |

| Stakeholders | Potential roles of stakeholders that can influence monitoring of sustainable forest management activities |
|---|---|
| Parliamentarians (the Natural Recourses Committee) | • Support implementation of global initiatives at National level though formulation and revising of the relevant laws<br>• Parliamentarians produce legislation governing the forestry sector |
| National Forestry Authority (NFA) | • Link the technical people on forestry from National to international Community<br>• Monitoring of land use change and land cover at National level<br>• Compiles all the information required on forestry reporting for the different stakeholders both at National and International Level.<br>• Regularly carry out national forest inventory and other technical services through its National Biomass Study.<br>• Prepare and implement management plans for CFRs and reports on the state of CFRs and such other reports as the Minister in charge of Forestry may require. |
| Ministry of Water and Environment/ Forest Sector Support Department **(FSSD)** | • Managing Forestry resources and Coordinating Stakeholders in the Forestry sector<br>• Support developing Policies and Strategies in Forest Sector<br>• Link between the local government and central government<br>• Responsible for overseeing activities of Land Use Land Cover Change, deforestation and Forest Degradation<br>• Support activities of developing National Monitoring System<br>• Reporting on progress to International Commitments at National Level (the Bonn Challenge, a global aspiration to restore 100 million ha of degraded lands by 2020- **Uganda has committed to restore 2.5 million**) Number of trees Planted/ Forest Stock, Or Hectares restored)<br>• Compiling data on private forest and district forest services |
| Ministry of Water and Environment/ Forest Sector Support Department **(FSSD) - The REDD+ Secretariat** | • Responsible for reporting and monitoring of REDD+ activities and support to establish a National Forest Monitoring System to enhance measurement and reporting |
| Accountability, Monitoring and Enforcement of forest resources | |
| The Parliament of Uganda | • Scrutinize laws and policies that include credible and transparent financial frameworks |
| Ministry of Water and Environment though the Forest Sector Support Department (FSSD) | • Has the oversight role of forest monitoring and responsible for setting up the National Forestry Monitoring system |
| National Forestry Authority (NFA) | • Coordinates with the Legal and enforcement department where necessary<br>• Ensures that data from NFA is compiled for reporting on<br>• National annual updates on Land use change and forestry Statistics as indicator) to UBOS/year,<br>• GHG inventory to CCD, REDD+/year,<br>• Forest Resource Assessment (FRA) to FAO/5years,<br>• Statistical Abstract to MFIED/year,<br>• Status of Wetlands Report to NEMA, MWE/Wetlands Department/2 years,<br>• Wealth Accounting and Evaluation of Ecosystem Services (WAVES) to MWE, MFED-UBOS as when needed<br>• Setting up National Forest Monitoring System<br>• Updating forestry database.<br>• Data collection on forestry and biomass, designing tools for field work and supervising work related to biomass and inventory Supporting mapping and ground truthing<br>• Receive data from the inventory unit for monitoring, NEMA, Makerere University Fire monitoring<br>• Satellite Image Acquisition<br>• Maintaining and updating the data base Computing<br>• Land use and Data collection, collating, analysis and accuracy assessment |
| The Forestry Sector Support Department (FSSD) of the Ministry of Water and Environment (MWE) | • Coordinates and gives technical support to districts<br>• Mobilizes resources for the forestry sector |
| **Environmental Police-** Under Ministry of Water and Environment (Agencies Use them when Facilitated) | • Support enforcement under the forests when facilitated<br>• UWA has its own institutionalized enforcement department |

| Stakeholders | Potential roles of stakeholders that can influence monitoring of sustainable forest management activities |
|---|---|
| National Environmental Management Authority (NEMA) | • Monitoring and enforcement is to coordinate the implementation of government policy and the decision of the Policy Committee on Environment |
| Uganda Wildlife Authority (UWA) | • UWA have their own law enforcement system to combat illegal activities in and outside the protected areas |
| District Forest Services (DFS) | • Enforce forest laws and byelaws governing the management of forests and trees in the district, <br> • To collect revenue from licenses and taxes on forestry activities <br> • Coordinate cross-sectoral linkages in the district |
| Ministry of Tourism Wildlife and Antiquities/ UWA | • Establish management plans for wildlife conservation areas and data collection from conservation areas |
| Uganda Timber Growers Association (UTGA) | • Private owners members of UTGA 75% having plantations on NFA land, including forests owned by institutions such as churches, traditional institutions and schools |
| National Forest Stewardship Council (FSC) | • Self-Assessment for forest management |
| FAO / SPGS programme under FSSD | • SPGS clients information on plantation forest area by species, ownership and management practices <br> • Determine area and age of tree crop |
| Research Institutions both public and private collect data for forest monitoring NaFORRI, | • Developing technologies and practices for conservation of natural forest ecosystems, sustainable management of plantation forest <br> • Data collection |
| CARE | • Support civil society and media, to empower poor and natural resource dependent citizens, to participate in forest governance, monitor implementation of forest policies and laws and advocate for fair and appropriate forest laws and regulations at the national and global level (Forest Resources Sector Transparency Programme |
| Uganda Forest Working Group Hosted by Environmental Alert | • Dissemination, skills capacity building, forestry extension, advocacy, policy analysis, independent monitoring <br> • Coordinating and a secretariat for CSOs in the Forest Sector <br> • Forest management and tree farming investments on private land <br> • Forest investments in CFRs on rented land <br> • Collaborative Forest Management of CFRs <br> • Wood and NWFP processing <br> • Trade in forest products <br> • Efficient use of fuelwood |
| ECO-TRUST | • Continuous engagement in land use processes and innovations; <br> • Land Trust Programme <br> • Plan vivo implementation arrangement under the Global Trust Project requires participating members to have lad use plans |
| Nature Uganda | • Conservation, Research and monitoring, education and advocacy; Bird watching and community tourism <br> • Periodic data collection on Bird watching and other biodiversity activities <br> • Collect data for Bird Watching and Community Tourism |
| PROBICOU | • Communities that participated in monitoring <br> • Training data Collection |
| Jane Goodall | • Data collection and training of community forest monitors and use of global forest watch tool |
| WCS | • Data Collection on biodiversity, deforestation and Piloting REDD+ |

## 2.3 Development of tools

Desk review helped to identify the gaps and tools development in form of semi- structured questionnaires, key informant interviews, focus group discussions guides were developed based on the gaps identified during literature review. The tools targeted the different stakeholders that were identified. Most questions were asking about the availability of relevant data, state of data management systems, roles and responsibilities that are related to the assignment and the format in which data is shared including type of reports.

## 2.4 Interviews and meetings

Semi-structured questionnaires were developed using Google online forms. The links to the online tools were shared with stakeholders and the tools were self-administered. The online tool was administered to the different stakeholder categories of respondents namely; government, private sector/Civil Society Organizations (CSOs).

## 2.5 Data analysis

This report is based on literature review and interviewing key stakeholders (mainly by phone). The online Google forms data are still being administered. Instantly generation of graphs and tables will be used as data comes. MS Excel to be used to for more analysis for quantitative data and to generate tables, figures and other visual graphics for presentation of information in the reports. Thematic analysis was used for qualitative data where related themes were identified and respective responses. Systematic analysis was conducted to get a deeper understanding of the contextual factors.

# 3 Contextualization of information for the development of national indicators

## 3.1 Progression of the Sustainable Forest Management (SFM) Concept in Uganda

The sustainable forest management (SFM) concept has evolved over time. In forest management the primary objective has often been the production of wood products with emphasis of 'sustained yield' of wood or harvesting the wood increment without drawing down on the forest capital. Though the principle of 'sustained yield' is still applicable there is an increasing trend towards the management of forests as ecological systems with multiple economic benefits and environmental values, and with broad public participation in the decision-making process[1].

The United Nations Conference on Environment and Development (UNCED) of 1992 in Rio de Janeiro (widely known as the 1992 Earth Summit), emphasized the need for sustainable management reinforced by the increased focus on forestry. Notwithstanding, the difference in how these polices are involving in the developed compared to the developing countries, UNCED's Agenda 21[2] strongly noted the need to reconcile the productive functions of forests with their protective, environmental and social functions and this evolved from the original focus on 'sustained yield' to 'Forest Principles'.

FAO defines SFM as "dynamic and evolving concept, which aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations." The definition highlights that forests and trees, when sustainably managed, make vital contributions both to people and to the planet, bolstering livelihoods, providing clean air and water, conserving biodiversity and responding to climate change. SFM thus entails optimization of the benefits both traditional forest products and an array of social economic and environmental benefits of present and future generations. Livelihoods and human activity are key in the SFM equation in that forests provide essential services for people's livelihoods while at same time human needs and activities are the main cause of deforestation and forest degradation.

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[1] http://www.fao.org/3/w4345e/w4345e04.htm
[2] http://www.fao.org/3/w4345e/w4345e04.htm

The Uganda National Forest Policy, (2001), defines Sustainable Forest Management (SFM) as the management of forest resources so as to supply goods and services to satisfy the needs of present and future generations in perpetuity. The forest policy and law contain very clear principles of sustainable forestry in Uganda.

The National Environment Act, (2009), (Cap 153 Laws of Uganda) Section 46 of the Act requires NEMA to promote the use of renewable sources Sustainable fuelwood and (commercial) charcoal use, the Act empowers NEMA to compliment the efforts of NFA in sustainable forestry management.

State of Forestry Report, (2016), established that new opportunities for financing sustainable forest management (SFM) from forest revenues had emerged. Forest products and services which were not prominent as generators of forestry revenues were becoming more marketable and a promising source of income for the forest owners. These include non- traditional forest revenue sources emerging include ecotourism, art & crafts, bee products, carbon and biodiversity, among others. An emerging non-forest source of investment funds is corporate social responsibility among large private companies (mainly with international connections) and national statutory bodies.

The Forestry and Tree Planting Regulations, (2013), (Under section 92 of the National Forestry and Tree Planting Act, 2003, Act No.8 of 2003.) Part II: Forest Management and Planning provides sub section (5) Principles for sustainable forest management and sub section (6) on criteria and indicators for sustainable forest management.  This is the first step of operationalization of the international agenda of sustainable forest management and

*Box 2. Principles for SFM Uganda*

The Forestry and Tree Planting Regulations, (2013) Part II Subsection 5. Principles for sustainable forest management
1. conservation of ecosystems, habitats and biological diversity and their health
2. and vitality;
3. sustaining the potential yield of the forests' ecological, social and economic benefits;
4. promoting participation of stakeholders in the planning and management of forests;
5. promoting fair distribution of the economic, social and environmental benefits at
6. district and national levels;
7. conservation of watersheds and other natural resources, especially soil and
8. water;
9. conservation of natural heritage forest resources and their aesthetic, cultural and spiritual values;
10. complying with all relevant national laws and international instruments on forestry;
11. long term tenure and rights;
12. management in accordance with a forest management plan;
13. Regular monitoring of management activities and their impact;
14. Improvement of livelihoods and reduction of poverty.

implementation at national level.
The Uganda Green Growth Development Strategy 2017/18 – 2030/31 and the Green Growth Development Strategic Framework provides for Natural capital management and development and one of the planned strategic interventions is the sustainable forestry management. This intervention will mainly focus on two areas (i) undertake forest landscape restoration, especially on private land, through agro-forestry and afforestation actions and (ii) support

incentive programmes oriented towards livelihoods enhancement, environmental stewardship and landscape management for climate change adaptation, mitigation, food security and sustainable energy. This intervention will ensure that sustainable forest management practices are strengthened and the proposed funds are as follows in FY17/18 - FY19/20 (NDP II) US$ 1.1millions and FY 20/21 - FY 24/25 (NDP III) US$0.4 million respectively

National Climate Change Act, (2021), Article 2 provides for implementation of Article 3 of the Paris Agreement Sub section (a) (ii) Protection and enhancement of sinks and reservoirs of greenhouse gases not controlled by the Montreal Protocol and for countries to take into account commitments under relevant international environmental agreements to promote of sustainable forest management practices, afforestation and reforestation. Article 5 provides that Parties are encouraged to take action to implement and support including through results-based payments, already agreed under the Convention for policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

*Box 3. Criteria and Indicators (C&I) for SFM Uganda*

Analysis of data and information required for the SFM framework is aligned to the seven thematic elements of sustainable forest management based criteria and indicators processes. The Forestry and Tree Planting Regulations, (2013) Part II Subsection 6 also provide the criteria and indicators of sustainable forest management which are well aligned with thematic elements according to FAO.

The Forestry and Tree Planting Regulations, (2013) Part II Subsection 5. criteria and indicators of sustainable forest management
1. Forest resources biological diversity in forests;
2. The health and vitality of forests;
3. Productive functions of forests;
4. Protective and environmental functions of forests;
5. Socio-economic benefits of the forests
6. Status and appropriateness of the policy and legislative and institutional framework
7. Forest management.

## 3.2 Mapping of data and information to Sustainable Forest Management (SFM)

In this study mapping of data and analysis is categorized in three parts as follows; **Part A**-biophysical data includes the first five thematic areas i) extent of the forest resource, ii) forest biological diversity, iii) forest health and vitality, iv) protective function of the forest resource and v) productive functions of the forest resource. **Part B-** Socio economic functions of the forests and **Part C**- Legal policy and instructional framework.

| Part A | **BIOPHYSICAL DATA**<br>1. Extent of the forest resource,<br>2. Forest biological diversity,<br>3. Forest health and vitality,<br>4. Protective function of the forest resource and<br>**5.** Productive functions of the forest resource |
| Part B | **6. SOCIO ECONOMIC FUNCTIONS OF THE FORESTS** |
| Part C | **7. LEGAL POLICY AND INSTRUCTIONAL FRAMEWORK** |

*Seven Thematic elements of SFM, Adopted from FAO*
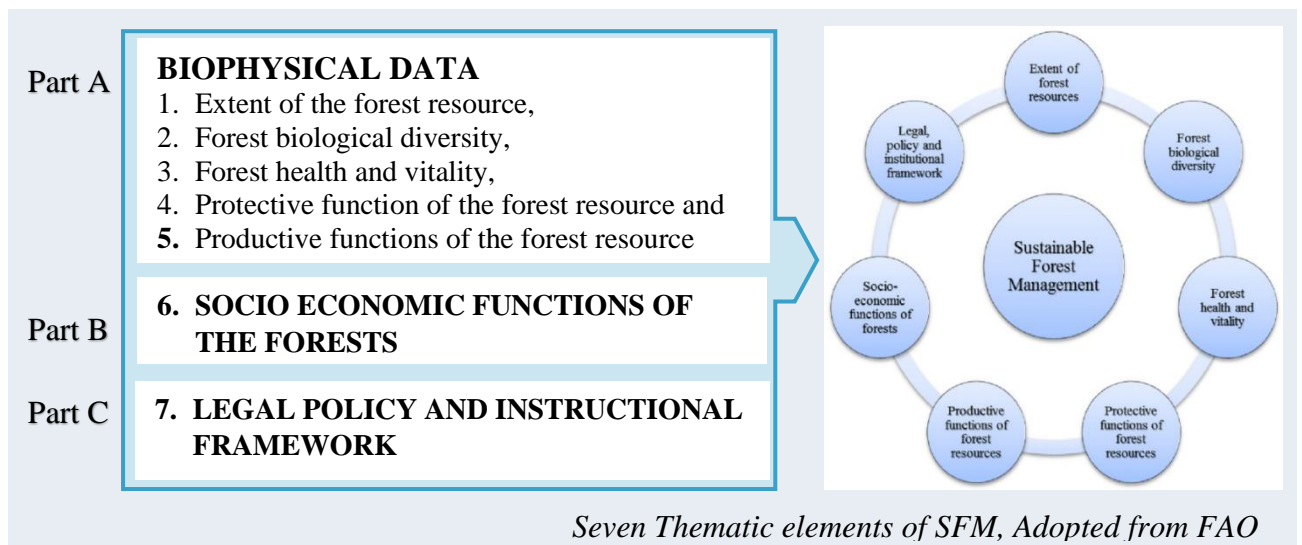
*Figure 3 Categorization of forest data in three parts and linking with the provision in the Forestry Tree Planting Regulation 2013 and FAO thematic elements*

**Biophysical data** used in the analysis includes forest area and forest area change, forest stock levels in terms of timber volumes, biomass stock and related carbon stock, biodiversity (both flora and fauna), harvested forest products, afforestation, reforestation, restoration of degraded natural forests.

**Socio economic data** includes incentives aimed at making improvements in forest value chain from forest establishment to harvesting and processing, livelihoods of forest dependent communities, incentive schemes and innovative financing mechanisms that increase chances of small holder farmers participate in forest production and processing such as Payment for Ecosystem Services (PES). Also included are data on interventions aimed at reducing pressure on forest resource such as efforts to provide alternative fuels for cooking and lighting especially for the fraction of the community modern and clean energy, research and development in bioenergy and investment in efficient biomass technologies.

In addition to SFM thematic elements, data source, data format, archiving mechanism, reporting period, reporting format and key stakeholder that holds the data set are identified and documented.

**Data covered under legal policy and instructional framework** include policy and regulatory instruments, advocacy to influence recognition and formalization communal forest tenure, policy on trade restrictions of vulnerable and threatened flora and fauna, policy issues on marketing of forest products, policy on systems that support enhanced traceability of forest products, movement and trade e.g., EU FLEGT labelling and coding. Global efforts on climate change, policy actions towards reversing deforestation and forest degradation are also considered.

In addition, the categorization and analysis will be used to inform the development SFM indicators. The information be will be validated by engaging stakeholders. Thereafter, an iterative processes of stakeholder engagement and analysis will be used to develop indicators that will form part of the SFM monitoring framework.

## 3.3 Biophysical data

Forestry: According to national statistics Uganda's forest land cover declined to 2.6 million ha of forest land in 2010, and to 1.96 million ha in 2015 from a forest area of 4.9 million ha in 1990. This is a reduction of 57 percent in just 25 years (MWE 2016). As recently as 2005, Uganda had a total of 3.6 million ha of forest land compared to 4.9 million ha in 1990, a reduction of 30 percent over a period of 15 years. The rate of loss accelerated between 2005 and 2010 to, 6.4 percent per annum, from 3 percent between 2000 and 2005. The rate of forest loss seems to have declined to 2.2 percent per annum between 2010 and 2015, but most of the damage has been done. Through the green growth approach, direct investments into ecosystem restoration to reduce deforestation and degradation can be undertaken. While reforestation is required, the catalytic investment is seeking the appropriate incentive for forestry on private land. Agro-forestry investments have been identified as the entry point for forestry on private land.

### 3.3.1 Categories of biophysical data

**Biophysical data** used in the analysis includes forest area and forest area change, forest stock levels in terms of timber volumes, biomass stock, biodiversity (both flora and fauna), harvested forest products, afforestation, reforestation, restoration of degraded natural forests. The details on stakeholders/source, formats in which data and reporting period is presented in Table 2.

*Table 2 Biophysical data Stakeholder, data formats and period of reporting*

| SFM element/criteria indicators NFTPR 2013 | Type of data | Stakeholder Data format and archiving | | Data Source | Reporting period | Reporting format |
|---|---|---|---|---|---|---|
| Forest biological diversity | Biodiversity data | WCS | Reports, geospatial | Field measurement | Not specified, project based | Report |
| | Biomass Stock by forest strata in CFRs | NFA | Relation database | Field measurement | 10 year update | Report |
| | Timber stocks by forest strata in CFRs | NFA | Database / paper | Field measurement | 10 year update | Report |
| Productive functions of the forest resource | Concessions permits and license | MWE | Paper documents | Estimated | Not specified | Report |
| | Timber harvesting concessions | NFA | Digital and analogue | Estimated / Measured | Annual & Quarterly in house | Report |
| | Seedlings to tree farmers | MWE / FIEFCO | Digital and analogue | Estimated / Measured | Annual & Quarterly | Report |
| | Forest plantation land allocation permits | NFA | Spatial database on PCs and Server | Estimated / Measured | Annual & Quarterly in house | Report & Extractable from database |
| | Seedlings allocated and planted | MWE / FIEFCO | Digital and paper records | In house records | Annual & Quarterly | Report |
| | Technical support in forest management | UTGA /NFA | Digital and paper records | In house records | Annual | Report |
| | Landscape tree inventory | NFA | Relation database | Surveys | Annual estimates | Report & Extractable from database |
| | Volumes of harvested wood products from CFR (rattan, timber, poles, fuel wood, bamboo) | NFA | Digital and paper records | Estimated / Measured | Case study based | Special reports |
| | Volumes of harvested wood products of private land (rattan, timbe, poles, fuel wood) | MWE FSSD | Digital and paper records | Estimated / Measured | Periodic, about 10 years | Report |

| SFM element/criteria indicators NFTPR 2013 | Type of data | Stakeholder | Data format and archiving | Data Source | Reporting period | Reporting format |
|---|---|---|---|---|---|---|
| | Water shade management | NFA/UWA/FSSD | Digital and paper records | Surveys | Special Report / Publication | Report |
| Extent of the forest resource | Forest plantation area and timber stocks in CFRs | NFA | Spatial database | Measured | 2 to 5 years | Database extractable |
| | Forest plantation area and timber stocks in CFRs | FAO /SPGS | Spatial database (under development) | Estimated / Measured | On request | Database |
| | Forest plantation areas stocks | FAO / SPGS | Spatial database on PCs and Server | Estimated / Measured | Annual, Quarterly and on request | Report |
| | Land use / cover and change statistics | NFA | Spatial data and reports | Database and inhouse reports | 2 to 5 years | Report & Extractable from database |
| | Land use / cover and change statistics | UBOS | Spatial data and reports | Derived from NFA database | 2 to 5 years | Web portal downloadable |
| Forest health and vitality /Forest biological diversity | Protection of flora and fauna | UWA / WCS | Digital and paper records | In house records | Annual | Report |
| | Tree Species composition in Agro Silivo pastoral systems | ICRAF | Spatial data and reports | Research paper | Special Report / Publication | Report |
| | Biodiversity data | WCS, IUCN, WWF,UWA | Digital and paper records | Surveys | Special Report / Publication | Report |
| | List of endemic and threatened species | IUCN, WCS,WWF | Digital and paper records | Surveys | Special Report / Publication | Report |

### 3.3.2 Data Sources

Stakeholders that hold biophysical data are majorly primary data producers who collect data themselves through surveys, field measurements and a combination of measurements and estimates. A few stakeholders like Uganda bureau of statistics (UBOS) may compile data from databases of other agencies. The reporting cycle or updating period of biophysical data is not regular and varies greatly amongst stakeholders. Data updates may take 1 year, 2 to 5 years and sometimes10 years. Some of the data is generate from one off special studies. In some instances, data collection is not supported by annual budgeting cycle but donor supported projects. Possible explanation for the inconsistency is that data collection is resource intensive in terms of man power, tools, logistics and finances especially where field data collection is required.

**Information on the extent of forest resource** is provided by several agencies mainly within MWE. For example, the FIEFCO project under MWE has data on woodlots establishment for watershed management and farm income enhancement approaches. The Saw Log Grant Scheme (SPGS) under MWE with support from FAO has a database on commercial forest plantations supported by their project. NFA has two forestry databases. One is the National Land Use land cover database and the other is a forest plantation management database for plantation development on land under NFA jurisdiction i.e., Central Forest Reserves (CFR). UBOS produces annual statistical abstracts that are based on the NFA data.

Data formats and reporting time frame differs amongst agencies. Annually, UBOS publishes statistical abstracts in form of reports that are downloadable from UBOS portal. NFA updates its data every 2 to 5 years. SPGS is still building its database. Both NFA and SPGS data are hosted as spatial databases. Data from FIEFCO project is available in spreadsheets (e.g number of seedlings allocations to farmers and by subcounty). A section of FIEFCO data is geographical referenced.

*The land use cover spatial database* at NFA is relatively well advanced. It is Uganda's first digital mapping at a national level since the 1954 physiography maps (Langdale-Brown *et ela*

1954). With support from FAO under the REDD+ programme, the capacity of NFA to update national land use cover maps has improved from every 10year to 5 years and recently to about 2 years (NFI 2019).

**Forest biological diversity data;** UWA and NFA hold about 2 million hectares of forest under their jurisdiction and both institutions are involved in biodiversity. The last major biodiversity inventory in Uganda's protected forests was carried out in the early 1990s (Howard et al 1996). Inform from these surveys was used to inform management decision that resulted in some forests to be accorded higher protection and are now UWA's jurisdiction.

Since then, they has been very limited biodiversity surveys by both UWA and NFA. The Wild Life Conservation Society (WCS), an international NGO, carries out intensive and more regular surveys than the two government agencies. However, WCS surveys are limited to WCS's area of operation. The World Wildlife Fund for nature (WWF) and the International Union for Conservation of Nature (IUCN) play are key players in the biodiversity arena especially in terms of advocacy for threatened and endangered species.

**Forest health and vitality** considers parameters that enable a forest to recover from or adapt to disturbances. There are no distinct boundaries in data sets used to assess health and vitality. Some the data sets considered include biological diversity and some of the productive functions of forests such as; biomass stock that is provided by NFA, tree species composition in Agro Silivopastoral[3] systems by NFA and data on biodiversity data, endemic and threatened species provided by IUCN, WWF and WCS.

**Protective function of the forest resource** may be derived as combination of all the afore mentioned data sets. Key consideration was however given to data on watershed provided by NFA, UWA and FSSD.

**Other important biophysical data** not discussed but might influence SFM include meteorological data, soils and data on fires. These data sets influence all the five thematic areas. Habitat maps that can be derived from a combination of the above listed data sets are also of great importance to SFM.

### 3.3.3   Data collection and Management

Although they may not have capacity to make regular updates, biophysical data is majorly collected by government agencies through field surveys. International NGOs tend to be involved in biophysical surveys, socio economic survey and advocacy on how and who uses the natural resources. Civil society organization (CSO) are generally focused on socio economic survey and advocacy. The private sector does not collect data but are a source of data given that they are indirectly involved in activities like biomass energy substitution, solar energy systems, reduction on biomass demand by use efficient devices.

Other important sources of data are government agencies and academic and research institutions involved in research and development bio fuels and energy efficiency systems which reduce have a direct influence on biomass demand (Table 3).

*Table 3 entities involved in bio energy bio fuels and the management of natural resources*

| Service | SLM Contribution | Category | Count | Per |
|---------|-----------------|----------|-------|-----|
| Govt | Biophysical data | Forest and LUC | 11 | 31% |

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[3] Combined woody component (trees or shrubs) in crop land and rangelands and cattle on the same site

| NGO | Advocacy | Forest and LUC | 1 | 3% |
|---|---|---|---|---|
| Analysis | BP & SE Data | Forest and People | 1 | 3% |
| Advocacy | Biodiversity | Flora and Fauna | 1 | 3% |
| Analysis | Biophysical data | Flora and Fauna | 1 | 3% |
| Forest | Finance | Finance to AR | 1 | 3% |
| Advocacy | Impr Management | Management Forest and LUC | 2 | 6% |
| Community | Livelihood | Addressing community environmental challenges | 2 | 6% |
| Forest | Management | Management Forest and LUC | 3 | 8% |
| Forest | Pro | Promoting AR | 1 | 3% |
| BioEnergy | RD | Mgt biomass energy technologies | 3 | 8% |
| Forest | Reduce P | Affordable light energy solutions | 6 | 17% |
| Provider | SE Data | SE data | 2 | 6% |
| Forest | VC | Forest product value chain | 1 | 3% |

### 3.3.4 Tools used

Most of the tools used for the collection of biophysical do not include other important aspects such that socio economic aspects of the data. In addition, tools may vary greatly from one institution to other even when the information required is the same or similar. The current tools may need to be refined if so that include other vital information needed for sustainable forest management.

### 3.3.5 Archiving, documentation and reporting

Data archiving, documentation and reporting varies significantly amongst institutions and within departments of the same institution. Only a quarter of the agencies have data in specialized database which enable to easily update and retrieve data as need arises. Majority store data in a mix of digital reports and paper records. This poses a great challenge for data updating and data versioning.

Government institutions such as NFA, UBOS, MAAIF, NARO, NAFORI, have dedicated servers that host their key data sets. The challenge is that majority of stakeholders that have such advanced database system, lack of proper documentation such as Metadata, which is big a challenge to data users that are not from within that agency. This is also poses a great challenge for data versioning and or updating.

### 3.3.6 Gaps Identified

**Data quality and data format;** It common for agencies to collect same or similar information using different tools and data formats. This poses a big challenge for data integrations. In addition, lack of METADATA is a great barrier for usage of data outside the agency that collected the data.

**Limitation of data collection tools;** in some instances data collection tools are limited to very few parameters thus missing the opportunity to cater for different aspects of the forest resource.

**Field data collection, updates and reporting;** Due to technical and financial limitations, there are many challenges in data updating and reporting and very few agencies are able to provide annual data updates.

For examples no forest inventory activity has taken place since the end of FAO support to the REDD+ program in 2019. It is not clear when activities will resume. Budgetary allocations seem to be inadequate in many of these agencies.

**Limitations in data analysis**, a few technicians have the required data analysis skills (MWE 2019). Most institutions required external support to adequately utilize the data at their disposal.

**Local governments not involved in data collection.** During the time of FAO support to REDD+ programme, local government trainings were initiated. However, a lot of challenges still remain. Capacity to participate in data collection vary greatly between districts and is overall very low. A big part of the District Forestry Officers (DFOs) are not trained and are not sufficiently equipped. There is no linkage between the district Forestry Service and MWE which is the mother ministry (MWE 2019).

## 3.4   Social Economic Data

Uganda's forests provide multiple environmental, social and economic benefits, meeting the country's needs for wood fuel, timber and poles, providing habitats for flora and fauna, and helping mitigate climate change. Forest ecosystems are Uganda's principal source of energy, since woody biomass accounts for 78 percent of energy production (MEMD 2016). A lot of data and information on biomass energy use and biomass technologies is found in energy abstracts and by MEMD. Most of the  Uganda's forestry sector contributes 4 percent of Uganda's Gross Domestic Product (UBOS 2018), research suggests that this contribution may in fact be as high as 8 percent (NEMA 2011).

National Development Plan 2021, target is to develop incentives to promote protection of at least 500,000 ha of natural forests on private land within priority biodiversity corridors. As a strategy for Promote management of important biodiversity corridors on private and communal land. This has been made possible by incentives of start-up capital extended to private sector plantation growers by the Sawlog Production Grant Scheme (SPGS) funded by the European Union and more recently, by the Norwegian Government. The SPGS programme has facilitated engagement of private sector development considering that investment in tree growing has got a relatively long gestation period (in most cases over 15 years) and therefore it requires incentives. The scheme aims at promoting private investment in timber production in Uganda. It started in 2003 and with five years, it promoted the establishment of some 15,000 hectares of industrial timber plantations throughout the country.

New opportunities for financing sustainable forest management (SFM) from forest revenues have emerged. For example, forest products and services which were not prominent as generators of forestry revenues are now becoming more marketable and a promising source of income for the forest owners. The non-traditional forest revenue sources emerging today include ecotourism, art & crafts, bee products, carbon, and biodiversity, among others. An emerging non-forest source of investment funds is corporate social responsibility among large private companies (mainly with international connections) and national statutory bodies. The benefits that communities receive under CFM arrangements are not enough to create incentives for improved management of CFRs.

**Socio economic data** includes incentives aimed at making improvements in forest value chain from forest establishment to harvesting and processing, livelihoods of forest dependent communities, incentive schemes and innovative financing mechanisms that increase chances of small holder farmers participate in forest production and processing such as Payment for Ecosystem Services (PES). Also included are data on interventions aimed at reducing pressure on forest resource such as efforts to provide alternative fuels for cooking and lighting especially

for the fraction of the community modern and clean energy, research and development in bioenergy and investment in efficient biomass technologies.

### 3.4.1  Categories of data
Information on alternative fuels, investment in efficient biomass technologies, production levels, employment levels along the value chain, consumption rates and quality of products. Research, development and promotion of alternative energies to reduce pressure biomass energy demand for lighting and cooking have considered.

Information categorization and documentation includes financing (incentives) of forestry SME such improvements in value chain from forest harvesting to processing, financial forest restoration support and in kind (such provision of planting materials). Equally important is information on the livelihoods of forest dependent communities, innovative financing mechanisms and incentives such as Payment for Ecosystem Services (PES) that help break barriers that impinge the less advantaged small holder farmers from investing in tree farming. Uganda's wood assets include standing stock available for supply and those not available for supply, according to the applicable system of land ownership and management.

### 3.4.2  Data Sources
The commonly used sources of data for forestry information on social economic aspects are National Population and Housing Census surveys, National Development Plan, National Forest Plan and Sector Investment Plans. These institutions provide data in their project reports whose socio economic functions of the forests are presented in Table 4. Most entities rely on estimates or extrapolation from special studies.

Some of the institutions are listed in table 4 are sources of socio-economic data but may not be involved in data collection themselves. They are listed such that a mechanisms of regularly collecting data from them can be devised. Even those that collect socio economic data like UBOS, there is need of exploring mechanisms of including parameters that would improve on tracking forest related social economic aspects.

*Table 4 Institutions, type of data and reports generated on Socio economic functions of the forests*

| Institutions | Type of data | Type of reports/Database |
|---|---|---|
| UTGA | Forest products value chain to members | Annual and on request |
| WWF | Forest products value chain in project sites | Task accomplishments |
| | PES for watershed management | Database |
| ECOTRUST | PES small holder communities | Database |
| MEMD | Promotion of biomass energy technologies | Task accomplishments |
| CREEC | RD of biomass energy technologies | Special Report |
| Nyabyeya Forestry College | RD of biomass energy technologies | Research paper |
| Solar Uganda | Provision of alternative energy to rural communities through provision of affordable lighting  solutions | Annual |
| SNV | Reduce biomass demand though Promotion and capacity building in biogas energy | Annual |
| Affordable LPG solutions | LPG promotion as charcoal substitute | Annual |
| UNDP/ GGGI | RD Waste to energy case studies | Task accomplishments |
| Improved Stove Private sector | Energy savings and stove uptake | Annual |

| Institutions | Type of data | Type of reports/Database |
|---|---|---|
| Carbon trading companies | PES supporting use improved charcoal stoves for poor urban | Database |
| FAO /SPGS | Financial technical support provided | Annual & Quarterly |
| WRI / FAO/ UFFS | Case studies people, natural resources and PES | Special Report / Publication |
| UBOS<br><br>Ministry of Energy and Mineral Resources<br>National Forestry Authority | Social economic data | Annual |
| | Social economic data across the landscape<br>Quality of Fuel wood<br>Product users<br>Employment levels | Annual<br><br>National Charcoal Study<br>National Firewood Study |
| | Volume of Wood | National Biomass Study |

### 3.4.3 Data collection and Management

Data collection on social economic aspects is done through surveys such as value chain for forest products. Some of it is compiled for secondly sources such extraction of data and information from socio economic reports. Currently, there is no streamlined mechanism of collecting, archiving and synthesizing socio economic data for purposed of tracking aspects related to sustainable forest management.

### 3.4.4 Tools used

There are numerous volumes of reports that contain socio economic data but no specialised entity with appropriate tools and responsibility to sieve out this data for application in tracking progress on SFM. The list below (table 5)covers a minute section of the available socio economic data related to forestry and SFM in particular.

Table 5:Forest Monitoring Tools used in Uganda

| Satellite Remote Sensing | Cost-effective method to monitor deforestation and possibly degradation and carbon stock enhancements |
|---|---|
| Web-based Portals | Transparent means to monitor outcomes of Policies and Measures (PAMs) implementation, allows users to provide feedbacks and user-interactions |
| Community monitoring | Bottom-up means to incorporate local knowledge into monitoring. Means to ensure effective engagement of IPs in monitoring & Reporting |
| Other forest monitoring systems | Builds linkages with existing monitoring systems e.g. local government, UWA, NFA field officers, research institutions, NGOs and CSOs |

Source: NFA, 2016

### 3.4.5 Archiving, documentation and reporting

Socio economic information on forestry and SFM in general is scattered in numerous government agencies and private sector and most of it outside the forestry sector. This information is in form research papers, journals, reports and government reports. There is need to establish a mechanism of extracting this information so that it adds value to SFM.

### 3.4.6 Gaps Identified

According to the Uganda Natural Accounting Program 2020, there is a need to conduct more detailed research into non-wood forest products, including medicinal plants, bark cloth, rattan

cane, gum arabic, bamboo and resins, among others, to quantify their economic contribution more accurately. There is plenty of data on socio economic aspects of forests but very little documented in manner that makes it meaningful for the SFM purposes. There is thus seemingly very limited data on harvested wood products, poverty in relation to forests, wood products prices, demand and supply of wood, indigenous people, forestry value chain support and mmitigation efforts on alternative energy sources, biofuels as well as wood stock outside the protected areas.

## 3.5  Legal, policy and institutional framework

This includes policy and regulatory instruments, advocacy to influence recognition and formalization communal forest tenure, policy advocacy on timber trade restrictions of vulnerable and threatened flora and fauna, policy issues on marketing of forest products, policy on systems that support enhanced traceability of forest products, movement and trade e.g., EU FLEGT labelling and coding. Global efforts on climate change, policy actions towards reversing deforestation and forest degradation are also considered. This also considers aspects of national and international reporting requirements on forests and forest related goals and targets.

The National Forestry and Tree Planting Act, (2003), requires that private forest owners develop forest management plans which is in contrast to the past where there was virtually no requirement for planned management of forests on private lands. There are efforts to operationalize development of forest management plans of private natural forests; for instance, under the Farm Income Enhancement and Forest Conservation project (FIEFOC).

The Ministry of Water and Environment (MWE) in collaboration with the Ministry of Internal Affairs set up a unit under MWE called the Environmental Police Unit to sensitize and enforce environmental laws and prevent degradation of protected areas. This unit is utilized by agencies such as NFA, Ministry departments whenever there is need to support enforcement and implementation of policies and laws in the forestry sector and MWE at large. The unit is facilitated by the agencies and MWE. UWA has its own Enforcement System mainstreamed in the UWA institutional Structure.

Government uses forestry regulations and other administrative arrangements to ensure responsible supply chains. Forests under NFA and UWA have been zoned, taking into consideration multiple use, and endangered species. Private networks and associations such as National Forest Stewardship Council (FSTC) have developed forests standards for Uganda to support policy implementation.

The Uganda Timber Growers Association (UTGA) is an association of private forest owners with 75% having plantations on NFA land, including forests owned by institutions such as faith based organizations, traditional institutions and schools. They have management objectives that are in tandem with sustainable forest management principles. The association is involved in large scale afforestation; lobby group for initiating amendments in existing laws and regulations in order to improve the investment environment for commercial forestry; promoting public awareness regarding importance of timber plantations; training and continuous learning about commercial forestry management; engagement in scientific research and development to continually improve plantation establishment and maintenance practices.

CARE Forest Resources Sector Transparency Programme supported civil society and media, to empower poor and natural resource dependent citizens, to participate in forest governance, monitor implementation of forest policies and laws and advocate for fair and appropriate forest laws and regulations at the national and global level

Uganda Forest Working Group hosted by Environmental Alert as the Secretariat are involved in dissemination, skills capacity building, forestry extension, advocacy, policy analysis, independent monitoring; Forest management and tree farming investments on private land; Forest investments in CFRs on rented land; Collaborative Forest Management of CFRs; Wood and Non Wood Forest Products (NWFP) processing; Trade in forest products; Efficient use of fuel wood.

World Wide Fund for Nature (WWF) Uganda developed a better understanding of the origins and extent of illegal timber and associated products and management systems operating in the country.

Research Institutions both public and private collect data for forest monitoring they include; National Forestry Resources Research Institute (NaFORRI); Jane Goodall Using GFW data in combination with mobile technologies to improve forest monitoring; Wildlife Conservation Society (WCS); Pro-Biodiversity Conservationists in Uganda (PROBICOU) and Nature Uganda.

Civil Society Organizations in general play an active role of advocacy, lobbying and awareness creation, engaging in critical discussion around land rights and acquisition processes in Uganda (Uganda Consortium on Corporate Accountability, 2018). ECO-TRUST has continuous engagement in land use processes and innovations; Plan vivo implementation arrangement under the Global Trust Project requires participating members to have land use plans.

### 3.5.1 Categories of data

The categories of data required on legal, policy and institutional framework is based on the provisions in the legal framework for the forestry sector both at international and national level. Uganda is a signatory to the following conventions that require forestry data: The United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Climate Change Agreement, Convention on Biological Diversity (CBD), Convention on International Trade in Endangered Species (CITES), Convention to Combat Desertification (CCD). Uganda has also committed to restore 2.5 million ha as its pledge to the Bonn Challenge, a global aspiration to restore 100 million ha of degraded lands by 2020.

The above conventions usually require forest data and information relevant on land use, land cover change, deforestation, forest degradation and forestry Biodiversity. Most of these reports use data generated in these reports include information on forestry. The Climate Change Department (CCD) under the Ministry of Water and Environment is the coordinating entity for all climate change issues and as such hosts the National Focal Point who is responsible for submitting the above documents.

Uganda participates in regional initiatives under the auspices of East African Community (EAC), Inter-Government Authority on Development (IGAD), Greater Virunga Trans-Boundary Cooperation (GVTC) and the Nile Basin Initiative (NBI), among others. These initiatives tend to focus on trans-boundary natural resources management, law enforcement, trade in natural resources products, production standards and information management. Through these programmes, forestry resources are some of the targeted areas for regional collaboration. Forestry data is required to monitor the contribution and the impact of forest resources. The categories of data required under international commitments are presented in Table 6.

Table 6. Category of data required and commitments reports legally mandated at international level

| International Commitments | Type of Report | Forestry Data | National Institution |
|---|---|---|---|
| UNFCCC | National Communications GHG Inventory | GHG emissions by sector, mitigation co-benefits of adaptation actions and progress towards MRV, Needs and Support received | Ministry of Water and Environment Climate Change Department |
| • Cancun Framework | REDD+ Strategy NFMS based National Databases | REDD+ forest reference emission levels and/or forest reference levels | Forest Sector Support Department |
| • Paris Agreement | Biennial Update Report MRV based on National Database | Transit to Enhanced Transparency Framework | Ministry of Water and Environment Climate Change Department |
| • NDC | Enhanced Transparency Framework based on National Database | Carefully select indicators through BTRs on net GHG emissions and removals; percentage reduction of GHG intensity; relevant qualitative indicators for a specific policy or measure; mitigation co-benefits of adaptation actions and/or economic diversification plans; or others (e.g., hectares of reforestation, percentage of renewable energy use or production, carbon neutrality, share of nonfossil fuel in primary energy consumption, and non-GHG related indicators). | Ministry of Water and Environment Climate Change Department |
| UNFF Secretariat | Not determined | Assess of progress towards achieving the purpose of the UN forest instrument e.g. effectiveness of sustainable management of all types of forests + shared global objectives on forests, national progress reports | Forest Sector Support Department |
| CBD | National Biodiversity Strategy and Action Plan (NBSAP) | highlight status of ecosystems (coverage of protected areas and forests), status and trends of tree/plant species, threats to biodiversity and implications of biodiversity loss. | National Environmental Management Authority |
| CITES | National Report on Convention on International Trade in Endangered Species of Wild Fauna and Flora | overall implementation of the convention including summaries of national compliance and enforcement efforts on trade in wildlife flora | The Department of Wildlife Conservation in the Ministry of Tourism, Wildlife and Antiquities |
| UNCCD | National Report on measures being taken to implement the Convention to Combat Desertification | strategies and priorities established within the framework of sustainable development plans/priorities and their progress for different sectors (such as the National Forest Plan), coherent and functional legal and regulatory framework (e.g. National Forestry and tree Planting Act). | Ministry of Agriculture, Animal Industry, and Fisheries (MAAIF) |
| Bonn Challenge | Report the status/progress on Bonn Challenge | Uganda has committed to restore 2.5 m ha with a potential climate benefit of sequestering 0.24 $GtCO_2$ by 2020 IUCN who have promoted restoration through farmer-managed natural regeneration, zonation of the country | FSSD and NFA |
| FAO Member Countries | Forest Resource Assessment (FRA) | Every five years monitor and report on necessary variables | National Forestry Authority (NFA) |

At national level the legal and policy documents that provide for the need to monitor forests resources include; The Constitution of the Republic of Uganda (1995), the National Environment Act, Cap 153 (1995), the National Forestry Policy (2002), National Forestry and Tree Planting Act (2003), the Land Act (2001), the Local Government Act (1997), National Energy Policy (2002), National Environment Policy (1995), National Wetlands Policy (1994),

Climate Change Policy (2012), the Renewable Energy Policy for Uganda (2007); and the Uganda Wildlife Policy (2003).

The policy and law are reflected in the National Forest Plan (2011). Other laws that are important for SFM include: Uganda Wildlife Act (CAP 200), Local Governments Act (CAP 243), the National Agricultural Research Act (2005), The Traditional Rulers (Restitution of Assets and Properties) Statute (CAP 247), The Inspector General of government Act (CAP167), The Leadership Code (CAP 168), The Magistrates Act (CAP 16), The Police Act (CAP 303), and The Evidence Act (CAP 6). Some of the mandatory national reports on forests is presented in Table 7.

*Table 7 National Reports containing forestry information and they cycle of reporting*

| Product/ Report | Cycle (Years) | Institution |
|---|---|---|
| National Accounts | 1 | UNFCCC |
| GHG inventory | 1 | CCD, REDD+ |
| Forest Resource Assessment (FRA) | 5 | FAO |
| Statistical Abstract | 1 | MFPED-UBOS |
| Status of Wetlands Report | 2 | MWE, Wetlands Department |
| Wealth Accounting and Evaluation of Ecosystem Services (WAVES) | | MWE, MFPED-UBOS |

### 3.5.2   Data Sources

In table 5 and table are listed some of the key sources of data and information on legal policy and institutional framework for SFM. However, the sources are numerous and spread in many government departments and agencies. Most of the data can derived from legal and policy documents, sector review reports, national investment plans, strategic documents, research papers and field records. Ministry of water and Environment including its departments and agencies are key sources of data on legal policy and institutional framework that concern SFM. However, all legal instruments have to be interpreted in accordance with the constitution which is the supreme law of the land.

### 3.5.3   Implementing entities

Most legal and institutional framework documents are produced in consultative manner and relatively a long time to be updated. Once in place implementation is by legally mandated entities. The key forestry sector institutions responsible for enforcement are: The Forest Sector Support Department (FSSD) which is in charge of policy, sector coordination and support to districts; the NFA which is in charge of managing the 506 Central Forest Reserves (CFRs) and providing certain technical services; and the District Forest Services which provide decentralized forestry services in all districts and manage local forest reserves (LFRs). UWA manages the forests in the National Parks and Wildlife Reserves.

NFA falls within the portfolio of the Ministry of Water and Environment with the Minister as the political head. The Directorate of Environment is responsible for environmental policy guidance within the Ministry and the FSSD is responsible for the forestry policy guidance and regulation within the Directorate. By law, NFA reports to the Minister but on a day-to- day basis, it works with FSSD and the MWE Permanent Secretary on behalf of the Minister (OAG, 2012).

Uganda Wildlife Authority (UWA) is mandated with the management of the forest resources in national parks, wildlife reserves and wildlife sanctuaries (about 50% of the gazetted forests); Joint-management with NFA of some central forest reserves under this management status. In the management of these wildlife PAs the conservation approach in use mainly focuses on law enforcement, community conservation, research and monitoring, and financial sustainability (MWE, 2015). In their strategic plan, UWA have their own law enforcement system to combat illegal activities in and outside the protected areas

The National Forestry and Tree Planting Act, (2003), requires that private forest owners develop forest management plans which is in contrast to the past where there was virtually no requirement for planned management of forests on private lands. There are efforts to operationalize development of forest management plans of private natural forests; for instance, under the Farm Income Enhancement and Forest Conservation project (FIEFOC).

The Ministry of Water and Environment (MWE) in collaboration with the Ministry of Internal Affairs set up a unit under MWE called the Environmental Police Unit to sensitize and enforce environmental laws and prevent degradation of protected areas. This unit is utilized by agencies such as NFA, Ministry departments whenever there is need to support enforcement and implementation of policies and laws in the forestry sector and MWE at large. The unit is facilitated by the agencies and MWE. UWA has its own Enforcement system mainstreamed in the UWA institutional Structure.

Government uses forestry regulations and other administrative arrangements to ensure responsible supply chains. Forests under NFA and UWA have been zoned, taking into consideration multiple use, and endangered species. Private networks and associations such as National Forest Stewardship Council (FSTC) have developed forests standards for Uganda to support policy implementation.

### 3.5.4 Archiving, documentation and reporting

The reports are documented and stored in both soft and hard copies within the mandated institutions. Access to these reports require administrative procedure. There are also shared publicly on the websites such as internal mid review reports and strategic documents.

Under the REDD+ programme, the Safeguards Information System (SIS) was established. The design of SIS covers indicators for determining whether a policy or an intervention is being effectively implemented; methodologies for information collection; and framework for provision of information (storing and sharing). SIS is also expected to be country-driven, built preferably upon existing or new relevant information systems, and created through policies, laws and regulations to gather and manage safeguard information at the national level.

### 3.5.5 Gaps Identified

Uganda has got a policy and institutional framework that supports climate change mitigation and adaptation efforts. Though not explicit, generation of data and information for monitoring progress towards sustainable forest management is supported. However, the enabling environment is not fully utilized. For example, institutions like NFA do not regularly provide compile land use related Green House Gases (GHG) emissions and submit them to Climate Change Department (CCD). FSSD which has oversight on NFA does not get regular updates as required. Apparently NFA may not be getting the required support from the FSSD, MWE and CCD.

The FSD under local government is anticipated to be providing regular updates on the forest estate and forestry in general to FSSD in the mother ministry. This however is not happening.

# 4  Key Data Bases

## 4.1  Forest inventory

In Uganda, the history of forest inventories is very long with some of the recorded inventories having taken place in 1930s. Since then, forest inventories in Uganda have evolved transiting from focusing only on timber to several products which include, fuelwood, timber and non-wood products such as rattan, bamboo and ecosystem services such as watershed management and carbon stocks.

In the late 1980s, the necessity to plan for biomass which accounts for 90% of the country's energy demand (and probably more at that time) gave birth to the project known as the National Biomass Study (NBS) with the support from the Norwegian Agency for International Development (NORAD). Around the same time, the European Union (EU) supported the Forest Resources Management and Conservation Programme (FRMCP) that targeted inventories in Tropical High Forest under the management of NFA. These were Exploratory Inventory (EI) and Integrated Stock Survey and Management Inventory (ISSMI).

The EI is more of a traditional forest inventory that was designed for timber stock assessment. It is used to decide at a forest management level which species to promote and protect, the appropriate diameter limit classes, and sequence compartments into felling series and is used to determine Annual Allowable Cut (AAC).

*Integrated Stock Survey and Management Inventory (ISSMI) -* is 5% assessment of a forest and is primarily a planning, control and monitoring tool at compartment level.  When a compartment is identified for harvesting within a 5-year coupe, ISSMI is carried out before the start of that period.

**Permanent Sample Plots** – ar carried out in both natural high forests and plantations to provide information on Annual Allowable Cut (AAC), forest growth and yield information, potential productivity of the site, effects of silvicultural treatment on growth and yield, data on the effect of management of stands on physical, chemical and biological properties of the site and changes in site productivity over successive rotations of tree crops under management.

**Biodiversity Inventory** – In early 1990s Forest Department (FD) carried out biodiversity surveys in some selected (65) CFRs across the country. The inventory looked at five taxa and these were plants, birds, moths, butterflies and small mammals. From this inventory report, a nature conservation master plan was developed leading to about 50% of Uganda's forests being marked for conservation as strict nature reserve and buffer.

**Biomass Study (NBS)** was designed to quantify biomass stock across the landscape in all woody formations including bush and agricultural residues. The goal was and still is to provide biomass statistics per land cover/use for the purposes of implementing relevant actions to safeguard the future availability of wood, and provide for the development of the agriculture and forest sectors in harmony with the natural resource base.

The periodic monitoring of biomass resources acts as an important tool for the three pillars of sustainable development; the economy, society and environment. NBS also provides information that is required for compilation of GHG emissions.

Under the REDD+ programme a component of socio economic data was incorporated into to EI and NBS surveys. The two inventories were identified as the core surveys of what is now known as the National Forest Inventory (NFI) for Uganda's REDD+ programme. They provide multi-disciplinary information which includes conventional forest inventory parameters (e.g. volume and biomass), other benefits from the forest (e.g. biodiversity) and economic factors (e.g. products use and land tenure).

In addition to EI and NBS, Uganda's NFI benefits from a number of other surveys and databases (figure 4). These include specialized inventories that target assessments of other forest products such as bamboo and rattan. These surveys are supported by the academia and state agencies such as NFA as FSSD. In addition, the NFI benefits from the Wild Life Conservation (WCS) database which carries out periodic 'forest' inventories in Murchsion and Semlik landscapes.

Major commercial forest companies in Uganda are presumed to have a much bigger database on plantation forests than that all in the government agencies combined. The main focus of the private sector is forest productive forestry with some having interest in the carbon offset component.
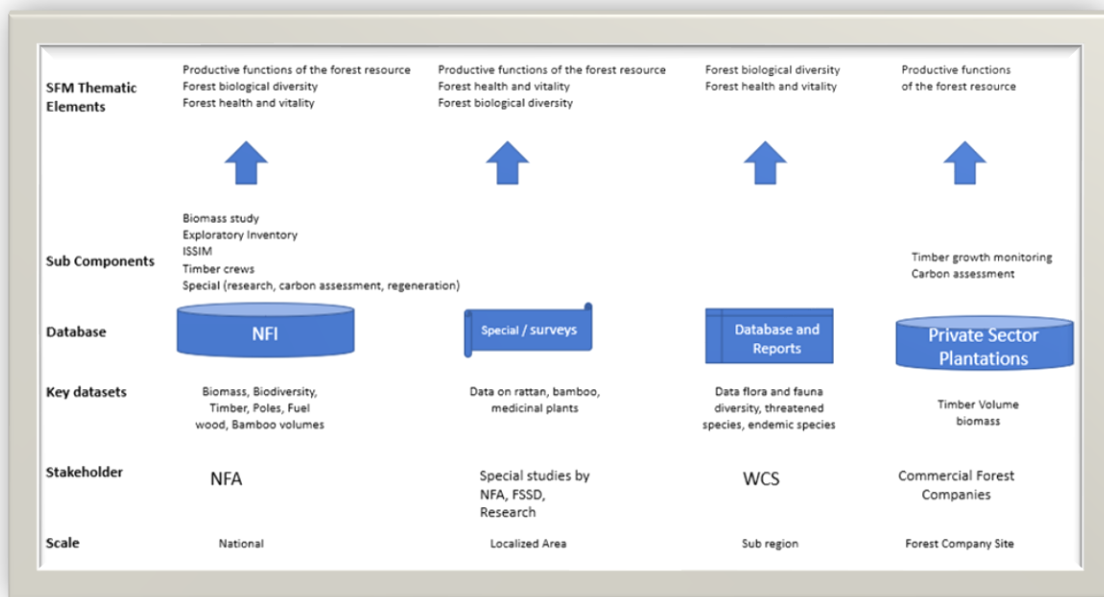


*Figure 4. Uganda's NFI and key related databases*

## 4.2 Land use land cover statistics

In 1995 the NBS, which later became mapping unit under NFA, produced the first digital wall to wall land use / cover map many years after the 1964 physiographic map (Langdale-Brown *et ela* 1954). The department of lands and surveys has got the mandate for mapping and setting standards in Uganda. However, NFA has the core expertise to map land use cover and monitor changes therein over time. NFA has thus been mandated to periodically produce these

important national statistics. NFA is recognized by UBOS, the lead statistical agency as the official supplier of this information.

After the 1995 map NFA was able to produce the first update after about 10 years and later on after 5 years. With the support from FAO under the REDD+ programme NFA' s capacity was greatly improved and is now capable of making updates after every two years.

## 4.3   Other forestry databases

Within the MWE there are other forestry databases. These are designed to serve highly specialized services. For example, NFA has a land management database that manages plantation forestry investment on NFA land by the private sector. This system monitors area planted, by species. It also has a revenue tracking element.

The SPGS plantation forest management system is expected to be handed over to FSSD at the end of the SPGS project. Currently, it tracks SPGS clients to ensure that they comply with contractual obligations before they can assess a grant which reimburses a portion of plantation establishment costs. The FIEFCO database under FSSD tracks beneficiaries that have been supported with tree planting materials figure 4. Most of the information is in form of seedlings that were planted and survived in comparison to seedlings allocated.
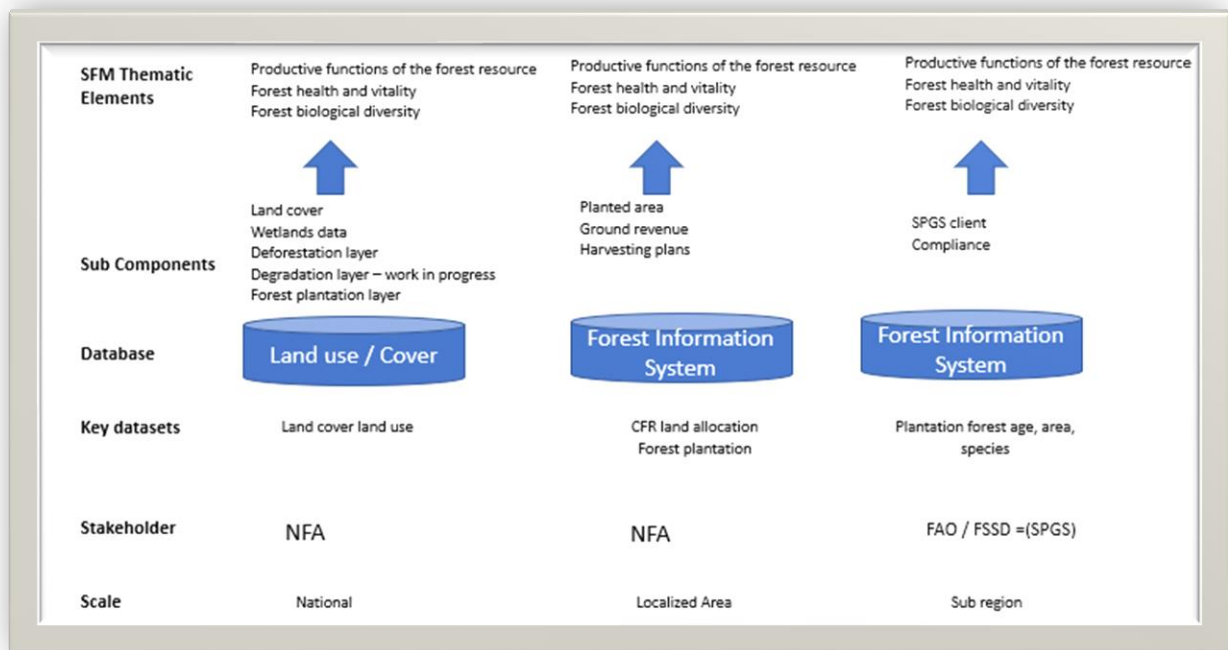


*Figure 5. The Land use Database and complimentary databases*

## 4.4   The National Forest Monitoring System (NFMS)

### 4.4.1   MRV and Monitoring Aspects

In the context of results-based payment for REDD+, Uganda established the NFMS with the Measurement Reporting and verification (MRV) functionality as set out in UNFCCC decisions (Cancun, Warsaw and others). Uganda decided to take advantage of the existing systems making the NFI and Land Use databases key pillars of the NFMS and thus making NFA the

defacto host of the NFMS. A web portal for sharing information of REDD was established and NFA given the capacity and mandate to manage it.

The NFMS combine or creates linkages to the most of the aforementioned databases. The NFMS is expected to have two key outputs; 1) a function MRV system that estimates GHG emissions based on NFI and land use / cover statistics and 2) the monitoring aspect that has several socio economic aspects such as community involvement and non- carbon benefits (including safe guards). The red circles indicate where the NFMS is rated to be performing well. It can thus be concluded that the system performance is inclined towards the GHG compilation but very little in the monitoring aspects. Uganda's MFMs is presented in Figure 6.
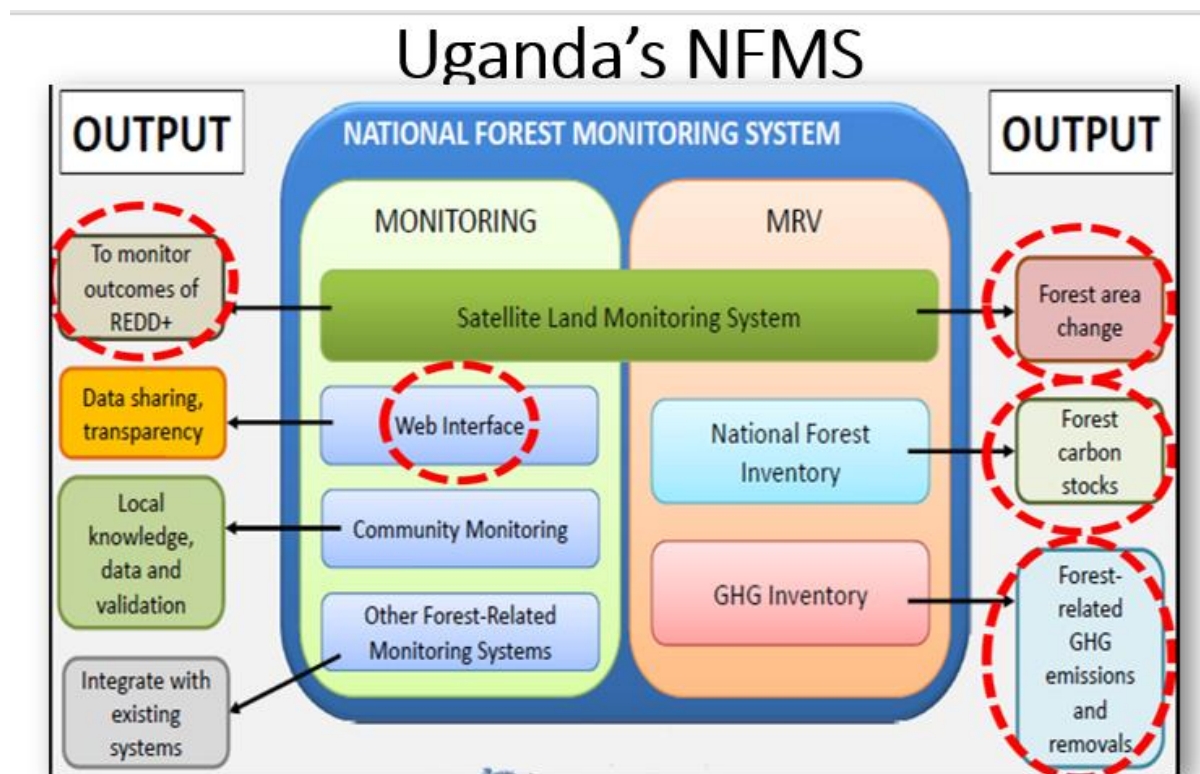


*Figure 6. Uganda's NFMS, Red circle indicating functional aspects*

### 4.4.2   Roles interlinkages and coordination on data management

Assessment of the biophysical database indicate that NFA plays a central role in data collection, archiving and reporting on the five thematic areas of the SFM. It for this reason that NFA is the de facto National Forest Management System (NFMS) custodian for Uganda's REDD+ programme.

Most of the biophysical data sets and are managed in Geographical Information Systems (GIS). For purposes of transparency and reporting, a web Portal that holds a number of these data sets in place. However, the functionality of sharing data is yet to be developed.

According the UNFCCC reporting arrangement, FSSD provides oversight to ensure that NFMS is operational. The Climate Change Department (CCD) is in charge of international reporting and ensuring the coherence and quality of the final outputs. Though NFA, FSSD and CCD are under the MWE, an MoU was developed to ensure that NFA complies with the reporting roles

of providing data for the compilation of GHG emissions for land use change. Though UWA is in charge of a half of the forest estate in Uganda, it not actively involved in biophysical data collection regarding the NFMS. For better coordination, a process where NFA and UWA carry out joint field data collection campaigns was initiated.

Forest inventory data and the land use land cover data form a key database system in Uganda.. In addition to providing information on LUC the database provides other vital information on, Wetlands, Trees on farm, Protected areas. The spatial database in addition provides tremendous opportunities for generating new products. Conducting a multilayered data analysis such as biomass supply, biomass demand, poverty levels, infrastructure development, deforestation, forest plantation development are some of the possibilities that can be done using facilities at NFA.

### 4.4.3 NFMS gaps

Uganda has two levels of government; central and local government. Planning and service delivery in Uganda is at local government while central government Ministries Departments and Agencies (MDA) focus on policy formulation, setting standards, regulations, developing capacities of local governments to deliver services and formulation of guidelines.

The district is the highest local government level and is responsible for collecting and integrating plans of lower local governments structures. The district has several directorates for different sectors with the Natural Resources Department identified as the district level climate change focal point (The National Climate Change Policy 2015, NCCP). Under the current arrangement, there is very little coordination between the district and central government in terms of biophysical data collection and sharing. The National Climate Change Bill 2018 envisages to strengthen coordination between line ministries and the local government implementing agencies.

Institutional roles and relations and details on roles of other NFMS collaborators can be found in Action Plan and Best Practices for the National Forest Monitoring System institutionalization in Uganda, 2019 as presented Figure 7.
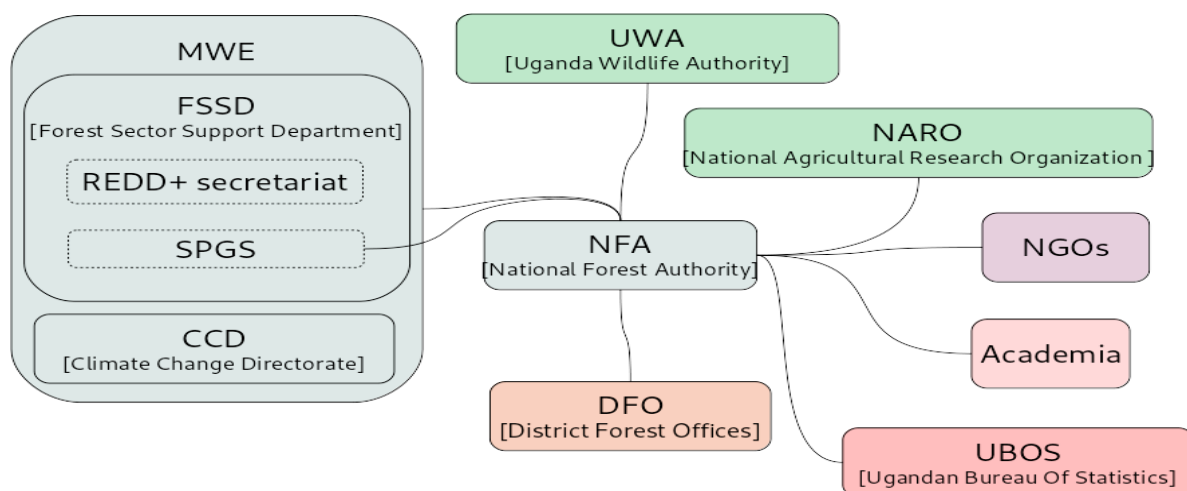


*Figure 7 . Situation and links in NFMS: the NFA had a central role, adapted from, MWE 2019*

Though biophysical data managed under the current NFMS covers all the five thematic elements of SFM, it is very silent on the socio economic functions of the forests and legal policy and instructional framework elements.

### 4.4.4   NFMS to MARS

Monitoring, assessment and reporting (MAR) on sustainable forest management (SFM) has been a key area of work for the UNFF, since its establishment. MARS is yet to be operational in many developing countries although the forum has regularly called upon Member States to develop adequate monitoring systems to share data and streamline reporting on forests.
Shortcoming in Uganda's NFMS notwithstanding, there is an opportunity to build on the existing framework and leapfrog towards operationalization of MARS. This however requires not only addressing shortcomings in the present NFMS framework but equally important device means of incorporating the missing thematic areas.

The aforementioned databases especially those that generate information on land use land use change and related changes in carbon important for a functional NFMS. Supporting databases include those that provide information on wetlands, Trees on farm, Protected areas, poverty levels, infrastructure development, forestry economics etc.

Much as Uganda's NFMS is technically able to deliver outputs that highly dependent on biophysical data, it is very silent on the socio economic functions of the forests and legal policy and instructional framework elements. Another shortcoming is the alignment of the responsibilities according to the most appropriate institutional arrangements which needs to be determined by stakeholders from time to time.

# 5 Monitoring and Evaluation framework for international forest-related goals and targets (serving the UN Forest Instrument, GFGs, SDGs and FRA2020);

## 5.1 Introduction

The development of Monitoring and Evaluation framework is informed by synthesis in chapter four of this report. The main components of the framework will be structured around the theory of change (ToC) and construction of the logical framework and information summarizing the M&E framework.

## 5.2 Theory of Change

Theory of change is a tool and approach4 used to guide the implementation of project components to achieve the overall objective namely Improved monitoring and evaluation framework to track aspects of sustainable forest management including implementation of the UNFI, GFGs and forest-related SDGs. This change should be reflected through improved regularly voluntary report their achievements towards the principles and goals of GFG and forest instruments of UNFFF. This should lead to increased capacity for of Uganda to develop a monitoring framework toand track aspects of sustainable forest management including implementation of the UNFI, GFGs and forest-related SDGs

The Project interventions aimed at addressing the root causes/barriers to the prevailing challenges in data collection, data quality and national capacity in generating and systematically managing databases to be used for national-level actions and international-level reporting. the impacts of the COVID-19 pandemic on SFM and actions taken to build on long-term recovery from the pandemic including the contributions of forests to inclusive sustainable development.

Unfortunately, lack of systems to regularly and systematically generate multiple reports coupled with challenges in data collection, analysis and archiving have been identified as major bottlenecks.

There are several barriers in the country i) institutions are not well coordinated, the central governments and local governments are not well linked to share data and information on sustainable forest management. The internet policies focus on data security not utilisation, data sharing is not well streamlined within the agencies, international reporting obligations (UNFFSS are not adequately fulfilled and not followed up, this could be because this is voluntary reporting. ii) Data and Database inadequacies where data collection is based on donor support and not adequately financed by institutional budgets. The data collection tools are in place but do not adequately cover socio economic surveys. Private sector use full and extensive data not utilized while the databases are not well linked. iii) Weak National Forest Monitoring system (NFMS) which does not reflect data from community, local governments and private sector interventions. The web portal of the NFMS can support data visualization but not data sharing. Reporting on SFM not part of the NFMS and other forestry related systems such as SPGS, Private sector, Plantation.

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[4] Harries, E., Hodgson, L. and Noble, J. 2014. Creating Your Theory of Change: NPC's Practical Guide. Retrieved from website https://www.google.com/search?client=firefox-b-d&q=CREATING+YOUR+THEORY+OF+CHANGE+NPC%E2%80%99s+practical+guide

The logical pathway encompasses streamlined data collection systems that burden on institutions to meet the national and regional obligations, improved reporting obligations that adequately and appropriately covers all aspects of SFM as enshrined in UNFI and UNSPF and Enhanced national capacities in generating and systematically manage databases to be used for national-level actions and international-level reporting. This is achieved through the following outputs:

Output: 1.1.I: Data collection systems and databases identified and understood by reporting institutions

Output: 2.1.1: All aspects of SFM as enshrined in UNFI and UNSPF mainstreamed in the systems of reporting among key national institutions

Output: 3.1.1: Key focal persons in each institution generating and managing databases to be used for national-level actions and international-level reporting identified and designated

The overall change is improved national monitoring and evaluation covering all aspects of SFM interventions in Uganda. In the logical pathway, there are a number of drivers of change, both enablers indicated in Figure 7 as (E1 and E3) and underlying assumptions that contribute to the success of the project; The main enablers include,

- E1-Robust institutional structures at National Level
- E2-Regular/periodic targeted support to Uganda key reporting institutions
- E3- Existing policy and legal framework such as the Forestry and tree planting regulations, Green Growth Development Strategy and NDPIII

The main assumptions are:

- Regular and timely reporting of the key institutions at national and international obligations
- Duty bears accountable on reporting on SFM aspects
- The monitoring of the quality and type of data on SFM is effectively mainstreamed in national reporting cycle
- Tools developed operational within the reporting institutions
- Coordinated and linked institutions regularly sharing data and information
- Existence and evidence of data and databases with SFM related data
- Key reporting institutions installing and understanding the data collection systems
- The SFM criteria indicators are mainstreamed in the key reporting institutions
- The identified focal persons are managing databases and regularly reporting

The project's impact pathway includes a national monitoring and evaluation framework for improved and streamlined data collection systems of existing forest-related data, mapping data gaps; and addressing these gaps and selecting appropriate national indicators. The interventions have been designed to address the main barriers and the project design is cognizant of the pre-conditions to achieve the desired impact.
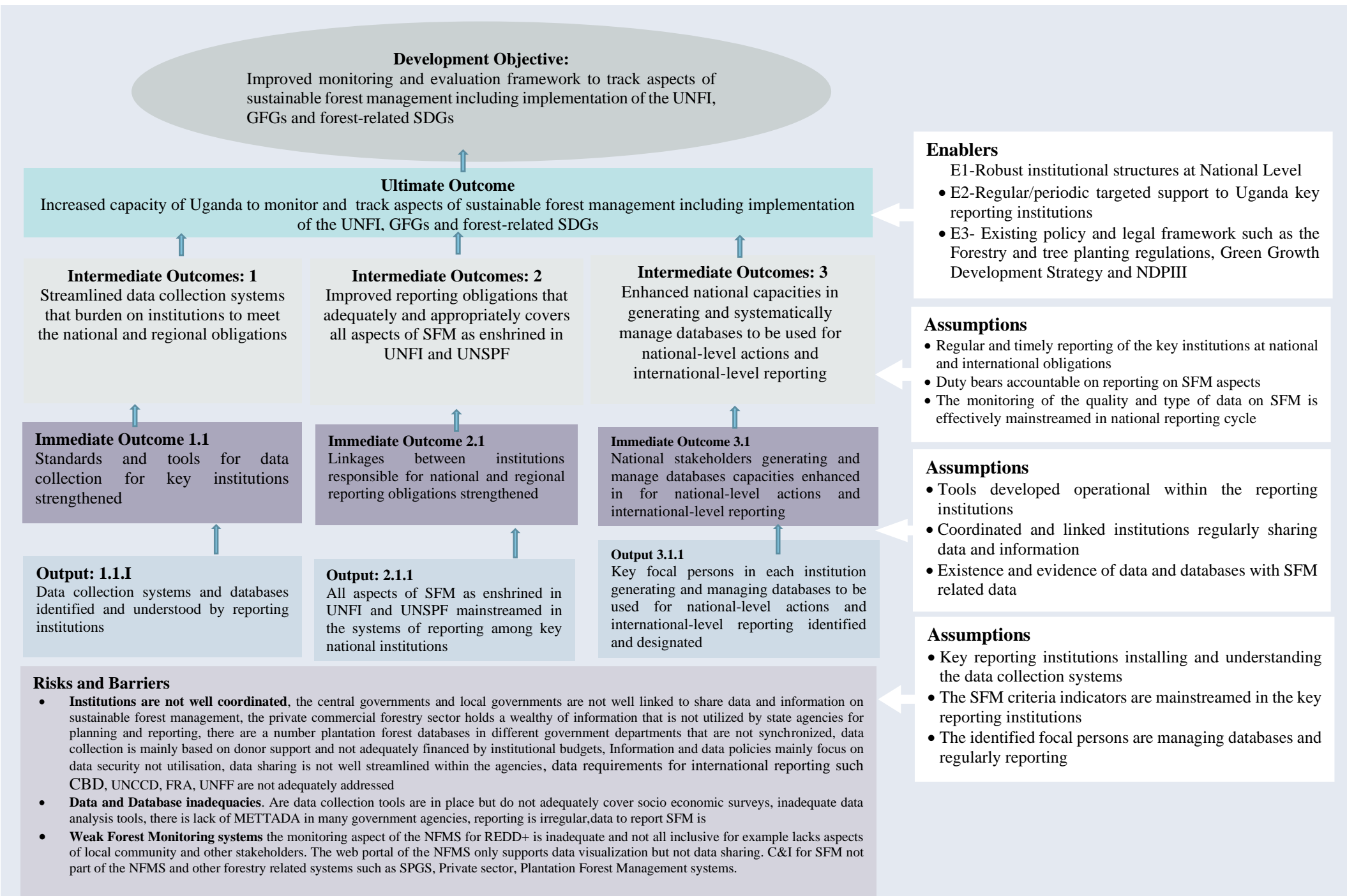
**Development Objective:**
Improved monitoring and evaluation framework to track aspects of sustainable forest management including implementation of the UNFI, GFGs and forest-related SDGs

**Enablers**
E1-Robust institutional structures at National Level
- E2-Regular/periodic targeted support to Uganda key reporting institutions
- E3- Existing policy and legal framework such as the Forestry and tree planting regulations, Green Growth Development Strategy and NDPIII

**Ultimate Outcome**
Increased capacity of Uganda to monitor and track aspects of sustainable forest management including implementation of the UNFI, GFGs and forest-related SDGs

**Intermediate Outcomes: 1**
Streamlined data collection systems that burden on institutions to meet the national and regional obligations

**Intermediate Outcomes: 2**
Improved reporting obligations that adequately and appropriately covers all aspects of SFM as enshrined in UNFI and UNSPF

**Intermediate Outcomes: 3**
Enhanced national capacities in generating and systematically manage databases to be used for national-level actions and international-level reporting

**Assumptions**
- Regular and timely reporting of the key institutions at national and international obligations
- Duty bears accountable on reporting on SFM aspects
- The monitoring of the quality and type of data on SFM is effectively mainstreamed in national reporting cycle

**Immediate Outcome 1.1**
Standards and tools for data collection for key institutions strengthened

**Immediate Outcome 2.1**
Linkages between institutions responsible for national and regional reporting obligations strengthened

**Immediate Outcome 3.1**
National stakeholders generating and manage databases capacities enhanced in for national-level actions and international-level reporting

**Assumptions**
- Tools developed operational within the reporting institutions
- Coordinated and linked institutions regularly sharing data and information
- Existence and evidence of data and databases with SFM related data

**Output: 1.1.I**
Data collection systems and databases identified and understood by reporting institutions

**Output: 2.1.1**
All aspects of SFM as enshrined in UNFI and UNSPF mainstreamed in the systems of reporting among key national institutions

**Output 3.1.1**
Key focal persons in each institution generating and managing databases to be used for national-level actions and international-level reporting identified and designated

**Assumptions**
- Key reporting institutions installing and understanding the data collection systems
- The SFM criteria indicators are mainstreamed in the key reporting institutions
- The identified focal persons are managing databases and regularly reporting

**Risks and Barriers**
- **Institutions are not well coordinated**, the central governments and local governments are not well linked to share data and information on sustainable forest management, the private commercial forestry sector holds a wealthy of information that is not utilized by state agencies for planning and reporting, there are a number plantation forest databases in different government departments that are not synchronized, data collection is mainly based on donor support and not adequately financed by institutional budgets, Information and data policies mainly focus on data security not utilisation, data sharing is not well streamlined within the agencies, data requirements for international reporting such CBD, UNCCD, FRA, UNFF are not adequately addressed
- **Data and Database inadequacies**. Are data collection tools are in place but do not adequately cover socio economic surveys, inadequate data analysis tools, there is lack of METTADA in many government agencies, reporting is irregular,data to report SFM is
- **Weak Forest Monitoring systems** the monitoring aspect of the NFMS for REDD+ is inadequate and not all inclusive for example lacks aspects of local community and other stakeholders. The web portal of the NFMS only supports data visualization but not data sharing. C&I for SFM not part of the NFMS and other forestry related systems such as SPGS, Private sector, Plantation Forest Management systems.

*Figure 8 Theory of Change*

## 5.3 Logical framework

The logical framework matrix covers result chain, indicators, base year and target year means of verification, data collected methods responsibility and assumptions as presented in Table 8.

*Table 8 Logical Framework*

| Result Chain | Indicators | Baseline (Year 2021) | Target (Year 2024) | Sources and Means of Verification | Data Collection Methods | Responsibility and data Collection Frequency | Assumptions |
|---|---|---|---|---|---|---|---|
| **Development Objective** Improved monitoring and evaluation framework to track aspects of sustainable forest management including implementation of the UNFI, GFGs and forest-related SDGs | "Satisfactory" and "Highly Satisfactory" ratings determined by UNFF | 0 | Satisfactory | Functional databases and Reports submitted | Collection of data from online sources for international reporting websites<br><br>Collection of data from National reports | UNFF team and National focal person for UNFF<br><br>Identified and designated key focal persons from key reporting institutions | • -Robust institutional structures at National Level<br>• Regular/periodic targeted support to Uganda key reporting institutions<br>• Existing policy and legal framework such as the Forestry and tree planting regulations, Green Growth Development Strategy and NDPIII |
| **Ultimate Outcome** Increased capacity for of Uganda to develop a monitoring framework toand track aspects of sustainable forest management including implementation of the UNFI, GFGs and forest-related SDGs | Satisfactory" and "Highly Satisfactory" ratings determined by UNFF | 0 | 3 | Functional databases and Reports submitted | Collection of data from online sources for international reporting websites<br><br>Collection of data from National reports | UNFF team and National focal person for UNFF<br><br>Identified and designated key focal persons from key reporting institutions | • Regular and timely reporting of the key institutions at national and international obligations<br>• Duty bears accountable on reporting on SFM aspects<br>• The monitoring of the quality and type of data on SFM is effectively mainstreamed in national reporting cycle |
| **Intermediate Outcomes: 1.1** Enhanced capacity to develop and test monitoring frameworks to track progress towards SFM, the Global Objectives on Forests and financial flows that impact forests | **Indicator 1.1.1** A comprehensive monitoring framework developed for Uganda's forestry sector | 0 | 3 | Documented Monitoring framework endorsement by national authorities; Focal persons responsible for reporting on forestry matters, databases in forest agencies and Uganda Bureau of statistics | Mapping of existing national forest related-databases and identifying potential data gaps and tools to address the gaps | UNFF consultant working key forest stakeholders in consultation with National focal person for UNFF | • Draft report validated by key forest<br>• Key forest stakeholders genuinely evaluate tools and data gaps<br><br>•<br>• Tools developed operational within the reporting institutions<br>• Coordinated and linked institutions regularly sharing data and information |
| **Intermediate Outcomes: 1.2** Improved reporting obligations that adequately and appropriately covers all | **Indicator 1.2.1** Number of Institutions frequently | | 3 | Functional databases and Reports submitted | Collection of data from online sources for | UNFF team and National focal person for UNFF | |

| Result Chain | Indicators | Baseline (Year 2021) | Target (Year 2024) | Sources and Means of Verification | Data Collection Methods | Responsibility and data Collection Frequency | Assumptions |
|---|---|---|---|---|---|---|---|
| aspects of SFM as enshrined in UNFI and UNSPF | and reporting on SFM at international level | | | | international reporting websites<br><br>Collection of data from National reports | Identified and designated key focal persons from key reporting institutions | • Existence and evidence of data and databases with SFM related data |
| **Intermediate Outcomes: 1.3**<br>Streamlined data collection systems and enhanced national capacities in generating and systematically manage databases to be used for national-level actions and international-level reporting. | **Indicator 1.3.1**<br>Number of Institutions frequently reporting on SFM | 0 | 3 | Functional databases and Reports submitted | Collection of data from online sources for international reporting websites<br><br>Collection of data from National reports | UNFF team and National focal person for UNFF<br><br>Identified and designated key focal persons from key reporting institutions | |
| **Immediate Outcome 1.1**<br>Standards and tools for data collection for key institutions strengthened | **Indicator 1.1.1**<br>Number of tools used by key Institutions in data collection data and information on SFM | 0 | 3 | Functional databases and Reports submitted | Collection of data from online sources for international reporting websites<br><br>Collection of data from National reports | UNFF team and National focal person for UNFF<br><br>Identified and designated key focal persons from key reporting institutions | • Key reporting institutions installing and understanding the data collection systems<br>• The SFM criteria indicators are mainstreamed in the key reporting institutions<br>• The identified focal persons are managing databases and regularly reporting |
| **Immediate Outcome 2.1**<br>Linkages between institutions responsible for national and regional reporting obligations strengthened | **Indicator 2.1.1**<br>Number of Institutions sharing data and information on SFM | 0 | 3 | Functional databases and Reports submitted | Collection of data from online sources for international reporting websites<br><br>Collection of data from National reports | UNFF team and National focal person for UNFF<br><br>Identified and designated key focal persons from key reporting institutions | |
| **Immediate Outcome 3.1**<br>National stakeholders generating and managing databases capacities enhanced in for national-level actions and international-level reporting | **Indicator 3.1.1**<br>Number of institutions with functional databases on all aspects of SFM<br>**Indicator 3.1.2**<br>Number of | 0 | 3 | Functional databases and Reports submitted | Collection of data from online sources for international reporting websites | UNFF team and National focal person for UNFF<br><br>Identified and designated key focal | |

| Result Chain | Indicators | Baseline (Year 2021) | Target (Year 2024) | Sources and Means of Verification | Data Collection Methods | Responsibility and data Collection Frequency | Assumptions |
|---|---|---|---|---|---|---|---|
| | institutions regularly reporting at National and International level | | | | Collection of data from National reports | persons from key reporting institutions | |
| **OUTPUTS** | **ACTIVITIES** | | | | **INPUTS** | | **ASSUMPTIONS** |
| **Output: 1.1.I** Data collection systems and databases identified and understood | Activity 1.1.1.1: Training national identified key focal persons on the existing data collection systems Activity 1.1.1.2: Developing indicators with identified key stakeholders to support the Monitoring and evaluation framework Activity 1.1.1.3: Periodic review to ensure that all aspects of data are included in the identified SFM system | | | | • Led by UNFF secretariat in coordination with the national focal point of UNFF in Uganda | | Resources are available to facilitate convening of meeting and technical capacity logistics |
| **Output: 1.2.2** All aspects of SFM as enshrined in UNFI and UNSPF mainstreamed in the systems of reporting among key national institutions | Activity 1.2.2.1: National workshop with key agencies to agree on the mainstreaming strategy Activity 1.2.2.2: Assessment to review and monitor the progress on reporting on SFM Activity 1.2.2.3: Develop database of contacts and types of databases in the country on SFM | | | | • Led by UNFF secretariat in coordination with the national focal point of UNFF in Uganda | | National focal persons identified are willing and understand the reporting requirements to voluntarily participate in regular reporting |
| **Output 1.3.2** Key focal persons in each institution generating and manage databases to be used for national-level actions and international-level reporting identified and designated | Activity 1.3.2.1: National Workshop conducted to present the objective of the monitoring and evaluation and agree on the modalities for engaging key focal persons Activity 1.3.2.2: Terms of References and roles of the designated focal persons well outlined and understood Activity 1.3.2.3: UNFF write to the institutions of the identified key focal personal responsible for reporting SFM data Activity 1.3.2.4: The structure and regular/periodic reporting and timelines agreed upon with key focal persons at national level | | | | • Led by UNFF secretariat in coordination with the national focal point of UNFF in Uganda | | |

## 5.4    Information about Monitoring and Evaluation framework

### 5.4.1    Narrative summary
The Monitoring and Evaluation Framework outlines the objective and key outs expected from this engagement, in order to achieve the intended outcome, UNFF and government of Uganda key stakeholders have to be committed. The roles and responsibilities and the timeline have to be clearly spelled out and agreed.

### 5.4.2    Monitoring and Evaluation questions
The key Monitoring and Evaluation questions are embedded with in the assumptions but most importantly the follow up questions are stated here based on the gaps identified in the analytical report. The questions include

- How often is Uganda collecting and reporting on all aspects of SFM interventions, is there a national monitoring system for this information
- To what extent will Uganda achieve improved monitoring and evaluation all aspects of SFM interventions, in terms of outcomes and outputs, considering their relative importance.
- To what resources are required to establish an improved national monitoring and evaluation covering all aspects of SFM interventions in Uganda including reporting on international obligations as well as aspects as enshrined in UNFI and UNSPF
- How will improved national monitoring and evaluation covering all aspects of SFM interventions in Uganda including reporting on international obligations as well as aspects as enshrined in UNFI and UNSPF be mainstreamed in the National Systems

### 5.4.3    Objectively Verifiable Indicators;
The objectively verifiable indicators as are presented as follows

- Indicator 1.2.1 Number of Institutions frequently and reporting on SFM at international level
- Indicator 1.3.1 Number of Institutions frequently reporting on SFM
- Indicator 1.1.1 Number of tools used by key Institutions in data collection data and information on SFM
- Indicator 2.1.1 Number of Institutions sharing data and information on SFM
- Indicator 3.1.1 Number of institutions with functional databases on all aspects of SFM
- Indicator 3.1.2 Number of institutions regularly reporting at National and International level

### 5.4.4    Baseline Information
Baseline information is estimated at zero staring 2021 as the base year and it is estimated that in three years through tracking and monitoring of activities proposed, targeted progress will be achieved.

### 5.4.5    Methods/tools of data collection and analysis
The proposed methods and tools for data collection is online sources for international reporting websites while at national level websites and reports can be utilised in collaboration with the identified key focal person designated in key institutions.

Analysis of data will be done in excel in addition with other monitoring and evaluation tools to establish the key components of a monitoring and evaluation including efficiency, effectiveness, sustainability and relevance of the interventions.

# 6  Conclusion

Tracking progress towards SFM implementation of the UNFI, GFGs and forest-related SDGs requires a combination of synthesized socio economic data and biophysical data plus a supportive legal and institutional framework. A system for biophysical data collection is reasonable well established mainly in government Ministries Departments and Agencies (MDAS). However, the data is not regularly collected, tools for data analysis and archiving need refinement and some vital linkages such between the central government and local government are lacking. There are not linkages to data from the commercial forestry sector which has significant volumes of productive and economic forestry data.

The enormous volumes of socio economic data that would inform and promote SFM is not integrated into the existing systems for monitoring the forestry resource.

Uganda trying to meeting its obligation in regard to some of the international reporting  and is being applauded for being the first African country to submit a technical annex to BUR for result based  REDD+. However, the reporting is not well institutionalized and there is lack of capacity of the government institutions to meet these obligations without external support (national and international).

Much as SFM negotiations have been going on since the 1992 world conference, there is little knowledge about this noble cause in the country. Unlike REDD+ and climate change related processes, knowledge about SFM seems to be limited to a few technocrats.


# 7  Recommendations

Mobilize resources for periodic data collection, coordinate intuitions so that all available data and information is well utilized through the establishment of strong data sharing mechanisms that include MoUs and data sharing protocols.

These improvements need to build on existing systems such as the NFMS for the REDD+ programme so as to leapfrog towards operationalization of Monitoring, Assessment and Reporting (MAR) socio-economic and forest related data for sustainable forest management (SFM).

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# Annexes

## Next steps;

- Identification of participants from key stakeholders in consultations with UNFF
- Liaise with the key forest-stakeholders so as to get inputs in mapping existing national forest related-databases and identifying potential data gaps and tools to address these gaps (including financial data/flows for forests and contribution of forests to food security and poverty eradication)
  - Most inputs will be through submission of google forms to the stakeholders in consultations with the UNFF
  - Following up with telephoned call has also been found useful especially in this period when many of the stakeholders are already bombarded with many online forms and are attending many virtual meeting
- Facilitation of the stakeholders in the development of the monitoring framework for international forest-related goals and targets (serving the UN Forest Instrument, GFGs, SDGs and FRA2020); and
- Facilitation of one national virtual workshop from relevant sectors (agriculture, water, energy, finance, nature conservation) to review and validate all progress data and processes achieved by this stage.
- Presentation of the findings of the initial background analytical study at the virtual workshop and prepare a report of the national workshop;
- Finalization of the background analytical study based on the feedback and inputs from the virtual national workshop, including comments from UNFFS.