

**MONITORING, ASSESMENT AND REPORTING ON
GLOBAL FOREST GOALS: REVIEW OF AVAILABILITY
OF DATA FOR KENYA**

Final Report of a study for the United Nations Forum on forests

Donald O. Ogweno, PhD

March, 2019 | donogweno@gmail.com

BACKGROUND

This report sets out the results of an analytical study conducted to evaluate the availability, reliability and consistency of data for Monitoring, Assessment and Reporting (MAR) on progress by Kenya towards achieving Sustainable Forest Management (SFM), the United Nations Forest Instrument (UNFI), and the Global Forest Forest Goals (GFG). The study also aimed to identify appropriate indicators and needs for data and methodologies for reporting on these, particularly for socio economic indicators of SFM and GFG.

The United Nations Forum on Forests (UNFF) has long supported development of criteria and indicators for SFM. UNFF Resolution 4/3 of 2004 led to a common understanding of the seven thematic elements of SFM at the global level, which were drawn from prior criteria and indicators processes, and which offered the reference framework for assessing SFM. This framework has guided many countries as they sought to adopt national level C&I for monitoring and assessing progress towards SFM.

However, monitoring and reporting remains a challenge for many developing countries which often lack capacities (both human and financial) and adequate methodologies to conduct inventories. Most countries have good bio-physical data and indicators for "traditional forestry", however, there is still a dearth of socio-economic data on forests and its impacts on community wellbeing.

The UNFF adopted the United Nations Strategic Plan for Forests 2017-2030 (UNSPF) and the Forum's 4 POW 2017-2020. At the heart of the UNSPF are 6 Global Forest Goals (GFGs) and 26 associated targets to be achieved by 2030. Among them is GFG2: "Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest dependent people".

Many countries have submitted voluntary reports that are largely descriptive, but with little data and case studies on the reported progress towards achieving the GFG and have pointed out the need for development of common methodologies for gathering information on benefits from forests (other than timber) and coherent data on financing of SFM. The absence of systematic socio-economic data on forest influences results in a situation where the contribution of forests to GDP/national economies is based mainly on timber, less so on non-wood products, while completely ignoring ecosystem services. Since the full scope of contribution of forests to society and the planet is undervalued, and the socioeconomic benefits difficult to measure, the contribution of SFM to achievement of the SDG are thus also greatly undervalued. This has a number of consequences, among them that forests have a low priority on the political agenda, thus little financial resources are directed towards SFM, which occasions continued high deforestation rates as forests are converted to other land uses considered more profitable.

To improve assessment and monitoring on progress towards SFM, there is need to develop

comprehensive and efficient system for conducting inventories of existing forest-related data, mapping data gaps, identifying methodologies to address these gaps and selecting appropriate indicators for reporting. This particularly applies to socio-economic contributions of forests (e.g. livelihoods, food security, and poverty reduction), and financial flows for SFM. The socio-economic benefits of forests are especially important to poor communities in developing countries such as Kenya who depend more on forests, yet this is where methodologies are missing, and data is either very weak or non-existent. Thus, the UNFF commissioned this study for Kenya as a first step towards addressing these gaps.

1. TERMS OF REFERENCE

The specific responsibilities/tasks of the study were to:

2.1. Prepare an analytical study 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;

The national and international reporting requirements on forests and forest related goals and targets,

- 2.2.** Liaise with the key stakeholders and assist in mobilizing the country team and coordinate national inputs in the project development and formulation;
- 2.3.** Assist in piloting of the reporting format to UNFF and submission of the national report to the Forum;
- 2.4.** Facilitate, with the assistance of the national UNFF focal point, organization of two national consultations/workshops on monitoring, assessment and reporting (MAR) of SFM in Kenya; and
- 2.5.** Prepare the concept notes for and the summary reports from the national workshops.

This report constitutes the results of the first part of the ToR.

2. METHODOLOGY

The study involved a desk review of relevant published and grey literature and interviews with key informants to compile this report as detailed below.

2.1 Desk study

This involved a thorough review and analysis of information on the following.

- Previous Kenya country reports to COP of international and regional conventions, treaties and agreements in forestry and related areas such as SDG, MDG, UNFF, UNCBD, UNCCD, UNFCCC, CITES, RAMSAR, etc;
- Past attempts and reports on development of Criteria and Indicators for SFM for the country and relevant regional processes;

- Reports and studies on Inventories of various aspects of biophysical, socio-economics and financial resources, flows and trade at national and international levels relevant to forests;
- Reports of worldwide experiences in forestry MAR and development of Criteria and Indicators for SFM
- Collection of National data and statistics on the economy and sectors with relevance to forestry MAR

2.2 Key Informant Interviews

Interviews were also conducted with the UNFF Focal point, Lead Forest Agency personnel (Kenya Forest Service), staff of ministry in charge of forests, focal points for UN Conventions (CBD, CCD, FCCC, CITES, etc), staff of the Kenya National Bureau of Statistics (KNBS), resource mapping bodies such as the Department of Resource Surveys and Remote Sensing (DRSRS) and Regional Centre for Mapping of Resources for Development (RCMRD), and other knowledgeable stakeholders on aspects of data availability and forest related MAR.

The review and interviews cited above were aimed at developing a gap analyses on the existing national reporting standards to UNFF and other conventions and treaties on GFG, UNFI and SDG, the requirements for MAR, and analyses of the difference between the “desired” state of monitoring system and the actual existing state (‘the gap’). The method of Assessment of data availability borrowed used in this study follows the model of Requardt *et al* (2007). Evaluation of indicators requires exposition of the ‘Status’ and ‘Change’ attributes, and critical to the evaluation are following data attributes:

- Validity
- Reliability
- Comparability

3. FINDINGS

3.1 Kenya Country Background on MAR of SFM

The 7 Forest Principles adopted at UNCED in Rio 1992 led to identification of Criteria and Indicators (C&I) as the most comprehensive framework for “assessment and systematic observations of forests”, according to the terminology of Agenda 21 Chapter 11, i.e. for evaluating the progress towards sustainability of forest management. Thereafter, many regional processes emerged to develop C&I suitable for the conditions of their forest circumstances and needs. Many countries, have since attempted to identify C&I for SFM at the national and the forest management unit levels, arising from the relevant regional processes. This was paralleled by international initiatives by countries with comparable forest situations e.g. timber-producing countries in the humid tropics under the auspices of the International Tropical Timber Organization (ITTO); European countries under the Helsinki process; and non-European temperate and boreal countries as part of the Montreal process.

An overview of the processes by FAO (Lanly, 1994) showed consensus on the characterization of SFM through 6 criteria which include concerns such as ecosystem services (biodiversity, water, carbon sequestration, climate change, etc), wood and wood products, and socio-economic values of forests. These are:

1. Three criteria concerning the quality and quantity of the forest ecosystem;
 - extent of forest resources
 - conservation of biological diversity (at ecosystem, species and intraspecific level)
 - forest health and vitality
2. Two criteria concerning the functions of the forest ecosystem:
 - productive functions of the forest
 - protective functions of the forest
3. Criterion linked to forest-related economic and social needs.

The Dry-zone Africa process, initiated in 1995 and which embraces forest poor countries of Sub Saharan Africa (i.e. the countries of Eastern, Southern and West Africa) developed 7 criteria and 47 indicators as a framework for action. Three further sub regional groupings emerged from this initiative in response to their similarity in forest conditions: The Permanent Interstate Committee for Drought Control in the Sahel (CILSS); the Intergovernmental Authority on Development (IGAD); and the Southern African Development Community (SADC). The CILSS and SADC processes then further refined the C&I, intended to form a basis for each member country to develop national and forest management unit level C&I. Kenya is a member of both the CILSS and IGAD process, but who are yet to meet to further refine the C&I, unlike the other two sub regions. This marked the culmination of development of C&I for SFM in the IGAD region, and member countries such as Kenya, have hardly advanced much farther in developing national tools for MAR for SFM.

Globally, an expert meeting in 2016 drew up a six-point plan to strengthen use of criteria and indicators to guide and track progress towards the goal of sustainable forest management FAO (2016). The role of C&I in promoting implementation of recent global agreements affecting forests, by focusing on measurable results and follow-up in achieving the 2030 Agenda for Sustainable Development and the Sustainable Development Goals, the United Nations Framework Convention on Climate Change Paris Agreement, and the Global Objectives on Forests of the UN Forest Instrument was recognized. The UNFF, at its Special Session on 20 January 2017, adopted the United Nations Strategic Plan for Forests 2017-2030 (UNSPF) and the Forum's quadrennial programme of work for the period 2017-2020 (4POW). At the heart of the UNSPF are 6 Global Forest Goals (GFGs) and 26 associated targets to be achieved by 2030. Among them is GFG2: "Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest

dependent people". The 2016 expert meeting had earlier identified the need for the forest community to agree on a set of forest-related indicators that would demonstrate key contributions of forests to a range of Sustainable Development Goals (SDGs). They also highlighted the need to address the lack of data available on the contribution of forests to key areas covered by the SDGs and other global forest-related policy objectives, such as poverty eradication, livelihoods, health and energy. This has given impetus to the renewed focus on development of C&I and is in part the driver of this study.

3.2 Voluntary National Reporting Under UN Strategic Plan for Forests

As indicated above, national reporting on implementation of commitments under these nine forest-related instruments is diverse in approach, content and degree of detail. What is apparent is that the information requested is most often descriptive and is focused on measures taken related to policy, legislation, capacity building, financing, or other "means of implementation."

Kenya submitted its first voluntary report on progress towards achieving the GFG in 2017 (GoK, 2017). Like many other nations, a review of the Kenya country report confirms that it is 'descriptive and focuses on measures taken related to policy, legislation, capacity building, financing, or other "means of implementation" (quotes from the UNFF Terms of Reference for this assignment). Little quantitative information is provided, and a framework for collecting quantifiable data, such as on the status and trends in resources, are needed to measure progress towards achieving the GFG. However, it should be noted that the reporting framework provided were framed in a manner that necessitated qualitative responses, though these could be supplemented with supporting quantitative analyses. This report thus focuses on development of indicators for the following Goals and Targets which have been identified as having the most critical needs in the development of a core set of global indicators.

- 5 (number of forest dependent people in extreme poverty),
- 4 (area designated and/or managed for protection),
- 14 (area of degraded forest),
- 16 (financial resources from all sources for implementation of SFM)
- and 20 (threatened forest dependent species).
- and forests' contribution to food security)

3.3 Data Requirements for MAR of GFG

To monitor, assess and report on comprehensively on the GFG and thus their contribution to the SDG, the data required are as shown in the table below.

Table 1: Data requirements for MAR on the GFG

Goal/Target	Data Requirements
<p>GFG 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</p>	<ul style="list-style-type: none"> - Change in forest area SINCE 2015 - New area afforested since 2015 - Forest area restored since 2015 - Measures to prevent forest loss - Area managed brought under long term plans since 2015 - Change in biomass stocks since 2015
<p>GFG 2: Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest-dependent people</p>	<ul style="list-style-type: none"> - Change in Poverty, extreme levels since 2015 - Change Food poverty levels since 2015 - Change in inequality by gender since 2015 - Change in levels of malnutrition since 2015 - New SME financing opportunities since 2015 - Training opportunities for value addition - Change in total food produced from forests since 2015 - Change in Value of forest products since 2015 - Change in share of forestry in GNP - Change in employment in forestry sector since 2015 - Change in carbon stocks since 2015 - Change in Area of biodiversity hotspots - Change in population of vulnerable species
<p>GFG 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</p>	<ul style="list-style-type: none"> - New forest area in protected area since 2015 - Area managed under L/T management plan - Annual production from plantations and private land
<p>GFG 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</p>	<ul style="list-style-type: none"> - Change in levels of financing in forest sector since 2015 - Number and nature of new N-N, N-S coop initiatives since 2015 - Forest financing strategy - Strategies to promote data sharing

The data required for comprehensive reporting on the GFG involves socio-economic, financial and biophysical data. Here below, we examine the availability of both types of data.

3.4 Availability of data for Monitoring GFG Targets in Kenya

a) Biophysical Forest Data

(i) Forest area, cover, growth and yield

Like many countries, Kenyan forestry has traditionally been very efficient in collecting forest areas, boundaries and biophysical growth and yield data, especially for plantations. The data is compiled through Annual Return Appendices (ARA) forms prepared at forest management unit level, and which are then pooled for the whole country, and form very resourceful sources of data for any assessment (Odera, 2000).

Following a national ban on logging in all-natural forests in 1974, a previous system of natural forest inventory for management decision making by the lead forestry agency, the Kenya Forest Service, completely collapsed. However, that of public plantation forests continues to date and yields reliable and accurate data. In the context of the country's forest resources, however, this data is minuscule as these forests comprise less 5% of the country's forest estate (both public and private).

Data on the countries natural forests and woodlands have largely been obtained through episodic national surveys conducted mainly through ODA; from conservation projects targeting specific forest blocks or ecosystems; and from research in published or grey literature such as postgraduate theses targeting relatively small blocks. However, due to the large amount of forest research and conservation going on in the country, the information and data available is quite extensive, but completely uncatalogued. The research largely to concentrate on particular forests with high human, biodiversity, or other special interests, and thus tends to be scarce for some forests and voluminous in others and thus quite 'lumpy'. Such data are also usually collected using disparate methods and standards depending on the interests of the researcher, and thus may not be directly comparable or compatible. Thus, biophysical forest data maybe available for most indicators, but relevant data maybe scattered in multiple agencies responsible for managing specific resources.

Thus, while biophysical data on Kenya's forest extent, area and growth and yield are largely obtainable, it does require considerable effort to consolidate into a coherent set for national reporting on GFG and SDG. Future endeavours to improve availability and accessibility of forest data will require development of platforms for cataloguing and sharing of databases held by various agencies, conservation organizations and other stakeholders. The FAO FRA process has been a great catalyst in mobilizing the lead forest agency to compile data for reporting, and which then becomes widely available for MAR to other UN processes and regional agreements.

(ii) Data on biodiversity and genetic resources

Data on forest genetic resources and biodiversity are similarly dispersed. Most of the countries efforts on biodiversity surveys have largely focused on high profile large

mammals, mainly because of their economic value in ecotourism, and intense worldwide conservation interest. Relatively less attention has been paid to forest biodiversity – both flora and fauna, especially for the animal species of low ecotourism value. However, just as is the case for biophysical data, there is extensive research that has been conducted on biodiversity but for specific forests such as the Eastern Arc Mountain forests, the coastal forests, and Kakamega forests. Similarly, too, compiling the data for reporting to other UN processes and regional and international agreements such as CBD requires considerable effort in compilation, while that to CITES does not require as much effort due to the aforementioned focus on species of high interest.

b) Socio-economic forest data

A significant amount of socio-economic data is required for MAR of SFM. The Kenya Forest Service collects very little data on the socio-economic aspects of forests, except for farm forestry and associated enterprises. The Kenya Forestry Research Institute, KEFRI, collects considerable socio-economic data but which either end up as published journal material, or as internal reports, and thus not widely accessible. As with many developing countries, therefore, Kenya lacks socio-economic statistics expressly collected for forest reporting.

The Kenya National Bureau of Statistics is charged with collecting statistics for national policy making and planning and conducts surveys of relevance to reporting on SFM. These include Economic Surveys, Census of Industrial Production, Labour Force Surveys, etc, that have a bearing on many socio-economic indicators of MAR for SFM. While not collected in a forestry context, the data can be used for reporting on forestry impacts on livelihoods and wellbeing of forest dependent communities. It is noteworthy that the KNBS has rolled out an agriculture sector (in which forests are grouped) strategic plan (2017-2022) aimed at broadening data collection for improved sector planning. This will in future allow for collection of forestry specific socio-economic data.

The Kenya Integrated Household Budget Survey (KIHBS) is conducted every 10 years, and the second KIHBS report for 2015/16 was released in March 2018. The component of the report on 'Wellbeing in Kenya' details findings on various poverty indices including ratios below the poverty line, food poverty, extreme poverty, etc disaggregated by gender and county. While the reporting is at county level, the data resolution is at the Ward level (the smallest governance unit recognized in the Kenya constitution). In Kenya, people who live within 4 km of forests are considered to be 'forest adjacent', and thus most dependent on the resources. By selecting indicator forests of different types, and identifying wards that surround it, the data for the wards can be used to effectively track the impact of the forests on poverty, especially when compared to national data, or to neighbouring wards.

With the KIHBS data at present, the reporting can only be done in 10-year cycles. However, the KNBS piloted a Continuous household survey Programme (ChsP) during the 2015/16 KIHBS in anticipation of rolling out a programme of continuous surveys that would allow

reporting of key national indicators quarterly and key county level indicators on an annual basis. Further, the report provided poverty data at the national, rural, urban and county level. The KNBS aims to adopt more in-depth analysis and adoption of modern estimation techniques, including Small Area Estimation, to derive poverty estimates at a much higher resolution. With these two methodological changes, reporting can be done quarterly or annually if desired, and at much better resolutions for forest dependent communities.

Following devolution of many national functions to county governments in 2013, most counties in Kenya are in the process of setting up Statistics units to spearhead data gathering for policy making. The resolution of county statistics will be much higher than the Ward level currently used in national statistics, which will aid isolation of indices for forest dependent populations much easier. Thus, the data reliability and comparability over time will improve with the coming of county level statistics.

Forests in Kenya comprise of relatively small blocks scattered across the country. Further, savanna woodlands, which comprise the major portion of Kenya forest estate, have no fixed boundaries and occur extensively throughout the countries arid and semi arid zones (comprising 70% of the country). Thus, reporting on every forest block is not feasible. A practical approach will thus be to select a few representative blocks for each forest type and use these as indicators of developments of the dynamic relationship between forest dependent communities and the resources for international reporting requirements.

4. Proposed Kenya country Indicators and data availability

In this section, we propose indicators for the GFG targets that can feasibly be reported on with available data, though with some effort. For each of the indicators, we also look at the possible sources of data especially for Goals 2 and 3 that are the primary focus of this review. Table 3 below looks at each Target and the indicators that can be used in measuring progress towards achieving it.

Table 2: GFG Targets and proposed indicators

Target No	Relevant Target/Indicator	Remarks
1.1	Forest area is increased by 3 per cent worldwide	
	1.1.1 Total area of all forest types	Elaborate 1.1.2/3
	1.1.2 Total cover of all types of forests as a (%) of the total land area	
	1.1.3 Change in forest cover of all forest types (%)	
1.2	The world's forest carbon stocks are maintained or enhanced	
	1.2.1 Total Biomass stock from all forest types ('000,000 tonnes)	Including farm forests
	1.2.2 Change in Biomass stocks from all forest types	
1.3	1.3 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore	

Target No	Relevant Target/Indicator	Remarks
	degraded forests and substantially increase afforestation and reforestation globally	
	1.3.1 Area of all types of forests managed according to management plans (,000 Ha) 1.3.2 Area of forest land lost to alternative land uses (agriculture, settlement, infrastructure, etc) ('000 Ha/Yr) 1.3.3 Area of new land brought under all types of forest production, including farm forests ('000 Ha/Yr) 1.3.4 Area of degraded forest restored annually ('000 Ha/Yr)	
1.4	1.4 The resilience and adaptive capacity of all types of forests to natural disasters and the impact of climate change is significantly strengthened worldwide	Resilience indicators needed
	1.4.1 Area of different types of forests managed according to long term plans 1.4.2 Area of different types of forests disturbed by natural causes 1.4.3 Area of different types of disturbed forests rehabilitated/restored or regenerating satisfactorily 1.4.4 Area of different types of forests managed jointly with communities or private owners according to law 1.4.5 Area of different types of forests affected by invasive species 1.4.6 Area of forests affected by invasive species that has been rehabilitated	
2.1	2.1 Improve livelihoods for all forest dependent people	
	2.1.1 Change in Poverty headcount ratio of forest dependent population 2.1.2 Change in proportion of forest dependent population suffering extreme poverty 2.1.3 Gender Inequality Index (GII) of forest dependent population 2.1.4 Change in Poverty Gap ratio of forest dependent households	qualify extreme and hardcore poverty?
2.2	2.2 Increase the access of small-scale forest enterprises, to financial services, including affordable credit, and their integration into value chains and markets	
	2.2.1 Proportion of forest-based SME using financial services (bank accounts, mobile money, insurance, etc) 2.2.2 Proportion of owners of small-scale forest-based enterprises who are members of Village Saving and Loan Associations (VSLA) 2.2.3 Proportion of forest-based SME who access credit from public SME funding mechanisms 2.2.4 Number of forest-based SME licensed by KFS 2.2.5 Availability of Capacity building opportunities for value	

Target No	Relevant Target/Indicator	Remarks
	addition for forest-based SME	
	2.2.6 Total public funding available to SME sector	
2.3	2.3 The contribution of forests and trees to food security is significantly increased	
	2.3.1 Total national food production from all forests 2.3.2 Headcount ratio of food poor among forest dependent population 2.3.3 Headcount ratio of food poverty among female headed households 2.3.4 Prevalence of underweight children below 5 years of age among forest dependent households 2.3.5 Proportion of undernourished people among forest dependent population	
2.4	2.4 The contribution of forest industry, other forest-based enterprises and forest ecosystem services to social, economic and environmental development, among other things, is significantly increased	
	2.4.1 Total Annual Value of non-wood forest products 2.4.2 Total Annual Value of different forest ecosystem and regulatory services 2.4.3 Share of forest sector in GNP 2.4.4 Annual Value of primary and secondary forest industries 2.4.5 Annual Value of forest biomass energy 2.4.6 Number employed in primary and secondary forest industries	
2.5	2.5 The contribution of all types of forests to biodiversity conservation is enhanced, taking into account the mandates and ongoing work of relevant conventions and instruments	Climate change to be on its own
	2.5.1 Area of forests considered biodiversity hotspots 2.5.2 Population levels of key forest fauna and flora 2.5.3 Biodiversity index of all types of forests 2.5.4 Area of all forests affected by invasive species (fauna and flora)	
2.6	2.6 The contribution of all types of forests to climate change mitigation and adaptation is enhanced, taking into account the mandates and ongoing work of relevant conventions and instruments	
	2.6.1 Total above and below ground carbon stocks in all types of forests ('000,000 tonnes) 2.6.2 Forest Carbon flux and change over time 2.6.3 Total forest biomass used for energy annually ('000,000 tonnes)	Add some
3.1	3.1 The area of forests worldwide designated as protected areas or conserved through other effective area-based conservation measures is increased	

Target No	Relevant Target/Indicator	Remarks
	3.1.1 Area of all types of forests protected under Forests, Water, Antiquities, Wildlife Conservation and relevant Acts 3.1.2 Area of forests on private and community land designated as reserved or otherwise set aside for protection 3.1.3 New area of forests brought under protection on public, community and private land	
3.2	3.2 The area of forests under long-term forest management plans is significantly increased	
	3.2.1 Area of all types of forests (private, community or public) managed according to long term management plans	Long-term??
	3.2.2 Area of all types of forests under protected status	
3.3	The proportion of forest products from sustainably managed forests is increased	?
	3.3.1 Annual quantity of various forest produce harvested from all types of forests 3.3.2 Percent of forest produce from all types of forests managed according to long term plans 3.3.3 Percent of various forest produce with clear Chain of custody 3.3.4 Quantity of various forest produce annually harvested under license 3.3.5 Quantity of various forest produce illegally harvested annually	
4	4. Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to all stakeholders to advance conservation and reforestation	
4.1	Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation 4.1.1 Value of forestry Development projects 4.1.2 Level of funding from public sources for forestry development 4.1.3 Level of funding for forestry research, education and training 4.1.4 Level of funding from bilateral, multilateral, and other international sources for forestry development 4.2 Forest-related financing from all sources at all levels, including public (national, bilateral, multilateral and triangular), private and philanthropic financing, is significantly increased 4.2.1 Level of funding from public sector for forestry development, education and research 4.2.3 Annual Level of funding from bilateral, multilateral, and other external sources	

Target No	Relevant Target/Indicator	Remarks
	<p>4.2.4. Annual Level of funding from private sector</p> <p>4.2.5 Annual Level of funding from civic and Volunteer Organizations (PVO)</p> <p>4.2.6 Percentage of GDP allocated to forest sector</p> <p>4.2.7 Total annual payments for forest goods and services</p> <p>4.3 North-South, South-South, North-North and triangular cooperation and public-private partnerships on science, technology and innovation in the forest sector are significantly enhanced and increased</p> <p>4.3.1 Number of active MOUs and agreements</p> <p>4.3.2 Annual funding for forestry Research programmes</p> <p>4.4 The number of countries that have developed and implemented forest financing strategies and have access to financing from all sources is significantly increased</p> <p>4.4.1 National Forest financing strategies developed (eg, Carbon financing)</p> <p>4.5 The collection, availability and accessibility of forest-related information is improved through, for example, multidisciplinary scientific assessments</p> <p>4.5.1 Existence of a national depository for forest information</p> <p>4.5.2 Existing structures for national and international exchange of forest information</p> <p>4.5.3 National Forest Monitoring framework developed</p>	

5. Potential sources of data for GFG Targets

Global Forest Goal 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

Global forest Goal 2: Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest-dependent people

Targets

2.1 Extreme poverty for all forest dependent people is eradicated

Indicators	Source	Frequency of	Availability	Reliability
------------	--------	--------------	--------------	-------------

		collection		
Poverty headcount ratio	KNBS/KIHBS ¹	3 Months	High	High
Extreme poverty	KNBS/KIHBS ²	3 Months	High	High
Per capita income	KNBS/ES ³	3 Months	High	High
Gender Inequality Index (GII)	KNBS/KIHBS ⁴	3 Months	High	High
Child poverty	KNBS/KIHBS ⁵	3 Months	High	High
Poverty Gap ratio	KNBS/KIHBS ⁶	3 Months	High	High

2.2 Increase the access of small-scale forest enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets

Indicator	Source of Data	Frequency of collection	Reliability
Proportion of SME using financial services	KNBS/MSME ⁷	5 Years	High
Membership in VSLA	Ministry of Trade, Ministry of Cooperatives		
Credit from National SME Funds	KNBS/MSME	5 Years	High
SME forest licensing	KFS	Annual	High
Training for forest SME	KFS	Annual	High

2.3 The contribution of forests and trees to food security is significantly increased

Indicator	Source of Data	Frequency of collection	Reliability
% considered 'food poor'	KNBS/KIHBS	5 Years	High
% food poor female H/holds	Ministry of Agriculture, County Governments, KNBS/KIHBS	5 Years	High
% underweight children	Ministry of Health, County	5 Years	High

¹ Kenya Integrated Household Survey

² Kenya Integrated Household Survey

³ Economic Survey

⁴ Kenya Integrated Household Survey

⁵ Kenya Integrated Household Survey

⁶ Kenya Integrated Household Survey

⁷ Kenya National Bureau of Standards, Medium Small and Micro Enterprise Survey

	Governments, KNBS/KDHS ⁸		
% below minimum energy consumption	KNBS/KDHS	5 Years	High

2.4 The contribution of forest industry, other forest-based enterprises and forest ecosystem services to social, economic and environmental development, among other things, is significantly increased

Indicator	Source of Data	Frequency of collection	Reliability
Value of NW products	KFS, KEFRI, KNBS/CIP ⁹	5	High
Value of forest Ecosystem Services	KFS, KEFRI, KNBS/ES	5	High
Forest sector share of GNP	KNBS/ES	5	High
Value of forest production	KNBS/CIP	5	High
Value from biomass energy	Ministry of Energy, KFS		High
Employment in forestry sector	Timber Industry, KNBS/LFS ¹⁰	5	High

2.5 The contribution of all types of forests to biodiversity conservation and climate change mitigation and adaptation is enhanced, taking into account the mandates and ongoing work of relevant conventions and instruments

Indicator	Source of Data	Frequency of collection	Reliability
Area of all forest types	KFS, FRA	10	Medium
Change in Carbon stocks	KFS, KEFRI, DRSRS	Annual	Medium
Change Area of forest biodiversity hotspots	NEMA, DRSRS, KFS, NLC, KWS, KEFRI	Various	Low
Population levels of key forest species	KFS, KWS, NMK, KEFRI	Annual	High

⁸ Kenya Demographic and Health Survey

⁹ KNBS, Census of Industrial Production

¹⁰ KNBS, Labour Force Survey

Global Forest Goal 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

Targets

3.1 The area of forests worldwide designated as protected areas or conserved through other effective area-based conservation measures is significantly increased

Indicator	Source of Data	Frequency of collection	Reliability
Area of all types of forests protected under Forests, Water, Antiquities, Wildlife Conservation and Wetlands Acts	NEMA, KFS, WRA, NMK, KWS	Annually	High
Area of forests on private and community land designated as conservancies	KFS, County Governments, KWS	Bi Annually	Medium
New area of forests brought under protection on public, community and private land	County Governments, KFS	Annually	High
Well defined wildlife migratory corridors	KWS, County Governments, KFS	Annually	Medium
Reduced human wildlife conflicts	KWS, County Governments	Annually	Medium
Increased number of visitors to the ecosystem	Ministry of Tourism, KWS, County Governments	Annually	High
Increase in the area under wetlands within the ecosystem	WRA, County Governments, KWS	Annually	Medium

3.2 The area of forests under long-term forest management plans is significantly increased

Indicator	Source of Data	Frequency of collection	Reliability
Area of forests (private, community or public) managed according to long term forest, wildlife or ecosystem management plans	KFS, County Governments, KNBS, KWS	Annually	Medium

3.3 The proportion of forest products from sustainably managed forests is significantly increased

- Annual production from public, farm, private and community forest plantations

Global Forest Goal 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

Targets

4.1 Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation

INDICATORS	SOURCE	FREQUENCY OF COLLECTION	AVAILABILITY	RELIABILITY
4.1.1. The amount of resources allocated to sustainable forest management	MEF, KFS, National Treasury	Annually	High	High
4.1.2. The number of sustainable forest management projects financed	KFS, MEF, National Treasury	Annually	High	High
4.1.3 The area under reforestation	KFS, KWTA, COUNTY GOVERNMENTS,	Annually	High	High

and sustainably managed forests	DRSRS			
---------------------------------	-------	--	--	--

4.2 Forest-related financing from all sources at all levels, including public (national, bilateral, multilateral and triangular), private and philanthropic financing, is significantly increased

- Level of recognition of total forest accounts in national statistics and planning processes.

Indicator	Source of data	Period	Reliability
Total Forest value in national accounts	ES	5	Moderate

4.3 North-South, South-South, North-North and triangular cooperation and public-private partnerships on science, technology and innovation in the forest sector are significantly enhanced and increased

Indicator	Source of data	Period	Reliability
4.3.1. Increased funding to all forest-related forestry research and learning institutions	KFS, KEFRI, National Treasury Universities	Annually	High
4.3.2. Percentage increase in the number of innovations and technologies	KFS, KEFRI, Universities	Annually	High

4.4 The number of countries that have developed and implemented forest financing strategies and have access to financing from all sources is significantly increased

INDICATORS	SOURCE	FREQUENCY OF COLLECTION	AVAILABILITY	RELIABILITY
4.4.1 Develop and publish a forest financing strategy	MEF, KFS	5 years	High	High
4.4.2 Percentage increase in financing of	National Treasury, MEF, KFS	Annually	High	High

forestry sector				
------------------------	--	--	--	--

4.5 The collection, availability and accessibility of forest-related information is improved through, for example, multidisciplinary scientific assessments

Indicator	Source of data	Period	Reliability
4.5.1 Standardized data collection and management tools available and in use	KNBS, MEF, KFS, KEFRI, Learning Institutions	Bi-Annually	Medium
4.5.2 Functional platforms for forestry related information sharing are available	MEF, KFS, KEFRI, Learning Institutions	Annually	Medium

6. CONCLUSIONS

- (i) Most forest data in Kenya, except for biophysical data on area, growth and yield of plantations and protected areas, is widely dispersed and scarce for some forests and forest types, while being quite comprehensive for forests of high conservation and human interests. This data scarcity is particularly the case for the Savanna woodlands, which comprise over 70% of the countries forest cover.
- (ii) Most forest information exist in grey literature, are dispersed and uncatalogued, thus require considerable effort to compile for purposes of MAR. Further, the data are collected using different protocols and standards, and thus require further analyses to be compatible and comparable.
- (iii) While there is relatively little forestry specific socio-economic data, there is potential for reporting on socio-economic indicators by use of national statistics from the KNBS. While the data from KNBS is at fairly large resolution, there is scope to isolate the same for forest dependent communities for reporting on household livelihoods and wellbeing.

7. RECOMMENDATIONS

- (i) There is need for development of a platform for collection, cataloguing and sharing information and data on forests in the country to bring synergy to the dispersed nature of data gathering. The recent establishment of a Forest Information centre by the Kenya Forest service can act as a catalyst for this, and can serve to initiate the collection, cataloguing and accessing of such data, and will thus aid MAR.
- (ii) For existing MAR of socio-economic indicators, data available are currently collected in 1 to 10-year cycles. The MAR may initially adopt the same periods for reporting, but this can be reviewed and shortened as data becomes more available on a

continuous basis.

- (iii) As data is only available in detail for some forest blocks and forest types, for MAR of socio-economic indicators it may be most practical to start with generalization of national trends based on assessment of selected representative blocks for which data is available. As data sharing and resolution of data collection advances, more forest blocks and types can be used for the basis of reporting to eventually expand to national levels.

8. References

1. Requardt, M. Kohl, F. Nascher, 2007. Reporting on Pan European Criteria and Indicators for Sustainable Forest Management – Experiences from Liechtenstein 2003. Work Report of the Institute for World Forestry 2007/2.
2. Anon. 1999. Criteria and Indicators for Sustainable Forest Management in SADC countries Within the Framework of the Dry-Zone Africa Process. UNDP/FAO/SADC meeting, Lilongwe, Malawi 12/98.
3. Gustaffsom, K., 2002. Demonstration of methods to monitor Sustainable Forestry. Final Report Sweden, LIFE Project, National Board of Forestry, Sweden.
4. Susan Braatz, 2002. National Reporting to Forest-related International Instruments: Mandates, Mechanisms, Overlaps and Potential Synergies. Secretariat of the United Nations Forum on Forests Report CPF TF 1/2002/3
5. GoK, 2017. National Report on Progress towards Implementation of the United Nations Strategic Plan for Forests (2017-2030), the United Nations Forest Instrument and Voluntary National Contributions. Kenya Forest Service, Republic of Kenya, Nairobi.
6. GoK, 2013. Millennium Development Goals: Status Report for Kenya, 2013. Ministry of Devolution and Planning, Republic of Kenya, Nairobi.
7. Lanly, J.-P., 1994. Sustainable forest management: lessons of history and recent developments. Forest Resources Division, FAO, Rome.