



Reviewing the governance systems on data sharing in OFESA countries to support development of a governance framework for the observatory of East and Southern Africa

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1 Introduction

In 2016, the Centre for International Forestry Research (CIFOR) partnered with the Regional Centre for Mapping of Resources for Development (RCMRD) in the development of the East and Southern Africa Forest Observatory (OFESA). As one core function, OFESA provides reliable data, information and knowledge that supports sustainable forest management and governance in East and Southern Africa. OFESA also aims to support member countries in monitoring and reporting on their forestry, environmental and climate change obligations. The general terms of reference for this assignment are:

- a. Provide an overview of the data-sharing environment/context in the project countries.
- b. Review existing guidelines, regulations and laws regarding data sharing within countries and their application to the functioning of the OFESA observatory.
- c. Identify the gap in current regulations/ policies of data sharing and aspects that need to be improved or clarified.
- d. Identify the legal barriers for a better implementation of data-sharing policy with a focus on institutional arrangements and intellectual property.
- e. Identify comparative approaches and provide good practice recommendations for data-sharing agreements relevant to the project.
- f. Select key informants at the national level to be surveyed with a focus on state officials, government agencies, research institutions and OFESA partners.
- g. Provide recommendations to OFESA regarding required data-sharing structures to facilitate long-term service of the observatory.

The tasks undertaken for this assignment include the following:

- i. Review of legal issues on data sharing in the countries. Reports submitted as Deliverable 1 and 2 have addressed this requirement. Key features have been attached as Annex 1 in section 8 of this report. The analysis includes regulations, frameworks and policies on data sharing in the countries covered by the project.
- ii. National consultation workshops were held as follows:
 - a. Tanzania, Dar es Salaam, 1–2 February 2023
 - b. Kenya, Naivasha, 26–27 April 2023
 - c. Uganda, Kampala, 3–4 May 2023
 - d. Ethiopia, Addis Ababa, 1–2 June 2023
 - e. Mozambique, Maputo, 1–2 August 2023
- iii. A regional stakeholder validation workshop was held in Nairobi, Kenya on 30–31 January 2023. This workshop presented the lessons drawn from each of the five country workshops, in addition to proposals for future regional data-sharing governance arrangements, as well as a proposal for institutional data-sharing model guidelines.

This final report addresses the terms of reference and sets out the lessons learned, as well as the recommendations for a future data-sharing agreement within the OFESA project countries, which can be applied more broadly within the African continent.



Forest Data Sharing

2 Legal architecture for forest data sharing in the OFESA region and country level

This section reviews regional legal frameworks that affect forest data sharing, as well as highlighting key national legal frameworks. Deliverable 1 and 2 present a detailed review of the national frameworks, and key aspects are attached in Annex 1 (section 8).

2.1 Legal framework at the regional level

The key regional legal frameworks reviewed are drawn from the following regional bodies: the Southern Africa Development Community (SADC), the East African Community (EAC) and the Regional Centre for Mapping of Resources for Development (RCRMD).

Southern Africa Development Community

Two OFESA participating countries (Tanzania and Mozambique) are members of the SADC.

The SADC has a Protocol on Forestry, which is the regional policy framework to foster cooperation in forestry. It provides a common vision and approach to the management of the region's forest

resources. The relevant provisions of the protocol regarding data management are set out below:

- i. Article 9 requires Parties to undertake national forest assessments based on a harmonised methodology.
- ii. Article 10 requires Parties, as far as practicable, to collaborate in establishing and maintaining
 - a. a regional database on the status and trends, management and use of forest resources which includes data on all forest resources within the region and complements existing databases in the region;
 - b. a market-information system for the collection, organization and exchange of forest market and industrial information.
- iii. Article 21 requires reporting and information exchange. Parties must exchange data and information concerning forest management and implementation of the protocol:
 - a. status of all types of forests and trees
 - b. research results
 - c. legal and administrative measures that are planned or have been implemented

East African Community

Three OFESA participating countries (Kenya, Uganda and Tanzania) are members of the EAC. In 2006, EAC partner states signed the Protocol on Environment and Natural Resources. Since this has not received ratification, it is not yet in force. The protocol nonetheless sets out key provisions relevant to forest data sharing. Article 11 requires partner states to

- a. develop, publish, review and evaluate regularly the effectiveness of national forest policies, programmes and plans;
- b. undertake regular assessment of forests encompassing all forest resources and all forested lands, regardless of ownership;
- c. promote capacity building and public awareness on forests and forest-related activities and products, strengthen research and promote data and information exchange of all types of forests and trees in the Community.

Agreement establishing the Regional Centre for Mapping of Resources for Development

Four OFESA participating countries (Kenya, Uganda, Ethiopia and Tanzania) are Contracting Parties for the RCMRD. Mozambique is an affiliated or Non-Contracting State to the RCMRD. The principal agreement establishing the RCMRD, signed in March 1975, sets out four objectives:

- Provide services in the field of surveying and mapping.
- Provide training for nationals of the Contracting Parties in surveying and mapping.
- Carry out studies and research in survey and mapping.
- Make available data and results of studies, research and tests carried out by the Centre to the parties.

Article X of the Agreement empowers the Centre, as appropriate, to exercise its functions in cooperation with governments, UN specialized agencies and other interested institutions. Article VIII, which is focused on cooperation of the governments (Contracting Parties), primarily provides for funding of the RCMRD; movement of aircraft and other means of transportation; and defining the immunity of members of RCMRD survey teams. This provision is an important consideration as a potential anchor for a legally binding regional data-sharing mechanism. However, it requires Mozambique to become a full Contracting Party to the 1975 RCMRD agreement.

2.2 Highlights of the national legal frameworks governing forest data sharing

The key legal provisions governing forest data sharing in each of the five OFESA project countries are summarized below.

Ethiopia



- The Constitution recognizes the right to access information and guarantees freedom of expression and the right to access information.
- The Freedom of the Mass Media and Access to Information Proclamation No. 590/2008:
 - Information is defined broadly to mean any material recorded in any form.
 - All persons have the right to access information held by public bodies.
 - All persons have the right to seek, obtain and communicate any information held by public bodies, except as expressly provided for by the Proclamation.
 - The right includes an entitlement to be informed whether the public body holds a record containing the requested information.
 - Public bodies (which include forest management bodies) have a further obligation to publish information.
- The Forest Development, Conservation and Utilization Policy and Strategy (2007) and the Forest Development, Conservation and Utilization Proclamation No. 1065/2018 emphasize the need for continuous information exchange in the forestry sector.
- The Forest Policy and Strategy prioritizes the collecting, organizing and analysis of information for implementation of forest development, conservation and utilization strategies and periodically disseminates such to the public.

- However, despite the legal basis, Ethiopia has not established a specific data and information-sharing policy for forests:
 - A draft policy prepared in 2018 has not yet been endorsed.
 - While there are constitutional foundations for developing a data and information-sharing policy, its implementation and practical significance remain limited in Ethiopia.

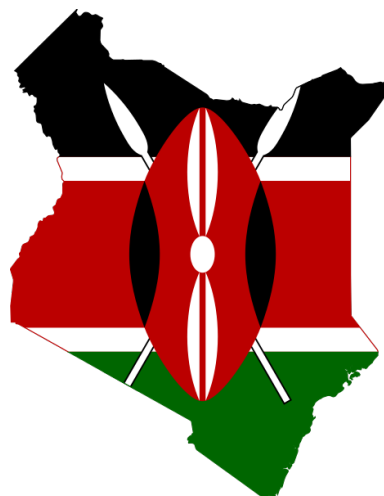
Tanzania



The Constitution of the United Republic of Tanzania (art. 18) guarantees every person freedom of opinion and expression of their ideas; the right to seek, receive and/or disseminate information regardless of national boundaries; and the freedom to communicate, and to be informed at all times of various issues of importance to the society.

The Statistics Act (CAP. 351) mandates the National Bureau of Statistics to collect, manage and disseminate data. In addition, the e-Government Act of Tanzania (No. 10 of 2019) provides for data exchange and sharing to public institutions.

Kenya



The Constitution of Kenya has guaranteed right of access to information (art. 35). This right, however, is restricted to citizens who are entitled to any information held by public and state agencies, and to privately held information (to the extent this information is required to fulfil human rights).

The Access to Information Act (2016), enacted to implement the constitutional provisions, provides that a citizen's right to access information is not affected by any reason the person gives for seeking access; or a public entity's belief as to the person's reasons for seeking access. It also provides the circumstances under which access to, and disclosure of, information may be limited, including national security; information under deliberation; information that may endanger the safety, health or life of any person or cause unwarranted invasion of privacy. The Act also requires public entities to appoint an information access officer (the Chief Executive Officer or a delegate) to handle compliance with the law.

The Forest Conservation and Management Act (2016) requires the Kenya Forest Service (KFS) to develop, maintain and regularly update a geographic information system (GIS) database of all forests in Kenya.

Uganda



Article 41 of the Constitution of Uganda provides a right for every citizen to access information in the possession of the state or any other organ or agency of the state except where the release of the information is likely to prejudice the security or sovereignty of the state or interfere with the right to the privacy of any other person.

The Access to Information Act (2005) provides a guarantee that such information shall be accurate and up to date so far as is practicable. It also requires the Chief Executive of each public body to ensure that records of the public body are accessible to the public.

The National Forestry and Tree Planting Act contains robust provisions on forest data and information sharing as follows:

Provides a right of access to information for every citizen. This refers to information submitted to, or in the possession of the state, a local council, National Forest Authority (NFA) or a responsible body.

Requires application for information, and grants access after payment of prescribed fee.

Limits access to proprietary information, which means information on research or practices initiated or paid for by an individual or private company not for public consumption.

Mozambique



The Right to Information Law (No. 34/2014) was enacted to implement Article 48 of the Constitution of Mozambique.

- This law governs the exercise of the right to information, in support of the constitutional principle of consistent democratic participation of citizens in public affairs and in establishing other related fundamental rights.
- The law applies to state organs and institutions (including the forest and conservation institutions reviewed above) that perform activities of general interest or receive public funds and hold information of public interest.
- The law lays down several important provisions to govern the right of access to information, applicable to forest management institutions. It includes obligations to render public interest information accessible to citizens subject to lawful exceptions, and to publish and disseminate public interest information with a bearing on fundamental rights and freedoms of citizens.
- Public entities must maintain open archives, and practise open government/public administration, which is based on freedom of access to public documents and archives without requiring the applicant to demonstrate legitimate and direct interest, or the purpose for which the information is intended.
- Information is to be provided in a timely manner, free of charge, except for document reproduction, notarized statements or affidavits (certificates), which are subject to fees.

3 Lessons learned from national consultations on experiences with forest data sharing

This section summarizes feedback by participants in the national workshops. This was based on

standardized group questions that were applied during each of the national workshops.

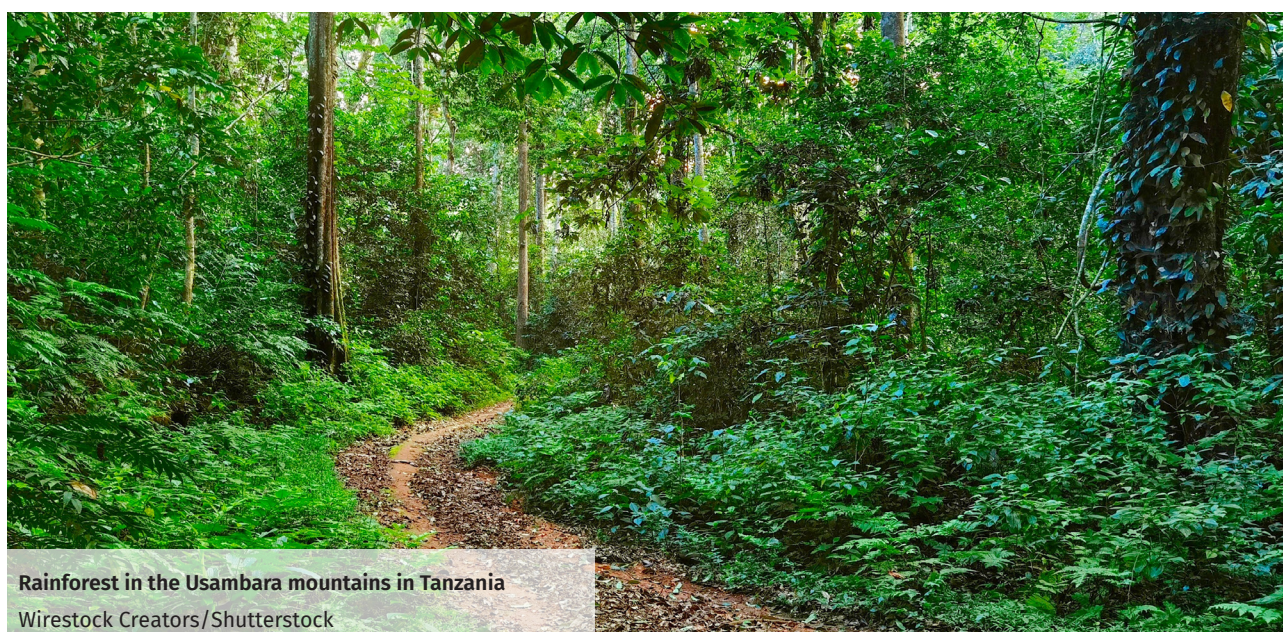
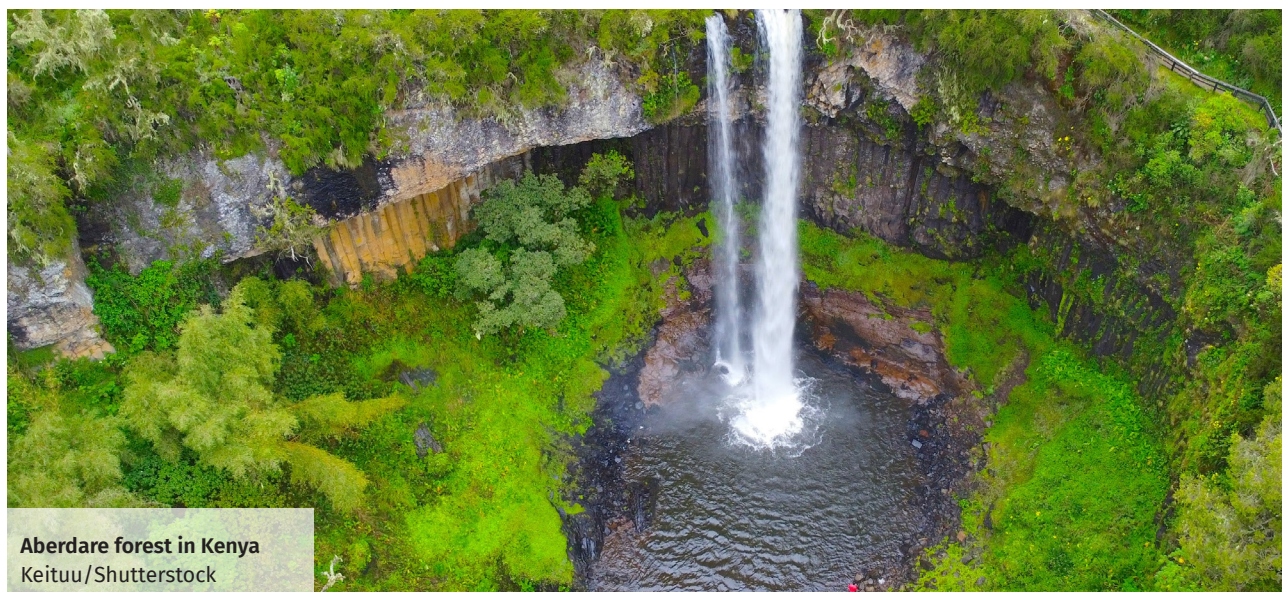


Table 1. Tanzania: Participants feedback on data sharing

Discussion question	Participant feedback
What would make it viable for public and non-public institutions to collaborate and share data in the country?	• Cost sharing and experience/expertise exchange • Collaboration (enhance collaboration among actors) • Similar/common interest
Are there administrative barriers to data sharing?	• Inexistence of data-sharing protocols • Bureaucracy • Trust
What has been your experience sharing data with persons and institutions from outside Tanzania?	• Uncertainty and fear • False ownership claims • Uncertainty if data will be interpreted for unintended purposes
Are there data whose sharing outside Tanzania is not permissible at all?	• Raw data
What factors would you have in mind when considering a request to share data, or processing data for sharing?	• The need to develop and/or operationalize data-sharing policy • Digital feedback system – how did you use the given data, acknowledge source? • Capacity development – indicated as present but requiring enhancing



Aberdare forest in Kenya
Keituu/Shutterstock

Table 2. Kenya: Participants feedback on data sharing

Discussion question	Participant feedback
What would make it viable for public and non-public institutions to collaborate and share data in the country?	• Data-sharing protocols • Data standards and inter-operability i.e., no passwords on data • Data-sharing infrastructure • Data-sharing incentives • Data attribution and accreditation • Collaborative activities/projects that benefit the data acquisition and sharing process • Opening a platform where both parties engage (e.g., monthly/regular forum between natural resource organizations) • Taking advantage of individual/organizational relations and scaling it upward • Leverage on communicating what we have on social media, internet, etc.
Are there administrative barriers?	• Having to request all types of data from the HQ/CEO • Poor data management in some organizations leaving them unable to organize and share data • Inadequate capacity in terms of number of staff and technical skills • Sharing unprocessed data • Long procedures and bureaucracies for sharing and obtaining • Lack of formal mechanisms that pave way for data requests and sharing (e.g., MoUs, collaboration agreements, etc.) • Lack of regional data-sharing guidelines
What has been your experience sharing data with persons and institutions from outside Kenya?	• Easier to share with regional and international organizations through collaborative agreements, existing relationships • Some issues with trust
Are there data whose sharing is not permissible at all?	• Data with security implications • Personal data • Incomplete data
What factors would you have in mind when considering a request to share data, or processing data for sharing?	• Data protection – how safe are the data; are there data excluded by law or necessity? • Personal (e.g., individual officer, or institutional) interest – what is in it for me? • What are the data needed or required for? • Have the data been requested through the correct procedure? • Will there be acknowledgement of the source?

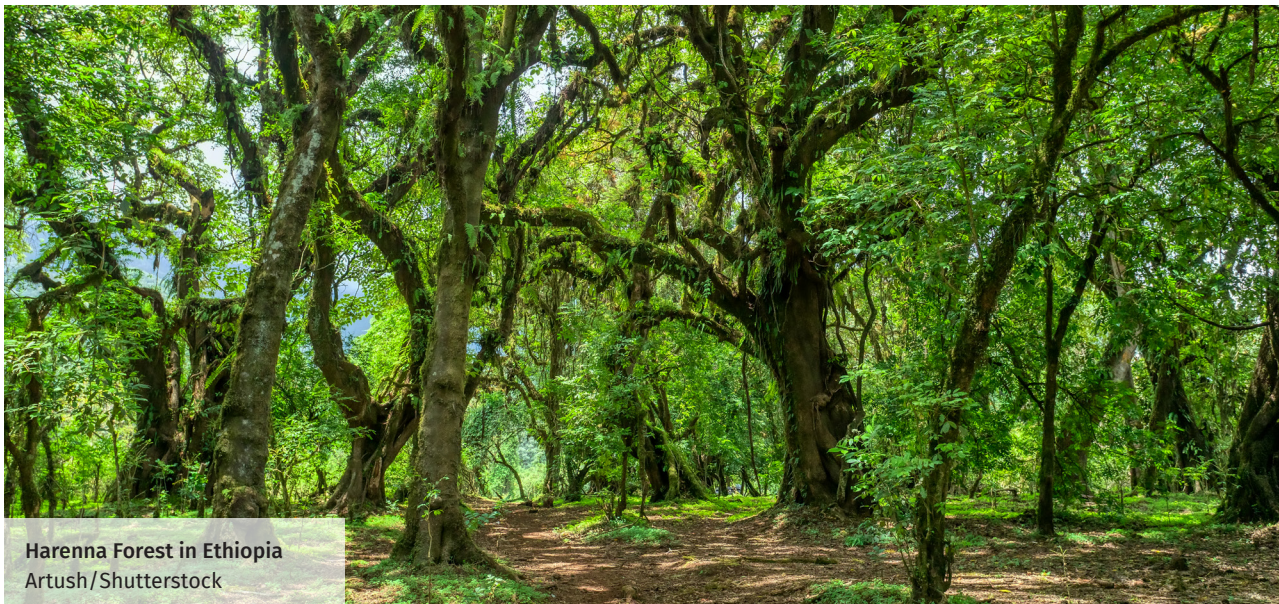


Table 3. Ethiopia: Participants feedback on data sharing

Discussion question	Participant feedback
What would make it viable for public and non-public institutions to collaborate and share data in the country?	Nationally: • Building trust • Clear legal & institutional framework • Standardization Regionally: • Building trust • Clear legal & institutional framework • Standardization
Are there data whose sharing is not permissible at all?	• Commercial, sensitive data, unapproved data • Private data • Confidential data • Legally binding • Endangered species
Which process was followed?	• Authorization from superior officers
What factors would you have in mind when considering a request to share data, or processing data for sharing?	• Intended use of data • Whether sharing of the data is permitted • Whether credit will be shared for the data
What happens when people/institutions from outside request forest data? What procedure do they follow to request for data?	• Offline data sharing through standard procedures and requirements such as written letter of request indicating purpose • Following procedures of the institutions • Permit system • Licence agreement
Are there times you decline the request? If so, for which reasons?	• Yes, those for commercial purpose, sensitive data, unapproved data
Should there be a procedure for accessing raw data – a criterion? If so, please give a suggestion.	• Yes, criteria like non-commercial, education, signing commitment not to abuse the data
What is the major reason why access to forest data is not permissible?	• Mistrust • Uncertainty of the data quality • Absence of skilled human resources • Limited use of technology • Poor data management

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Table 3. Continued

Discussion question	Participant feedback
Are there administrative barriers?	• Unnecessary bureaucracy • Difficulty in assuring accountability • Long-step processes • Institutional instability and fragmentation
What internal policies are needed?	• Data management system in the institution • Rules for data encoding into the database system • Data-sharing policy
What has been your experience sharing data with persons and institutions from outside Ethiopia?	• Limited experience • Sharing mainly with development partners' funding projects

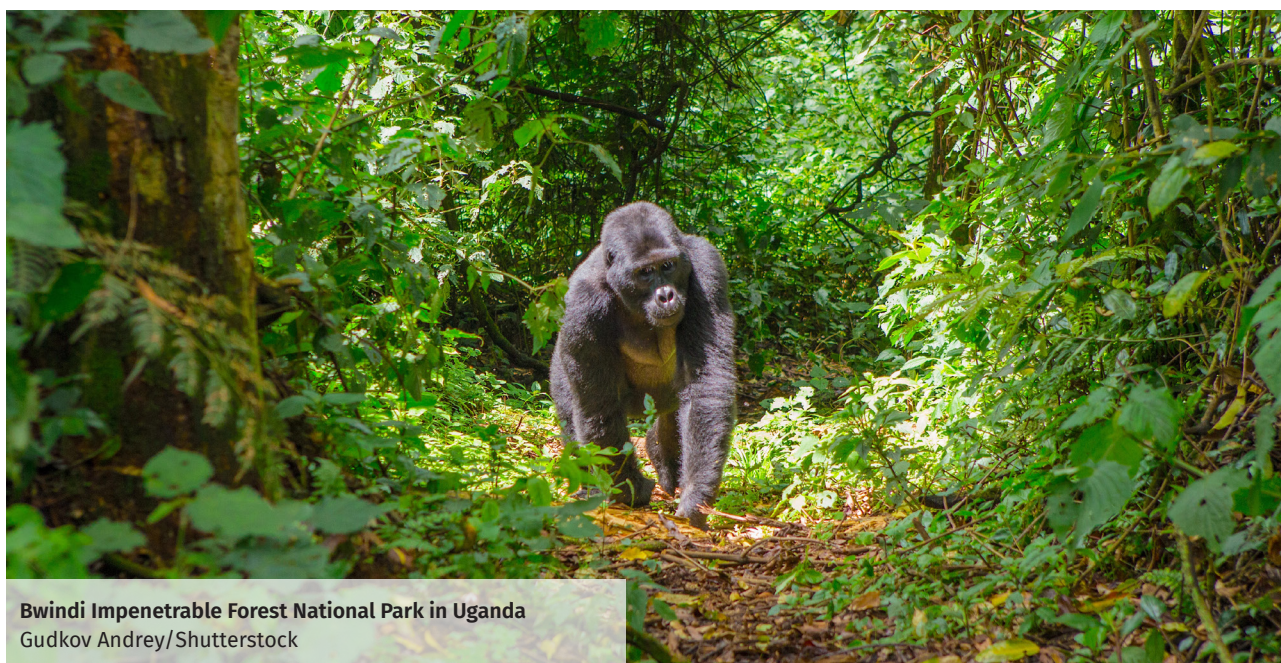


Table 4. Uganda: Participants feedback on data sharing

Discussion question	Participant feedback
What happens when people/institutions from outside request forest data?	• Through signing an MoU with the institution • Special request • From the institution websites (NFA, UWA)
What procedure do they follow to request data?	• Pay if required • Informal requests through colleagues they know within country or between institutions
Are there times you decline the request? If so, for which reasons?	• Yes, if the request is not authentic/ ambiguous (institution endorsement) • When the data are not ready for sharing
Should there be a procedure for accessing raw data – a criterion? If so, please give a suggestion.	• We suggest an establishment of a standard for sharing raw data. • There are already procedures for sharing raw data like MoU between contributing partners • Sometimes there are caveats
What is the major reason why access to forest data is not permissible?	• Cost of producing the data • Data not reaching the required standard – quality of data • Classified data

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Table 4. Continued

Discussion question	Participant feedback
What would be the benefits of making forest data accessible, from public and non-public institutions?	• Policy decisions • Awareness creation • Reporting • Research • Education • Business • Funding and financing
In what instances do public institutions require/could require data from non-state institutions?	• Planning , policy development, resource allocation
What kind of data?	• Location of forest reserves • Localized activities • Forest use data • Private planters
What process is followed?	• A request • Data collection workshops • Investigations through police, IGG
Any challenges	• Quality of data • Volume • Hostility from communities • Insecurity/hard to reach areas • Unwillingness from the providers


Table 5. Mozambique: Participants feedback on data sharing

Discussion question	Participant feedback
What happens when people from outside request forest data:	• Trade secrets • Raw or unprocessed data
Are there times you decline requests?	• Lack of data to share
Should there be a procedure for accessing raw data?	• Raw data are not shared

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Table 5. Continued

Discussion question	Participant feedback
What is the major reason why access to forest data is not permissible?	• Avoiding manipulation of raw data • Lack of superior's authorization to share data • Lack of agreement or policy guiding the sharing • Need to have a cost structure for data sharing • Institutional culture of not sharing data
What would be the benefits of making forest data accessible from public and non-public institutions?	• Guaranteeing transparency • Reducing research costs
What kind of data do public institutions require from non-state institutions?	• Satellite images • Digital terrain and surface model • Data from other countries • Ecological data of Mozambican species that occur in other countries e.g., Chanfuta • Data of a social nature that can be adapted to Mozambique • Exchange of experience • Sharing of methodological information • Training
Procedures used for requesting data?	• Letters, emails
Challenges in sharing of data?	• Timely response and availability of information • Lack of sufficient information, e.g., missing metadata
What could be improved? • Administrative practices • Internal policies • Lack of trust	• Meeting data-sharing deadlines • Enhancing skills and capabilities • Internal policies and regulations on data sharing • Code of conduct guiding sharing of data within organization • A major institutional barrier (within and externally)



4 Common lessons from the national consultation workshops

A review of the lessons from the each of the five national consultation workshops reveals several common challenges facing data sharing.

4.1 Common challenges

The following were identified as challenges affecting forest data sharing across all the countries:

- Trust issues undermine sharing of data, internally and externally.
- There is a common culture of defensive data sharing, defined by general reluctance to share, or sharing the minimum, if at all.
- Internal data-sharing policies are weak or absent.
- Institutional culture of not sharing data:
 - Data are shared with institutional collaborating partners.
 - Students may access data with difficulty, even if properly requested.
- Sharing of raw data is a challenge.

- There are concerns about final use of data, feedback loop, credit/acknowledgement of data source.

4.2 Factors that would make it viable for public and non-public institutions to collaborate and share data in the country

Respondents believed the following factors would make it viable for public and non-public institutions to collaborate and share data in the country:

- digital platforms for sharing information such as OFESA or at the national level that are developed and operated collaboratively
- standardization of data collection methodologies
- presence of data dissemination of institutional platforms (websites)
- more trust and accountability

- shorter long-step processes and less defensive data sharing
- an enabling legal framework

4.3 Data whose sharing should be restricted

Participants in national workshops identified the following as the types of data whose sharing should be restricted:

- location data of illegally hunted species (elephant, endangered species, etc.)
- plant genetic resources
- raw data from forest inventories
- raw data from land-use and cover/forest cover maps
- data with security ramifications given lack of a standard definition of the “security ramification” that leaves broad discretion that can be used to restrict access to data
- incomplete data that can be misused
- data subject to intellectual property claims

4.4 Experience with sharing data with persons from outside (country)

Participants indicated their general experience as follows:

- uncertainty and fear in terms of misuse of the data

- very good experience in sharing geospatial information
- good experience where information sharing has been face-to-face, or with people known to them
- difficulties experienced in sharing raw data
- easier for organizations that are international and working in various countries to share data outside the country
- data sharing is part of present or potential collaborative arrangements and funding
- certain international partners (such as universities) seek a lot of data but do not always acknowledge the data source

4.5 The benefits of making forest data accessible, from public and non-public institutions

Participants agreed there would be benefits resulting from the sharing of data across public and private institutions:

- enhancing evidence-based policy decisions
- creating awareness
- enhancing accurate and comprehensive reporting
- supporting research
- providing knowledge for education
- supporting fundraising and financing potential



5 Principles to inform regional forest data-sharing governance

The following have been identified and framed as key principles, drawn from lessons and national consultations, to inform the future of forestry data governance in the region:

- consistency in data acquisition methodology and sharing
- coordination among key actors
- evidence-based data acquisition
- accommodation of the roles of different actors and enhanced conscious stakeholder cooperation
- classification of data based on access: open, closed or restricted access
- working with knowledge generated and evidence-based data
- having trustworthy, accurate, valuable and reliable data
- validation of data, especially by stakeholders who provided the data
- value addition to data by subsequent users without distortion
- interpretation of laws and policies on forest data sharing
- putting in place guiding rules on intellectual property rights
- development and collaborative of forest data-sharing infrastructure

6 Proposals for a regional forest data-sharing governance framework

Based on the national consultations, and a review of literature, the following options for a regional data-sharing framework are proposed.

6.1 Option 1 – Regional Data-Sharing Agreement through amendment to the 1975 RCMRD Agreement

The viability of this option is based on the following considerations:

- presence of a regional legal framework that supports this approach and functions as the legal anchor
- availability of sufficient high-level engagement and support to backstop the process and outcome

Based on the review of the applicable regional legal frameworks affecting forest data sharing in section 2.1 of this report, the SADC Protocol on Forestry is not a viable option. Only two OFESA countries (Tanzania and Mozambique) are members of the SADC. Equally, the EAC is not an ideal anchor for two reasons. First, only three of five OFESA countries (Kenya, Uganda and Tanzania) are partner states to the SADC. Second, the EAC Protocol on Environment and Natural Resources is not yet in force.

The third option is through amendment to Article VIII of the 1975 RCMRD Agreement. This provision can be amended to include data and information sharing as part of the responsibilities of the Contracting Party governments. For this option to be fully viable, Mozambique would need to become a Contracting Party to the 1975 RCMRD Agreement.

The key features of the amendment to the RCMRD Agreement should include:

- anchoring provision committing countries to cooperating in sharing and exchange of forest data
- definition of data (e.g., as opposed to 'information')

- clarity on categories of data that can be shared, or not shared, and hierarchy of data movement, i.e., what a data recipient can do with them
- rules on movement of data, i.e., from states to RCMRD (and vice versa), and between states
- question of methodologies for data acquisition and generation
- security of shared data
- other relevant provisions

6.2 Option 2 – Data-sharing clause in a Project Agreement or Memorandum of Understanding

This option would work through anchoring a data-sharing provision in a broader cooperation agreement between RCMRD and each participating country. Such an agreement could take the form of a project-specific implementation agreement or Memorandum of Understanding (MoU). The choice between a Project Implementation Agreement or an MoU is subject to national preference and tradition. This can be undertaken within the context of the post-OFESA project (the Regional Centre of Excellence). It has a forest data governance component, and will be implemented by CIFOR and RCMRD from March 2024. In some countries, such as Kenya, an MoU is non-binding and requires high-level approval, which can take more time.

Whether the decision is a Project Agreement or an MoU, the data-sharing clause should provide for the following:

- categories of data to be shared, use of that data, etc.
- procedure for requesting (two-way) data

This approach enables RCMRD and CIFOR to integrate specific data-sharing elements as part of the agreement on project activities and financing.



7 Model guidelines for development of internal data-sharing guidelines within institutions and among forestry/ biodiversity institutions in a country

7.1 Justification for the model guidelines

In a key finding from the national consultations, all participating OFESA countries struggle to share forest data within institutions and among institutions in the same sector and country. For this reason, a future forest data-sharing project should consider supporting several of the key forestry institutions through a participatory internal process of appraising internal and external data-sharing challenges. This should lead to the development of an acceptable institutional data-sharing policy.

The selected nomenclature of these internal guidelines may vary based on national practice. This could be an institutional data-sharing policy, guideline, protocol or even code of conduct.

The recommended process can support forest institutions that do not have formalized internal policies or rules, offering a model that takes in learning from the OFESA data-sharing process. Further, institutions with formalized internal policies may also use the model to reflect on the efficacy of their own process and determine if modification or enhancement is necessary.

7.2 Key features of the model guidelines

Based on findings of the national consultations, model guidelines should have the following key features:

- Definition of forest data.
- Categorization of forest data:
 - open access
 - restricted access
 - security limitations.

- Hierarchy of data access and authorization: who in the organization can have access to what data.
- Ownership of data generated through official duties in a public institution.
- Procedure for handling external data requests; linkage with national law or policies:
 - How is a request submitted?
 - To whom is a request submitted?
 - Are the terms of data engagement clear from the outset?
 - Period of data processing – different categories of data.
 - Cost (of data, or reproduction).
 - Requirement to give reasons for declining a request – within a fixed period.
- Internal sharing of data:
 - Is such a requirement needed for staff – *link to ownership of data*.
 - Are incentives needed? What kind?
 - Mode of sharing; continuous, or periodic, or upon request.
 - Sharing of raw versus processed data.
 - Handling of personal data.
 - Sharing of data with other public institutions.
- Rules on sharing data with non-citizen institutions; or institutions or persons based out of the country.
- Other relevant provisions based on the needs of the institution.

8 Detailed review of the governance of forest data at country level

8.1 Reviewing governance and practice of forest data sharing in Tanzania

Governance of forest data management in Tanzania should be reviewed in the context of the general legal and policy framework that regulates the forestry sector. This includes the institutions enabled under these laws and policies to implement various roles, including generation, dissemination and sharing of data among themselves, and with members of the public and other actors.

The Constitution of the United Republic of Tanzania is the supreme law in the country. Article 18 guarantees every person freedom of opinion and expression of ideas; the right to seek, receive and/or disseminate information regardless of national boundaries; and freedom to communicate and be informed at all times of various issues of importance to the society.

In Tanzania, the following forest data have been identified as important for the sustainable management of all categories:

- land-use and land cover maps drawn from the 2015 National Forest Resources Monitoring and Assessment of Tanzania Mainland (NAFORMA)
- national forest inventory data drawn from NAFORMA
- forest cadastre maps
- forest boundaries shape files
- forest species data
- forest fire data
- forest carbon stock estimation for different forest types and their soil carbon
- identification and mapping of forest hotspot zones/regions
- forest fire frequencies
- forest fire maps

The sources of forest data will usually depend on the legal authority to manage the different

types of forests. The Forest Act 2002 establishes the following categories for forests in the country:

- national forest reserves (forest reserves or nature forests reserves; and forests on general land)
- local authority forests reserve (local authority forest reserves and forests on general land)
- village forests (village land forest reserves; community forest reserves created out of village forests; forests not reserved on village land and of which the management is vested in the Village Council)
- private forests (forests on village land held by one or more individuals under a customary right of occupancy; or forests on general or village land for which a right of occupancy or lease has been granted to a third party for management)

The management of these forest falls under the authority of the following agencies:

- Tanzania Forest Services Agency (TFS) – national forest reserves
- District councils – local authority forest reserves
- Village councils – village forests (district councils and village councils are supervised by the Ministry of Regional Administration and Local Government in the President's Office) [Tamisemi]
- Person/entities holding customary rights of occupancy or leases – private forests

The Forest and Beekeeping Division in the Ministry of Natural Resources and Tourism supervises the sustainable conservation and management of forest and bee resources and services in Tanzania.

Forest institutions

Various state institutions in the forestry sector help manage different categories of forests. These institutions, which play a key role in the generation and dissemination of data, include the following:

**Table 6. Tanzania: Key institutions involved in the generation and dissemination of forestry data**

Institution & establishing law	Functions, including forest data management
Forest and Beekeeping Division - Administrative Division of the Ministry of Natural Resources and Tourism established in 1985 <i>Forestry Development Section – responsible for forestry sector</i>	- Develop, implement and monitor mechanisms for sustainable conservation and management of forest and bee resources and services in the country. - Plan, monitor and evaluate a (forestry) sector-wide database; and prepare and disseminate regular forestry sector technical and financial reports. Forest Act 2002 requires the Director of Forestry to do the following: - With all officers, provide and disseminate information and guidance in writing to members of the public in connection with the implementation of the Act. - Ensure, through best practices, that all local government authorities and their associations and other forest management authorities are consulted and kept informed about the management of forests under the Act and any other written laws related to the management. - Require, for any purpose connected with the Act, any person holding a licence under this Act to supply required documents and other information.
Tanzania Forest Services Agency (TFS) - Established under Executive Agencies Act, Chapter 245 - Mandated under Forest Act 2002 to manage all national forest reserves. Exercises power of Director of Forestry delegated to Chief Executive of TFS under Forest (Delegation of Functions) Order 2020 - Mandate under Beekeeping Act 2002	- Help generate generate and disseminate forest management data from the forest and bee reserves under its authority, as well as forest and bee resources on general lands. - Generate data with respect to all aspects of its mandate: - joint management agreements - management plans of all national forest reserves - national forest resources - demarcated boundaries of each national forest reserve - maps or plans of each national forest reserve

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Table 6. Continued

Institution & establishing law	Functions, including forest data management
Tanzania Forestry Research Institute (TAFORI) Established under Tanzania Forest Research Institute Act, No. 5 of 1980	- Carry out forestry research. - Coordinate forestry research nationally. - Establish and operate a system of documentation and dissemination of the results of inquiries, experiments and research by or on behalf of the Institute, or other information on forestry it has acquired. - Establish and maintain collaboration with statutory bodies in forestry or scientific research. - Require in writing any person engaged in forestry or other allied scientific research in Tanzania to furnish such information relating to forestry or other allied scientific research as the Institute may specify. - Establish, maintain and use a system of communication and cooperation with local authorities and other state departments and organizations for purposes of facilitating and assisting in the practical application of research results from the Institute related to forestry and soil conservation. This is subject to direction from the Minister responsible for local government affairs.
District Council - Established under Local Government (District Authorities) Act, 1982 - President's Office – Ministry of Regional Administration and Local Government (Tamisemi)	- Establish, preserve, maintain, improve and regulate use of forests and forest produce (s.118(2-n). - Establish and maintain public information services. - Supply the Minister (for Regional Administration and Local Government) and any Regional Commissioner as needed for functions under this Act.
Village Council Established under Local Government (District Authorities) Act, 1982	- Plan and coordinate the activities of, and render assistance and advice to, residents of the village engaged in forestry. - Carry out all such acts and things as necessary for the economic and social development of the village. - Manage village land forest reserves and community forest reserves created out of village forests. The councils are also responsible for forests that are not reserved and fall on village land that they manage.
Tanzania National Bureau of Statistics Established by the Statistics Act (Chapter 351)	As custodian of official statistics in the country, produce, coordinate, supervise and disseminate official statistics in Tanzania.
National Environment Management Council - Established by Environment Management Act 2004 - Office of the Vice President	- Collect, analyse and disseminate environmental information. - Establish and operate a Central Environmental Information System that may bring together any findings, data and statistics generated by both public and private institutions in the course of environmental observation and management. - Publish a State of Environment and Environmental Management Report every two years. - Publish any other information considered necessary for public education on the environment and other environmental issues. - The Council has the power to - gather information on the environment and natural resources on the existing data; - access any data collection on the environment and natural resources, subject to any other written law; - analyse information relating to the environment and natural resources; - disseminate information to public and private users; - commission studies in demographic and trends affecting environmental and development issues; - carry out public information and education campaigns in the field of environment; - exchange information relating to environment with non- governmental organizations or any other regional and international organizations; - coordinate management of environmental information with sectoral ministries; - advise the Minister on information gaps and needs; - establish in consultation with sectoral ministries, guidelines and principles for the gathering, processing and dissemination of environmental information.

Note: The Forest and Beekeeping Division coordinates the forest and beekeeping sectors in Tanzania, through various laws, policies and institutions. The pertinent forestry institutions include the Tanzania Forest Services Agency; Tanzania Forest Research Institute; Tanzania Forest Fund; the Forest Training Institute; and the Forest Industries Training Institute.

Table 7. The policy frameworks governing forest data in Tanzania

Policy (includes plans and strategies)	Diagnosed problem	Policy solution
National Forest Policy, 1998	• Lack of baseline data on biodiversity and a low level of awareness on environmental and economic values of indigenous forests have been the main causes for the negligence of forest conservation. • Baseline data on wildlife species and their habitats outside game reserves and national parks are scarce; and wildlife management is not incorporated into forest management plans. • Information systems and databases do not provide sufficient information for decision making. • Reliable data on deforestation are lacking.	• All central and local government forest reserves will be demarcated on the ground, management objectives defined and multi-purpose forest management plans prepared based on reliable inventory data and covering all different uses of forests. • The information on the availability of raw material will be secured through periodical forest resource assessments and all relevant data will be provided to potential users. • Beekeeping resource assessment will be intensified, and a beekeeping component will be incorporated into the management plans of forest reserves in the context of joint forest management.
National Implementation Plan	• Data and information availability and management have gaps.	• A data management system will be updated and functioning by June 2028. • Databases and reporting schedules will be established for the National Forest Policy M&E framework. • Other government institutions will be called to provide support in collection and dissemination of information. • A feedback mechanism will provide a two-way flow of information between report producers and users. This feedback will be incorporated in the sideways linkages among stakeholders to improve the quality of reports and report submissions.
Climate Change Strategy	• The platform for hosting the inventory of resources and data availability are both limited. • National capacity is limited for research to generate climate data and information to fill gaps and to assess regular climate change impacts on socioeconomic and environmental monitoring.	• An information flow mechanism to enhance dissemination and public communications has been established.



8.2 Reviewing governance and practice of forest data sharing in Uganda

Forests in Uganda are classified in the following manner:

- central forest reserves – managed by the NFA
- local forest reserves – managed by district councils through district forest services
- community forests
- private forests
- forests forming part of a wildlife conservation area declared under the Uganda Wildlife Statute, 1996

In Uganda, the following forest data have been identified as important for the sustainable management of all categories:

- forest acreage
- aggregated data on forest beneficiaries
- species planted

- forest shape files (boundaries)
- high value wood species
- forest land cover maps
- forest inventory data
- forest plantations data
- state of forest report
- agroforestry data
- state of environment data
- forest hotspots data
- tree planting data
- forest fires

Forest institutions

Various state institutions in the forestry sector help manage different categories of forests. These institutions, which play a key role in the generation and dissemination of data, include the following:

Table 8. Key institutions involved in the generation and dissemination of forestry data in Uganda

Institution & establishing law	Functions, including forest data management
The Ministry of Water and Environment Government ministry mandated to ensure provision of quality water and environmental protection services in the country The Forest Sector Support Department falls under the Directorate of Environment Affairs of the ministry	• Coordinates, guides and supervises Uganda's forest sector, and contributes to the rational and sustainable use, development, effective management, safeguard of forestry resources, for social welfare and economic development. • Oversees and supervises, including coordination of forestry data management.

continued to next page

Table 8. Continued

Institution & establishing law	Functions, including forest data management
National Forest Authority (NFA) Established by the Forest and Tree Planting Act 2003	• Develops and manages all central forest reserves. • Promotes innovative approaches for local community participation in the management of central forest reserves. • Prepares and implements management plans for central forest reserves and prepares reports on the state of central forest reserves and such other reports as the Minister may require. • Establishes procedures for the sustainable use of forest resources by and for the benefit of the people of Uganda: ◦ Cooperates and coordinates with the National Environment Management Authority and other lead agencies in the management of Uganda's forest resources ◦ Controls and monitors industrial and mining developments in central forest reserves in conjunction with other regulatory authorities. ◦ Carries out or commissions research for conservation, development and use of forests, and for conservation of biological diversity and genetic resources. ◦ Ensures training of forestry officers and other public officers in the development and sustainable management of forests. ◦ Plants trees. • Responds to an Access to Information request filed by any citizen of Uganda, except any information considered proprietary by virtue of being private and not for public consumption.
National Forest Resources Research Institute (NaFORRI) Established under the National Agriculture Research Act, 2005	• Establishes and maintains collaboration with other agricultural research service providers, organization and agricultural research institutes both at national and international levels. • Establishes and maintains regular contacts and collaboration with other research and technology institutes both at national and international levels. • Reports on findings of agricultural research to the organization, especially agricultural research service undertaken with public funding from the organization. • Acquires and disseminates agricultural research and development results from tertiary institutions and other entities.
District Forest Services	• Advises the District Council on all matters relating to forestry. • Liaises with the NFA and other lead agencies on matters relating to forestry. • Promotes forestry awareness in the district to promote the planting of trees. • Undertakes duties to manage local forest reserves. • Advises and supports management of community forests. • Assists in the development and provision of advisory services relating to private forests. • Prosecutes any person wilfully destroying any forest resources in contravention of this Act.
National Environment Management Authority (NEMA) Established by the National Environment Act	• Publishes relevant data on environmental quality and resource use. • Establishes a national databank of wetlands. • Prepares biennial State of Environment Report and disseminate to the public. • Collaborates with various lead agencies in various functions. • Provides each person right of access to information through a written request to NEMA or any lead agency (but not for proprietary or confidential information).

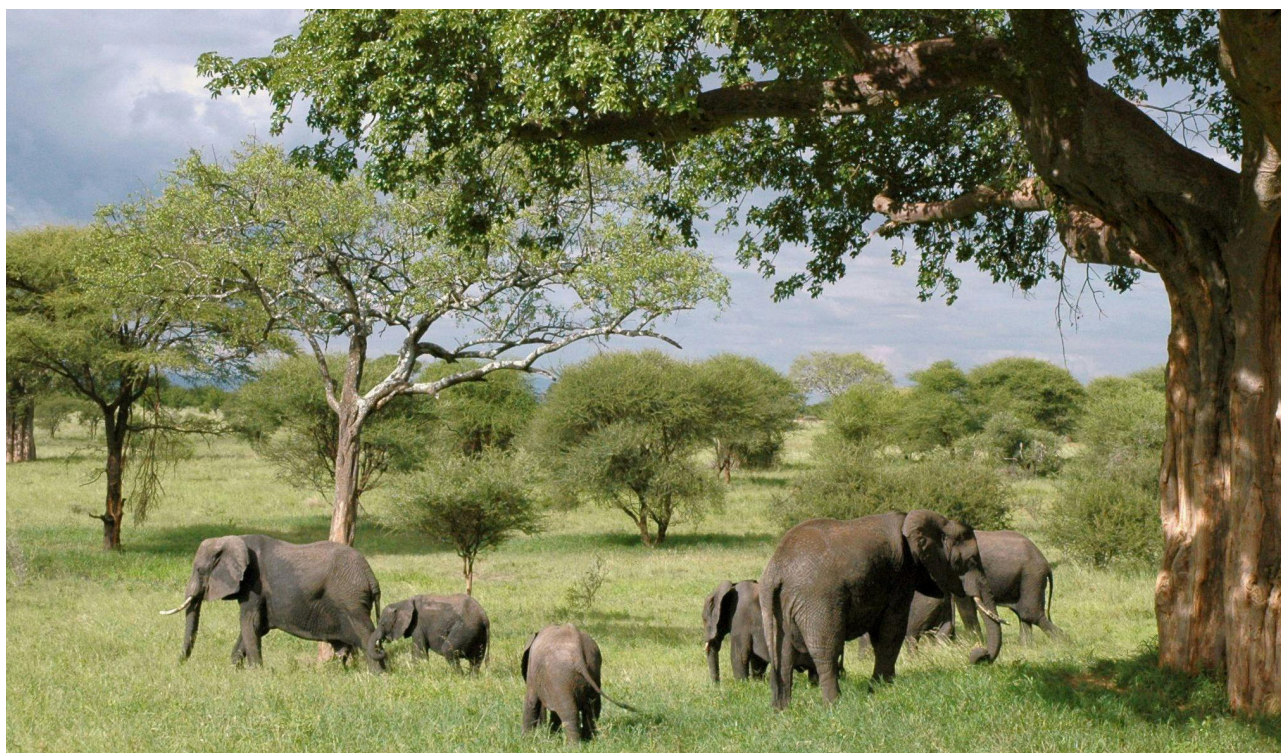
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Table 8. Continued

Institution & establishing law	Functions, including forest data management
Access to Information Act, 2005	- Provides every citizen with right of access to information and records in the possession of the state or any public body, except where the release of the information is likely to prejudice the security or sovereignty of the state or interfere with the right to the privacy of any other person. - Guarantees that all information to which a person is entitled access shall be accurate and up to date so far as is practicable. - Requires the Chief Executive of each public body to ensure that records of the public body are accessible to the public.
Implementation of Article 41, Constitution of Uganda	

Table 9. The policy frameworks governing forest data in Uganda

Policy (includes plans and strategies)	Diagnosed problem	Policy solution
National Forest Policy, 2001	- Lack of technical information and skills is a constraint on local communities in alleviating poverty through forest development. - Government's capacity to deliver forestry advisory services has been greatly reduced. Non-governmental and community-based organizations (NGOs and CBOs) disseminate some information, but this is mostly project-specific and covers limited geographical areas.	- Strengthen role of private sector organizations, NGOs and CBOs in communication, access to market information and technical collaboration in the plantation industry. - Create a national coordination structure for forestry research to strengthen linkages between regulatory, research and training institutions, and end-users. - Establish well-defined information systems with reliable data on agreed indicators.
National Forest Plan (2011/12-2021/22)	- Scientific data on forest production functions are inadequate. - The forest cover data become outdated, and update requires elaborate and expensive satellite imagery and ground truthing. - There is no system for capturing data on trade of forest products.	Promote capacity building and public awareness on forests and forest-related activities and products and strengthen research and promote data and information exchange of all types of forests and trees in the community.
National Forest Plan (2011/12-2021/22)	- Centralized data are inadequate to update the information contained in the 2001 Forestry Policy. No data are available to enable gender disaggregation of the employment numbers. - There is no information on private small- and medium-scale forestry enterprises (such as nurseries, beekeeping, fruit tree growing, woodlots, etc.), and yet they contribute significantly to household incomes and people's well-being. - The flow of forest research information to civil society has remained slow, resulting in inadequate up-to-date literature for constructive lobbying and advocacy. - Some information regarding sensitive matters like corruption in high places is still withheld from CBOs and other stakeholders. - The link between farmers, management institutions like NFA and NaFORRI is weak, curtailing interactions between researchers and users of research findings.	- Have gender-disaggregated data collection, collation, analysis and reporting. - Establish information and communication technology infrastructure upcountry where forests are being grown and where industries are located. - Establish national and regional forestry stakeholders' consultative forums for information sharing and review of forestry sector performance.



8.3 Reviewing governance and practice of forest data sharing in Kenya

The governance of forests and forest data in Kenya is regulated by various laws, including the Constitution, which classifies land as public, community and private. The Forest Conservation and Management Act (2016), drawing from the Constitution, establishes the following categories of forests:

- public forests (terrestrial and mangrove) – managed by the KFS and CFAs permitted by KFS
- forests on public land defined under Article 62(2) of the Constitution – managed by county governments
- forest on community land – community land management committees
- private forests – private individuals and entities

The Constitution of Kenya has guaranteed right of access to information (art. 35). However, this right is restricted to citizens. They are entitled to any information held by public and state agencies, as well as to privately held information to the extent this information is required to fulfil human rights.

In Kenya, the following forest data have been identified as important for the sustainable management of all categories:

- Kenya Forest Resource Assessment Report 2021
- monitoring of forests using satellite technology
- high-resolution satellite images
- land-use and land-use change maps
- forests cover
- gazetted forests boundary shape files
- water towers
- operationalization of the National Forest Monitoring System
- operationalization of the Safeguards Information System (SIS)
- biodiversity mapping
- hotspot mapping
- forest trends from 1990–2018
- dryland forestry in Kenya data
- forest fire hotspots
- participatory forest management data

Forest institutions

Various state institutions in the forestry sector help manage different categories of forests. These institutions, which play a key role in the generation and dissemination of data, include the following:

Table 10. Key institutions involved in the generation and dissemination of forestry data in Kenya

Institution & establishing law	Functions, including forest data management
Kenya Forest Service Established by the Forest Conservation and Management Act, 2016	• Conserve, protect and manage all public forests. • Prepare and implement management plans for all public forests and, where requested, assist in preparation of management plans for community forests or private forests in consultation with the relevant owners. • Receive and consider applications for licences or permits in relation to forest resources or management of forests or any other relevant matter in accordance with this Act. • Establish and implement benefit-sharing arrangements in accordance with provisions of this Act. • Assist county governments to build capacity in forestry and forest management in the counties. • Develop, in consultation with relevant stakeholders, programmes for tourism and for recreational and ceremonial use of public forests. • Promote forestry education and training. • Register and maintain a registry of all forest management plans prepared for public forests. • Collaborate with relevant persons in identifying research needs and applying research findings in relation to forests and forestry. • Prepare a Forest Status Report for the Cabinet Secretary once every two years and a Resource Assessment Report for the Cabinet Secretary once every five years. • Maintain an up-to-date record of all community forest associations that have been granted permissions.
Kenya Forestry Research Institute (KEFRI) Established by the Science, Technology, and Innovation Act, 2013 (No. 28 of 2013)	• Develop research and development programmes to provide information and technologies for sustainable development of forestry and allied natural resources. • In consultation with relevant organizations, a. prepare forestry research and development strategies for the country; b. conduct expert training courses in forestry and allied natural resources; c. disseminate research findings to support forestry development in the country and counties; d. participate in the development and monitoring of national forest standards. • Regularly compile and submit a report for the Cabinet Secretary relating to forestry research and development. • Develop, maintain and regularly update a GIS database of all forests in Kenya.
Kenya Water Towers Agency Established by the Kenya Water Towers Agency, Order 2012	• Coordinate and oversee the protection, rehabilitation, conservation and sustainable management of water towers. • Coordinate and oversee the recovery and restoration of forest lands, wetlands and biodiversity hot spots. • Promote implementation of sustainable livelihood programmes in the water towers in accordance with natural resource conservation. • Mobilize resources from the government, development partners and other stakeholders, as well as through payment for environmental services, including carbon reservoirs and sequestration. • Identify, in consultation with relevant stakeholders, water towers and watersheds for protection. • Assess and monitor rehabilitation, conservation and management activities in the water towers. • Generate regular status reports for each of the gazetted water towers.
County governments	• Prepare an annual report, with the approval of the respective county assembly for the KFS, on the activities of the county government in relation to the forestry law and any national policies on forest management and conservation.
Kenya Wildlife Service (KWS) Established by the Wildlife (Conservation and Management) Act, 2013	• Conserve and manage national parks, wildlife conservation areas and sanctuaries under its jurisdiction/prepare and implement national park management plans. • Assist and advise in the preparation of management plans for community and private wildlife conservancies and sanctuaries. • Enforce and coordinate all research activities in the field of wildlife conservation and management and ensure application of research findings in conservation planning, implementation and decision making.

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Table10. Continued

Institution & establishing law	Functions, including forest data management
Wildlife Research and Training Institute Established by the Wildlife (Conservation and Management) Act, 2013	• Collect and analyse wildlife data and information to support planning and decision making by different stakeholders. • Undertake research through remote sensing and GIS to enhance wildlife conservation and management. • Establish, in collaboration with KWS and other relevant lead agencies and stakeholders, a comprehensive wildlife database that includes relevant data produced by the Kenya National Bureau of Statistics, universities and other research institutions. • Ensure that data are collected in accordance with any harmonized national standards that may be prescribed under this Act or regulations made hereunder in collaboration with KWS and other relevant lead agencies and stakeholders. • Ensure that data and information in its possession are progressively made available and accessible, through any means, to all stakeholders and the general public.
National Environment Management Authority Established by the Environmental Management and Coordination Act (EMCA), 1999	• Coordinate the various environmental management activities of lead agencies and promote integration of environmental considerations into development policies, plans, programmes and projects. • Undertake research, investigation and surveys in the field of environment and collect, collate and disseminate the findings. • Approve strategic environmental assessments, environmental impact assessments, environmental audits, and monitoring and compliance, and generate the requisite data. • Issue licences for solid waste disposal, effluent disposal and pollution regulation; and generate data.
Directorate of Resource Survey and Remote Sensing	• Gather data on the environment and natural resources, planning, conservation and management using remote sensing, GIS and conventional sampling techniques.

Table 11. The policy frameworks governing forest data in Kenya

Policy (includes plans and strategies)	Diagnosed problem	Policy solution
Forest Policy, 2005	• The institutional linkage between research, education, administration, resource owners and users is weak.	• Establish effective mechanisms to strengthen this linkage.
National Forest Programme	• The roles of different actors in data collection, sharing and storing need to be assessed. • Forest resource assessment data are inadequate, and access to, and dissemination of, forest information are poor. • Data on water quality and quantity from water towers are inadequate. • Synthesised data on total economic value of forest and their contribution to gross domestic product are inadequate. • Flow of information between different sectors is inadequate.	• Establish national forest assessment and monitoring system. • Carry out Forest Resource Assessment 2021. • Undertake satellite imaging of forest areas (military). • Develop relevant policy and guidelines for inter-institutional data sharing with clear directions on the nature of information and the manner in which it is shared; adopt ICT for efficiency and widened scope of information sharing. • Link county governments' information units to the national information unit at the KFS headquarters. Ensure various entities generate data to produce easily accessible information. • Improve access to forestry information to improve awareness and decision making.
National Strategy for Achieving and Maintaining over 10% Tree Cover by 2022		• Develop and maintain an electronic database for all tree nurseries. • Collect, analyse and disseminate data regularly.



9 Reviewing governance and practice of forest data sharing in Ethiopia

Governance of forest data management in Ethiopia should be reviewed in the context of the general legal and policy framework that regulates the forestry sector. This includes the institutions that are enabled under these laws and policies to implement various roles. These roles include generation, dissemination and sharing of data among themselves, with members of the public and with other actors.

The Constitution of Ethiopia vests the right to ownership of rural and urban land, as well as of all natural resources, exclusively in the state and in the peoples of Ethiopia.¹ In addition, the federal or state government (as the case may be) has the duty to hold on behalf of the people, land and other natural resources and to deploy them for their common benefit and development.

¹ Constitution of the Federal Democratic Republic of Ethiopia (1994), art. 40(3).

Land is classified either as urban or rural.

Urban land is located within an administrative boundary of an urban centre, which means any locality with a municipal administration or a population size of 2,000 or more with at least half of its labour force engaged in non-agricultural activities.²

Rural land is located outside of a municipality holding or an area designated as a town by law and is governed by the Rural Land Administration and Land Use Proclamation.³ This law recognizes community, state and private holdings in rural land. Community holdings mean land given by the government to local residents for common grazing, forestry and social services. As the government is the owner of rural land, communal rural land

² Ethiopia Urban Lands Lease Holding Proclamation, No. 721/2011, art. 2(2,3).

³ Federal Democratic Republic of Ethiopia Rural Land Administration and Land Use Proclamation No. 456/2005, art. 2(1).

holdings can be changed to private holdings as necessary. State holdings refer to rural land demarcated at federal or regional states, including forest lands, as well as wildlife protected areas, state farms, mining lands, lakes, rivers and other rural lands.

In Ethiopia, the following forest data have been identified as important for the sustainable management of all categories:

- forest cover
- forest land use
- tree species and biometric data
- forest cover change (e.g., deforestation, forest degradation)
- forest products and services
- species with economic/commercial value, and their location (for purposes of investments)
- forest inventory and survey data
- forest area trends/changes
- number and types of green jobs in forestry sector
- forest-related import/export data
- hotspot areas (fire, insect pests, invasive species)
- forest ownership data
- forest biodiversity

- carbon stock
- location, stocking and types of plantation forests
- satellite images
- GIS data (satellite, digital terrain maps [DTM], digital surface maps [DSM], etc).
- raw forest data
- status and location of an endangered plant species
- protected areas polygons
- species of plants and animals in each protected area
- status and location of an endangered plant species
- seeds of indigenous plants from the gene bank

The 2018 Forest Proclamation defines a forest to mean trees, plants and other biodiversity accumulation at, and in the surrounding areas of, forest lands, roadsides, riverside, farms and grazing lands, as well as residential areas or parks that grow naturally or developed in some other ways. It also defines forest land quite broadly as any plot of land demarcated or designated for the purpose of forest development and conservation. This law recognizes three types of forests as seen in Table 9.1.

Table 12. Types of forests recognized and ownership under Ethiopian law

Type of forest	Description	Ownership
State forest	Any exclusively, conserved and productive forest owned by the federal government or a regional state	Federal government Regional state
Private forest	A forest other than state or community	Private individual holdings Institutional holdings
Community forest	Forest developed, conserved, used and administered by the community on its private or communal possession	Community
Association forest	Forest developed, conserved, used and administered by associations established to develop forest	Associations of forest developers

Institutions with forest data management roles

Various state institutions in the forestry sector are involved in managing different categories of

forests data. These institutions, which play a key role in the generation and dissemination of data, include the following:

Table 13. Key institutions involved in the generation and dissemination of forestry data in Ethiopia

Institution & establishing law	Functions relevant to forest data management	Type of forest data
Ethiopia Forestry Development (EFD) - Established as an autonomous federal government body with its own legal personality through the Definition of Powers and Duties of the Executive Organs Proclamation No. 1263/2021 - Powers and duties defined through the Council of Ministers Regulation No. 505 /2022.	Management of federal forests. Empowered by Regulation No. 505/2022 to gather, synthesize and compile information on the changes in forest types, cover and health; forest carbon stock; forest industries; supply and demand as well as on import and export data of forest products; the contribution of the forestry sector to socioeconomic development; and ecosystem services; and to ensure the dissemination and wide use of information. Regulation No. 505/2022 defines forest development to include forest inventory; forestry data management.	- Forest cover/land use - Forest cover change (deforestation, forest degradation) - Carbon stocks - National forest inventory data and report - Tree species and their biometric data - Location, stocking and types of plantation forests - Forest fires
Regional states Functions defined under Forest Proclamation No. 1065/2018 Two regional states, Oromia and Amhara, have established Forest and wildlife enterprises to exercise these mandates	Under Forest Proclamation No. 1065/2018, regional states (through their Executive Organs) have the following functions: - Administer any forest land and state forest found in the regional state; supervise and support the development, conservation and administration of private and community forests. - Provide legal recognition for the forests and forest land. - Encourage forest development programmes, which involve the participation of community and provide technical support. - Regularly monitor and evaluate whether forest developers given land on which to develop forests have used the land for the intended purpose and whether the use of the land is in accordance with the agreed forest management plan. - Set and collect rates of royalty payment for forest products. - Establish or provide the institutional arrangements, budget allocation and human resources required for the implementation of this Proclamation. - Develop an early warning, prevention and control mechanism to prevent the occurrence of damage to forest resources; upon the occurrence of damage, take emergency measures by mobilizing the community and other relevant stakeholders; and request the ministry for support if deemed necessary.	- Forest cover/land use - Forest cover change (deforestation, forest degradation) - Carbon stocks - Tree species and their biometric data - Location, stocking and types of plantation forests - Forest fires

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Table13. Continued

Institution & establishing law	Functions relevant to forest data management	Type of forest data
Ethiopian Biodiversity Institute Established through the Council of Ministers Regulations No. 291/2013	• Undertake research relevant to ensure the conservation and sustainable use of biodiversity and the sharing of benefits arising from their use. • Collect samples, and conserve ex-situ components of biodiversity as required; characterize and evaluate; facilitate the use of these genetic resources for further research and development. • Identify and register the country's biodiversity resources using genetic fingerprinting and facilitate their conservation and recognition that they belong to the country. • Establish a system whereby the information on the country's biodiversity resources shall be maintained and used. • Study and maintain community knowledge associated with biodiversity and facilitate conditions so they are respected and used with the participation and fair and equitable sharing of the benefits arising therefrom by the concerned communities.	• Biometric and change data • Forest types • Plant specimen • Locations of a species of economic importance for investment • Status and location of an endangered plant species • Seeds of indigenous plants from the gene bank
Space Science and Geospatial Institute (SSGI) Established as an autonomous federal government organ having its own legal personality – Proclamation No. 1263/2021 Powers and Duties defined through Regulation No. 511/2022	• Collect, process, produce, analyse, organize, store, disseminate and administer space and geospatial data. • Use such data to support social and economic growth, environmental development, forecasting accidents, digital addressing system, spatial planning and others. • Identify, plan, carry out and implement research thematic and application areas of space and geospatial sector. • Provide recognized training that can build capabilities to use, adapt, improve and produce space and geospatial products and services. • Prepare, publish and distribute national, regional and special atlases, as well as topographic and thematic maps in different scales for different purposes. • Develop and implement enabling space and geospatial platforms that are aligned with the digital economy and national development plans. • Prepare, organize and administer national journals onto which space and geospatial research outputs are published, and heighten international reputation.	• Satellite images • GIS data (satellite, DTM, DSM, etc). • Raw data
Ethiopia Wildlife Conservation Authority (EWCA) Established under Ethiopian Wildlife Development and Conservation Authority Proclamation No.575/2008	• Conduct research and training programmes and collect, process and provide users with up-to-date information on the conservation, development and use of wildlife.	• Polygons of protected areas • Species of plants and animals in each protected area • Vegetation maps (e.g., forest, grassland, wetland)

continued to next page

Table13. Continued

Institution & establishing law	Functions relevant to forest data management	Type of forest data
The Ethiopian Statistical Service Established through Proclamation No. 1263/2021.	- Collect statistical data in accordance with Ethiopian statistical system, standard and regulation through sample surveys, censuses, registration and administrative records and other methods of data collection. - Compile, organize and disseminate same as official statistics once data quality assurance and clearance are approved by the Ministry of Planning and Development. - Collect, compile and disseminate statistical data by using modern data collection methods and tools.	Statistical data

Access to information legislation

Access to information is governed by the Freedom of the Mass Media and Access to Information Proclamation No. 590/2008. Under this law, information is defined broadly to mean any material recorded in any form.

Access to information objectives of this Proclamation :

- Give effect to the right of citizens to access, receive and import information held by public bodies, subject to justifiable limits based on overriding public and private interests.
- Establish mechanisms and procedures to give effect to that right in a manner that enables persons to obtain information as quickly, inexpensively and effortlessly as is reasonably possible.
- Encourage and promote public participation and empowerment to foster a culture of transparency, accountability and efficiency in the functions of public bodies and to encourage and promote good governance.

This law provides a right to access for all persons to access information held by public bodies. These bodies are defined as any body established under the federal or state constitutions or any other law that forms part of any level or branch of the federal or regional state or owned, controlled, or directly or indirectly substantially financed by funds provided by the federal or regional governments or accountable to the federal or regional states.

All persons have the right to seek, obtain and communicate any information held by public bodies, except as expressly provided for by this Proclamation. The right includes an entitlement to be informed whether the public body holds

a record containing the requested information.

Under this right, all persons are entitled to obtain information from any public body by means of

- inspection, taking extracts and notes;
- certified copies of any records of such public authority;
- diskettes, floppies or any other electronic mode or through printouts where such information is stored in a computer or in any other device.

Public bodies (which include forest management bodies) must publish information, including the following:

- brief descriptions of the complaint-hearing mechanism available to the public and the public body's response to frequently asked questions by the public
- a description of the type of the records under its possession, a brief description of the contents of its records and the detailed explanation of the procedures to be followed by persons who wish to access this information
- a description of its regulations, directives, policies, guidelines and manuals that govern the operation and activities of its various organs, along with a description of any amendment or repeal of such provisions

Proclamation No. 590/2008 provides a right to obtain information from public bodies. Therefore, any one who desires to obtain information presents the request to the concerned public relations officer in writing, or through an electronics device, clearly identifying the information sought. Where the requester owing to illiteracy or physical incapacity is unable to present the request in writing, the public relations officer has a duty to assist. No one shall be required to provide reasons for the request.

Table 14. The policy framework governing forest data in Ethiopia

Forest policy	Diagnosed problem	Policy solution
Forest Development, Conservation and Utilization Policy and Strategy, 2007	There is need for an appropriate system of data collection, analysis and distribution focusing on forest development, protection and use for implementation and use at any level.	Ensure the collection of information pertaining to the size and status of use of forests under ownership of individuals, associations and private investors. Collect, organize and analyse information for the implementation of forest development, conservation and utilization strategies and periodically disseminate such to the public. Study traditional and modern agroforestry techniques and disseminate results to users, as well as conduct evaluation and improvement on time. Collect and analyse market development studies and disseminate such information to users. Train practitioners in the field of forest development, conservation and utilization, information gathering, forest management plan preparation and other relevant fields.
	Information exchange and distribution on forest resource development, conservation and utilization need to be integrated into national and international information networks.	Gather information on new technologies and best practices from various sources, as pertinent to forest development, conservation and utilization. Prepare and avail for use standardized formats of information exchange, as much as these are essential for sustaining information exchange and integration. Strengthen those that avail, analyse and distribute information pertaining to forest development, conservation and use in terms of both human resources, and modern information technology and equipment. Educate the public through the media on the need to maintain the natural ecological balance through protection of natural forests in various agroecological zones, from inappropriate use.



9.1 Reviewing governance and practice of forest data sharing in Mozambique

In Mozambique, all land is the property of the state and cannot be sold or otherwise alienated, mortgaged or encumbered and it makes up the State Land Fund.⁴ Indigenous forests are classified as part of the public domain as state property.⁵ Table 9.2 indicates the national forest heritage in Mozambique according to potential, location and mode of use.

The 2014 Conservation Law⁶ was enacted to apply to all natural resources in Mozambique. It established basic principles and rules concerning protection, conservation, restoration and sustainable use of biological diversity in conservation areas, as well as an integrated management framework for the sustainable development of the country. This law establishes protection zones that govern forest management, which represent the national natural heritage designated for the conservation of biological diversity and fragile ecosystems of animal or plant species. These zones are classified to ensure the

Table 15. Classification national forest heritage in Mozambique

Forest classification	Characteristics
Conservation forests	Made up of vegetation formations located in protection areas and subject to a special management regime
Productive forests	Made up of vegetation formations of high forestry potential, located outside protection areas
Multiple-use forests	Made up of vegetation formations located outside protection areas and with low forestry potential

representative conservation of ecosystems and species and the coexistence of local communities with other interests and values to be preserved.

There are two types of protection zones:

- Total conservation areas are in the public domain (state property). They are designated

⁴ Land Law No. 19/97 art 3 & 4.

⁵ Forest and Wildlife Act, art 3.

⁶ The Conservation Law, Nr. 16/2014 of 20 June 2014.

for the preservation of ecosystems and species, and do not permit resource extraction. They only permit indirect use of natural resources with exceptions provided for in the conservation law. These areas comprise integral nature reserves; national parks; and cultural/natural monuments.

- Conservation areas for sustainable use are in the public and private domain. They are designated for conservation and subject to integrated management. They allow for levels of resource extraction, while respecting sustainable limits in accordance with management plans. These include special reserves; environmental protection areas; *coutadas*; community conservation areas; sanctuaries; and municipal ecological parks.

In Mozambique, the following forest data have been identified as important for the

sustainable management of all categories:

- forest inventory (processed) data
- spatial data and attribute tables
- forest concessions
- community areas
- conservation areas
- forest conservation areas/forest reserves
- biodiversity data (flora and fauna)
- land use and land cover
- regeneration data
- forest dynamics/growth data
- administrative boundary
- forest fires data

Forest institutions

Various state institutions in the forestry sector help manage different categories of forests.

These institutions, which play a key role in the generation and dissemination of data, include the following:

Table 16. Key institutions involved in the generation and dissemination of forestry data in Mozambique

Institution & establishing law	Functions including forest data management	Type of forest data
National Forestry Directorate (DINAF) Established by Ministerial Resolution 44/2020 approving the Internal Regulations of the Ministry of Land and Environment	• Develop and update standards and procedures on the sustainable management of all types of forest resource ecosystems. • Ensure licensing, management, protection, research, conservation, control and monitoring of the use of forest resources. • Ensure the quantitative and qualitative assessment of forest resources, as well as the reduction of emissions from deforestation and forest degradation. • Establish measures to prevent and control uncontrolled fires. • Develop and implement forest information management systems. • Publish inventory information and geospatial mapping in report formats and maps as the results of surveys are carried out.	• Standards and procedures on sustainable forest management • Licensing data • Forest assessment data • Forest fires • Illegal exploitation of forest resources • Status of threatened and endangered species • Use of forest species and non-timber forest products • Promotion of community participation in sustainable forest management • Forest information management systems • Forest inventory data • Geospatial mapping and surveys
National Administration of Conservation Areas (ANAC) Established by Decree No. 11/2011 Amended by Decree No. 9/2013	• Manage national parks and reserves, official <i>coutadas</i>, <i>fazendas de braviao</i> and other conservation areas created legally and placed under the administration of ANAC. • Implement the conservation policy component relating to conservation areas. • Propose the issuance of a special licence by the competent entity for activities in conservation areas. • License hunting and ecotourism activities in conservation areas. • Ensure effective management of conservation areas to bring positive impacts on quality of life and climate change. • Manage and train technical and professional personnel in conservation areas.	• Implementation of management plan and conservation policy • Issuance of licences for activities in conservation areas, including hunting and ecotourism activities • Training of conservation personnel • Scientific research data • Stakeholder coordination • Standard for conservation areas management and monitoring

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Table16. Continued

Institution & establishing law	Functions including forest data management	Type of forest data
National Administration of Conservation Areas (ANAC) Established by Decree No. 11/2011 Amended by Decree No. 9/2013	- Stimulate scientific research and use information generated to guide actions for the exploration and sustainable use of natural resources, including the development of hunting. - Ensure coordination and cooperation with all entities with converging interests, international conservation and tourism entities to ensure compliance with international law. - Define standards and monitor the performance of conservation areas, ensuring achievement of the primary objective of biodiversity conservation.	
Local Resources Management Councils Article 31, Forestry Law - Law No. 10/99 Prerogatives and competencies to be determined by Ministerial Decree	- Protect, conserve and promote the sustainable use of forest and wildlife resources. - Issue hunting permits to local communities. - Ensure local community participation in the exploitation of forest and wildlife resources and in the benefits generated through such use.	- Local community participation in exploitation of forest resources and in benefits generated from this use - Hunting permits issued to local communities
Management Councils of the conservation areas Article 7 of Conservation Law, 2014 Established through Decree 59/2021	- Implement and monitor compliance with the management plans. - Assist in supervision of conservation areas and buffer zones. - Review management plan in partnership with all interested and affected parties at least once every five years. - Respond to the development needs of communities legally residing in the conservation areas and buffer zones. - Draw up strategic development plans for the conservation areas, as well as tourism development plans. - Seek new income-generating activities that reduce the pressure exerted by local communities on biodiversity, including biodiversity-based businesses. - Supervise implementation of concession contracts with operators within the framework of the development of public-private and community partnerships. - Strengthen conservation capacity in the context of the management plan. - Participate in preparation of public utility infrastructure development plans related to the conservation area. - Assess conservation area's annual activity plan and management plan.	- Management plan implementation - Collaborations and partnerships - Development needs of communities residing in conservation areas and buffer zones - Strategic development plans - Income-generating activities that reduce pressure exerted by communities on biodiversity
Mozambique National Cartography and Remote Sensing Centre (CENACARTA) Established through Decree No. 38/90	Provide baseline GIS data, facilitate purchase of satellite data, and provide topographic and thematic maps.	- GIS data - Satellite data - Topographic and thematic maps

Right to Information law

The Right to Information Law (No. 34/2014) was enacted to implement Article 48 of the Constitution of Mozambique. It governs the exercise of the right to information, in support of the constitutional principle of consistent democratic participation of citizens in public affairs and in establishing other related fundamental rights. This law applies to state organs and institutions (including the forest and conservation institutions reviewed above) that perform activities of general interest or receive public funds and hold information of public interest.

This law lays down several important provisions to govern the right of access to information, applicable to forest management institutions, including the following obligations:

- Make available public interest information in their possession by publishing such information through various lawful means, rendering it ever more accessible to citizens, subject to the exceptions provided for in Law No. 34/2014.
- Disclose activities to citizens.
- Publish and disseminate public interest documents pertaining to the organization and operations of public organs, as well as content of any decision or policy with a bearing on fundamental rights and freedoms of citizens. In this context, restricting access to information in the public interest is prohibited, with the exception of legally exempted information.
- Maintain open archives and practise open government/public administration based on freedom of access to public documents and archives without requiring the applicant to demonstrate legitimate and direct interest, or the purpose for which the information is intended.
- Address requests for information promptly and provide that information in a legally prescribed format and time frame.
- Provide information free of charge, except for document reproduction, notarized statements, or affidavits (certificates) subject to fees.

Table 17. The policy framework governing forest data in Mozambique

Forest policy	Diagnosed problem	Policy solution
Forest Policy and Implementation Strategy 2020	The scarcity of data and knowledge about value chains has undermined their potential and promoted exclusion in the agenda and development plans of the forest sector.	• Prioritize forest inventory and mapping at a scale of 1:250,000, basic cartography at a scale of 1:50,000 and 1:25,000.
	There is a lack of knowledge and information on timber and non-timber forest products, the dynamics of different forest formations in the country, characteristics and physical-mechanical properties of native wood species, as well as the establishment and development of forest plantations.	• Create a database of the main non-timber forest products, inventory system, mapping and monitoring to improve knowledge, transformation processes and valuation of traditional products.
	Information on community participation is scarce.	• Promote creation of databases and records of community organizations and share this information with communities. • Promote the mapping, inventorying, demarcation and registration of forestry management units, with the involvement of the communities and ensure community members have access to information.
	Stakeholders need more sensitization and capacity related to different stages of value chains and related cross-cutting themes.	• Produce adequate information, education and communication material on best practices of conservation, management and forest exploitation by communities.
	Research capabilities and generational legacy need to be strengthened.	• Ensure access and dissemination of forest research results.

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About OFESA

OFESA provides a platform for sharing, exchanging, and accessing data and information related to East and Southern Africa's forests. The objective of the observatory is to produce a comprehensive and harmonized regional dataset on the latest trends and threats to forests, and to make information useful and easily accessible to policymakers, funders, forestry practitioners and citizens. By informing decision making, OFESA supports five countries in the region – Ethiopia, Kenya, Mozambique, Tanzania and Uganda – to meet their climate and environment targets. In these five countries, OFESA works closely with focal point institutions from the Kenya Forest Service, the National Directorate of Forests Mozambique, the Ethiopia Forestry Development, the Tanzania Forest Service and the National Forestry Authority Uganda.

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About CIFOR-ICRAF

CIFOR-ICRAF harnesses the power of trees, forests and agroforestry landscapes to address the most pressing global challenges of our time – biodiversity loss, climate change, food security, livelihoods and inequity.

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About RCMRD

RCMRD is an inter-governmental organization established in 1975 under the auspices of the United Nations Economic Commission for Africa and the former Organization of African Unity (today the African Union). RCMRD is based in Nairobi, Kenya with 20 contracting member states in the Eastern and Southern Africa regions. RCMRD is a Premier Centre of Excellence in the provision of geo-information and allied technologies for sustainable development in member states and other stakeholders. The RCMRD training institute offers training in cartography & GIS, photogrammetry & remote sensing, cartography, land surveying, information technology, accounting courses, etc.

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