Assessing policies for mainstreaming biodiversity in forest management

The case of Ethiopia, with special consideration of the tree seed and seedling sector

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List of abbreviations

AGRCKR	Access to Genetic Resources and Community Knowledge, and Community Rights (Proclamation No. 482/2006)
BSO	Breeding Seedling Orchard
CBD	Convention on Biological Diversity
CIFOR-ICRAF	Center for International Forestry Research-World Agroforestry
CRGE	Climate Resilient Green Economy
CRS-AF	Climate Resilient Strategy: Agriculture and Forestry
DCUW	Development, Conservation and Utilization of Wildlife (Proclamation No. 541/2007)
EFCCC	Environment, Forest and Climate Change Commission
EFD	Ethiopian Forestry Development
EPE	Environmental Policy of Ethiopia
FAO	Food and Agriculture Organization of the United Nations
FDCU	Forest Development, Conservation and Utilization (Proclamation No. 542/2007)
FDCU-II	Forest Development, Conservation and Utilization (Proclamation No. 1065/2018)
FDCU-PS	Forest Development, Conservation and Utilization - Policy and Strategy
FDRE	Federal Democratic Republic of Ethiopia
FSR	Forest Sector Review
GTP-II	Second Growth and Transformation Plan of Ethiopia, 2016
INDC	Intended Nationally Determined Contribution
LDN	Land Degradation Neutrality
MEF	Ministry of Environment and Forest
MEFCC	Ministry of Environment, Forest and Climate Change
NAP	National Adaptation Plan
NBSAP	National Biodiversity Strategy and Action Plan of 2016
NFSDP	National Forest Sector Development Program
NPPM	National Potential and Priority Maps for Tree-Based Landscape Restoration in Ethiopia
NTFPs	Non-timber forest products
PATSPO	Provision of Adequate Tree Seed Portfolios project
PFM	Participatory Forest Management
USD	United States Dollar

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Summary

Ethiopia boasts rich forest biodiversity, encompassing trees, flora, fauna, and countless other organisms. The conservation and sustainable use of this biodiversity are guided by an array of proclamations, regulations, directives, policies, strategies, and development frameworks issued by the Ethiopian Government. To make present efforts truly effective, mainstreaming biodiversity considerations into forest management is essential, ensuring that conservation and sustainability are embedded at every level of decision-making and policy implementation. This working paper evaluates the effectiveness of the Ethiopian Government's measures, with a particular focus on the tree seed and seedling sector, which plays a critical role in supporting restoration efforts. Through systematic keyword searches, document cross-referencing, and stakeholder interviews, the analysis found that much of the policy framework necessary for mainstreaming biodiversity in forest management in Ethiopia is already in place. However, implementation remains weak, lacking compliance and alignment. This paper identifies gaps and weaknesses in current policies, offering actionable recommendations to enhance forest biodiversity mainstreaming. Central to the study is the authors' specific interest in Ethiopia's tree seed and seedling sector and its critical role in providing high-quality tree planting materials essential for successful landscape restoration.

1 Introduction to the biodiversity and forest-related policy context for Ethiopia

Anthropic pressures threaten biodiversity conservation, particularly in dry and moist tropical forests (FDRE, 1994; Olson and Dinerstein, 1998; Miles et al., 2006). At least two-thirds of terrestrial biodiversity thrives in these ecosystems that are often highly modified by humans (Gardner et al., 2009; Chazdon et al., 2009). Ethiopia, with its position in the tropics and its great variation in geomorphology and terrain, provides a case in point where forest biodiversity – interpreted in the current study to also embrace biodiversity in "other wooded land" (FAO, 2023) as well as wider 'treed' landscapes – is high and threatened. The Great Rift Valley divides Ethiopia's vast highland mountains and plateaus. This division, combined with the nation's significant altitudinal range from 116 meters below sea level to 4,620 meters above, has contributed to the evolution of diversity at both species and genetic levels for plants, animals and other organisms. Rich biophysical environments in Ethiopia support extremely diverse life forms. High levels of endemism and extensive genetic diversity within forest trees, other flora, and fauna, have been recorded (BirdLife International, 2012; Friis et al., 2010; Husen et al., 2012; FDRE, 2016a). In a recent assessment by Dinerstein et al. (2024), Ethiopian montane forests and grasslands were identified as among the 10 ecoregions in the Afrotropics containing the highest number of "Conservation Imperatives".

Ethiopian forests, along with other wooded land and wider 'treed' landscapes, are not only rich in biodiversity but provide products vital to the national economy. Narita et al. (2018) estimated the national economic benefits derived from these products to be roughly United States Dollars (USD) 2.4 billion per year (2013 figures). Woodfuels and timber were estimated to account for 14 percent and 46 percent of this total, respectively, with non-timber forest products (NTFPs) accounting for the rest. In volume terms, the annual consumption in 2013 of fuelwood – primarily for household energy generation – was estimated to be 124 million cubic meters, with projections suggesting this value would rise to 158 million cubic meters by 2033 (FDRE, 2017a). The value of ecosystem services provided by forest resources, including climate regulation, biodiversity conservation, and watershed protection, is estimated to be even greater in monetary terms than the value of products given by Narita et al. (2018), at USD 6 billion per year (2017 figures) (FDRE, 2017a). Regarding the economic value of biodiversity, Ethiopian forests contain specific genetic resources crucial for agriculture globally, especially wild coffee. Ethiopian wild coffee resources were estimated in a 2006 analysis, using 2004 as a base year, to have a net present value of USD 1.5 billion to the global economy over a 30-year discounting period and at a 5 percent discount rate (Hein and Gatzweiler, 2006). This value reflects the potential of these resources to support future coffee production through breeding for specific disease resistance and crop quality traits. The 'GlobalUsefulNativeTrees' Database lists 483 native tree species of use within Ethiopia, of which 392 are used for materials, 313 for human food, and 268 for fuel (Kindt et al., 2023b).

The major threats to Ethiopian forest ecosystems include unsustainable exploitation, agricultural expansion, invasive alien species and climate change (Husen et al., 2012; FDRE, 2016a). Human activities have severely harmed the Eastern Afromontane biodiversity hotspot, an important habitat for threatened species which has been severely reduced in extent, and a large part of which was and remains located in Ethiopia (Burgess et al., 2005; CEPF, 2011). Overall, the average loss of forest cover (*sensu* "forest" according to the FAO, 2023) over the three decades leading up to 2020, as reported in the 2020 Global Forest Resources Assessment for Ethiopia, was 73 thousand hectares per year (FAO, 2020a). This figure was more than the average annual loss over the same period for the neighbouring countries of Uganda and Kenya combined (FAO, 2020b). The loss of 73 thousand hectares per year during this period was a net figure, accounting for plantation establishment, primarily consisting of a few exotic

tree species, against natural forest loss. When this is taken into consideration, the loss of Ethiopia's biodiverse natural forests averaged closer to 90 thousand hectares per year over the reporting period. Since the reporting in 2020, however, there has been a significant reduction in the annual rate of natural forest loss, along with a notable increase in overall forest cover through restoration initiatives and broader tree planting (Abayneh Derero, personal observations). These efforts align with Ethiopia's restoration targets, as discussed below.

Given the above context, understanding the policies that shape forestry and agriculture in Ethiopia is essential for improving current forest management and mainstreaming biodiversity into policy and practice. In this regard, Keeley and Scoones' (2000) overview of the policy landscape from over two decades ago remains relevant. They indicated that in the early 1990s the modernization of the agricultural sector became a prominent concern, with the Ethiopian Government adopting the Sasakawa-Global 2000 programme for agricultural extension in 1995, a programme whose implementation then expanded rapidly. This focus contributed to raised concerns about the management of the natural resource base upon which agriculture depended in the country, and the policy debate expanded to include halting environmental degradation. According to Keeley and Scoones (2000), two projects of particular significance in nurturing this debate were the Soil Conservation Research Project, established in 1981, and the Ethiopian Highland Reclamation Study (FAO, 1986). These national initiatives, and discussions on developing and implementing the Convention on Biological Diversity (CBD) and the Convention to Combat Desertification, contributed to shifting political attention in Ethiopia toward natural resource management.

Ethiopia ratified its participation in the CBD in 1994, committing as a signatory to substantially reduce biodiversity loss by 2010. The country published its first cross-sectoral environmental policy in 1997, the Environmental Policy of Ethiopia (EPE) (FDRE, 1997). Over the past three decades, the Ethiopian Government has increasingly recognized the need to regulate the use of natural resources to conserve natural ecosystems better and support their contributions to livelihoods. As an indication of its ambition, the Ethiopian Government set a national target of restoring seven million hectares of forest in its Climate Resilient Green Economy (CRGE) strategy (FDRE, 2011). The Ethiopian Government later committed to restoring 22 million hectares of degraded forest landscapes by 2030, aligning with the Bonn Challenge, the United Nations General Assembly's declaration of the UN Decade on Ecosystem Restoration (2021-2030), the African Forest Landscape Restoration Initiative (AFR100) and other restoration programmes (IUCN, 2021). Ethiopian stakeholders have responded to these commitments by planting billions of trees in the last few years. However, the range of species planted needs to be diversified to better support restoration. Planting also needs to target priority locations better by using models that explicitly consider the restoration's impacts on livelihood benefits, biodiversity preservation, carbon sequestration, and soil conservation (Pedercini et al., 2021).

This working paper reviews the Ethiopian Government's relevant proclamations, regulations, directives, policies, strategies, and development frameworks that affect the conservation and sustainable use of forests and biodiversity, including those that affect the implementation of present-day restoration activities. The study's approach involves systematic keyword searches to examine relevant documents and consultations with key stakeholders on forest and biodiversity policy and implementation. As the working paper shows, implementing the existing policy framework is a major challenge in mainstreaming forest biodiversity.

The present analysis includes a focus on tree-based landscape restoration interventions in Ethiopia that relate specifically to the tree seed and seedling supply sector, as the working paper's authors are particularly interested in support to this sector. Numerous authors have indicated that the current situation of tree seed and seedling supply in Ethiopia is suboptimal (Derero, 2011; Höhl et al., 2020; Sisay et al., 2020; Dedefo et al., 2017; Tadesse et al., 2020). This is also true for many other nations (Kindt et al., 2023a; Lillesø et al., 2024). The issue is significant because using genetically poor planting material from only a few tree species for tree-based restoration, as is common in Ethiopia and many other countries, often results in substantial losses, including suboptimal environmental services and reduced livelihood benefits (Jalonen et al., 2018).

We first produced an abridged version of this working paper for the Food and Agriculture Organization of the United Nations (FAO) report, Mainstreaming Biodiversity in Forestry (Harrison et al., 2022; case studies published separately from the main report as Harrison et al., 2024). The FAO report aimed to assess the mainstreaming of biodiversity in the forest sector globally, taking stock of existing concepts and tools for integrating biodiversity in forest management. The FAO report also reviewed the range of policy instruments that, beyond legal protection, can enhance biodiversity conservation, and it recommended actions to advance biodiversity mainstreaming in the forest sector. The FAO report included eight countries in its case studies, one of which was Ethiopia, alongside the Democratic Republic of the Congo, Finland, Japan, Malaysia, Mexico, Peru and the United Kingdom. In this working paper, we present a more detailed version of our Ethiopia case study to share useful methodological insights, especially for those seeking to replicate our approach. These details could not be included in the FAO report due to space considerations. This working paper also emphasizes understanding the policy environment relevant to the tree seed and seedling sector, where improving policies is essential to support landscape restoration.

The following sections describe the methods used in the study, present and discuss the findings, and provide a practical example illustrating the link between policy and implementation based specifically on the tree seed and seedling sector. The report then synthesizes the findings and offers recommendations supporting forest biodiversity mainstreaming by addressing current policy gaps and their implementation.

2 Methods

2.1 Study scope

The current study's overall objective was to review existing relevant national proclamations, regulations, directives, policies, strategies and development frameworks linked to the conservation of biodiversity in forested lands outside protected areas and national parks in Ethiopia. In the context of the working paper, biodiversity is considered to be the diversity of life – from the genetic level to the ecosystem level – existing in all habitats within forest ecosystems.

Subsequent sub-sections in Section 2 explain how we adopted a two-pronged approach to collect relevant information. In brief, however, one part of the approach involved a literature review. This involved assembling relevant documents and systematically examining them for keywords related to biodiversity-relevant topics. The other part focused on stakeholder consultation on biodiversity mainstreaming with relevant forestry-related institutions. For these consultations, the study used a standardized questionnaire to collect information. As part of the stakeholder consultation, we explored one particular restoration initiative in Ethiopia, the Provision of Adequate Tree Seed Portfolios project (PATSPO) (CIFOR-ICRAF, 2022). This initiative is concerned with the development of the tree seed and seedling sector and was chosen because the sector is of particular interest to the working paper's authors. The development of this sector is needed to reach forest landscape restoration targets, and understanding the policy environment is a starting point for the development process.

The systematic literature review and stakeholders' consultation in Ethiopia initially took place in 2021, shortly after the FAO study on Mainstreaming Biodiversity in Forestry (Harrison et al., 2022) had been commissioned. In preparation for the present report, conversations between the authors and selected Ethiopian forestry sector stakeholders were again held in 2024. These discussions suggested that no major changes in the policy environment had occurred in the country since the initial study. Consequently, data presented in this working paper primarily reflect earlier literature review and stakeholder discussions. However, since the initial data collection, there has been institutional restructuring related to managing forests and other landscapes containing trees. This restructuring included the creation of Ethiopian Forestry Development (EFD) in late 2021, which is addressed later in this report.

2.2 Systematic literature review

The study assembled a body of relevant government documents on Ethiopia's conservation and use of forest resources. These documents included proclamations, regulations, directives, policies, strategies and development frameworks. Relevant documents were collected based on the advice of professionals in the forestry sector. Further reports referenced in this initial cache of documents were also reviewed. At this initial point, several candidate documents with only indirect relevance to biodiversity and forest management were excluded from further consideration. Among these were the Environmental Impact Assessment Proclamation 299/2002 and the Ethiopian Water Resources Management Policy of 1999. Table 1 provides the final list of 16 documents identified for further examination.

These assembled documents were systematically searched for terms related to biodiversity mainstreaming, focusing on keywords associated with forest biodiversity, forest management and local communities, as detailed in Table 2. For each of the three topics, searches were split into three sub-topics, and in each case, two questions were used for interrogation, resulting in a total of 18 questions. If a document addressed a particular sub-topic – for either or both of the questions for that sub-topic

– a score of 1 was assigned to the document, while if it did not, a score of zero was given. Scores across sub-topics were then compiled. The combined score of a document was then considered indicative of its broad relevance for forest biodiversity mainstreaming.

After this analysis, a systematic search was undertaken for cross-references between the 16 documents, and a cross-reference table was compiled. This search provided a basic understanding of the interconnectedness between different documents and is a starting point to explore how the documents contradict or reinforce each other. This step is important in exploring cross-sectoral policy compliance and the alignments needed for effective policy implementation (Tesfaye et al., 2024). A value of 1 in the cross-reference table meant that a particular document referenced another in the list, while a value of zero indicated that it did not. Compiling and summarizing this information for each document indicated which documents were worthy of subsequent detailed study in the analysis. This cross-referencing procedure is only expected to operate in a 'forward' direction, as an older document is unlikely to refer to a newer one, except when publication of the latter was already pending when the former document was released.

Table 1. Sixteen documents related to biodiversity and forest management considered in the current study. The documents are listed in chronological order, starting with the earliest published

Title	Acronym (reference[s])	Main elements of relevance
Environmental Policy of Ethiopia. 1997	EPE (FDRE, 1997)	Represents the first environmental policy in Ethiopia's history. Regulates the use and conservation of forest, woodland, and tree resources. Regulates the use and conservation of genetic, species and ecosystem biodiversity.
Access to Genetic Resources and Community Knowledge, and Community Rights. Proclamation No. 482/2006	AGRCKR (FDRE, 2006)	Regulates, in detail, access to and use of the genetic resources of the country. Safeguards community knowledge and regulates its use by governmental institutions and third parties.
Development, Conservation and Utilization of Wildlife. Proclamation No. 541/2007	DCUW (FDRE, 2007a)	Regulates the conservation, management, development, and use of wildlife resources in Ethiopia. Represents an attempt to comply with obligations assumed under multi-lateral conservation treaties (e.g., Convention on International Trade in Endangered Species of Wild Fauna and Flora, CBD). Intends to promote wildlife tourism and private investments.
Forest Development, Conservation and Utilization. Proclamation No. 542/2007	FDCU (FDRE, 2007b)	Legalizes statements in the Forest Development, Conservation and Utilization – Policy and Strategy (2007). Aims at improving the contribution of the forest sector to the national economy. Promotes conservation and sustainable use for their decisive role in satisfying the needs for forest products. Introduces management plans to be developed with the participation of the local community.
Forest Development, Conservation and Utilization – Policy and Strategy. 2007	FDCU-PS (FDRE, 2007c)	Fosters the contribution of forests in enhancing the country's economy through appropriately conserving and developing forest resources. Encourages sustainable development of forests by maintenance of the natural ecological balance, and the distribution of tree species that are suitable to the country and provide diverse benefits. Proposes incentives to encourage private investment and the involvement of organizations in forest resource development.

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Table 1. Continued

Title	Acronym (reference[s])	Main elements of relevance
Climate Resilient Green Economy: Green Economy Strategy. 2011	CRGE (FDRE, 2011)	Offers a broad strategic plan with the vision of Ethiopia achieving middle-income status by 2025 while limiting greenhouse gas emissions. Focuses on the forest sector to realize most of the emissions abatement potential. Proposes afforestation and sustainable practices in forest management as climate change mitigation measures.
Climate Resilient Strategy: Agriculture and Forestry. 2015	CRS-AF (FDRE, 2015)	Includes a sectoral technical analysis to support implementing the Climate Resilient Green Economy. Lists the expected challenges linked to climate change for agriculture and forestry sectors. Details forestry's expected contribution to mitigating climate change.
National Biodiversity Strategy and Action Plan 2015-2020. 2016	NBSAP (FDRE, 2016a)	Raises awareness of biodiversity and ecosystem services among the public and policy makers. Emphasizes biodiversity, ecosystem conservation and sustainable use in reducing poverty and enhancing livelihoods.
Second Growth and Transformation Plan. Volumes I and II. 2016	GTP-II (FDRE, 2016b,c)	Supports the building of the Climate Resilient Green Economy. Intends to improve sustainable national biodiversity conservation. Equitable benefit sharing with communities as a major target. Supports forestry development to achieve the goals set by the Climate Resilient Green Economy. Supports participatory forest management to ensure public benefits.
Intended Nationally Determined Contribution of the Federal Democratic Republic of Ethiopia. 2016	INDC (FDRE, 2016d)	Stipulates Ethiopia's national contributions to reducing global greenhouse gas emissions. Estimates 51 percent of planned emissions reduction will come from the forestry sector (e.g., through improved forest management, afforestation, and promotion of alternative energy sources to woodfuels).
Land Degradation Neutrality. 2016	LDN (FDRE, 2016e)	By 2031, aims to restore areas where forest was lost between 2000 and 2010 by promoting community-based forest management, forest landscape restoration with native species, preventing overgrazing and area closure. Focuses largely on the use of native tree species for afforestation and reforestation measures to combat declining productivity and land degradation.
Forest Sector Review. 2017	FSR (FDRE, 2017a)	Undertaken specifically to inform the government about the most promising forest industry investment opportunities (in relation to GTP-II). Provides a knowledge base for transforming the forestry sector and its contribution to green growth targets. Considers smallholder engagement in planting woodlots as key to reducing the pressure on natural forests and achieving the green growth targets.
Forest Development, Conservation and Utilization. Proclamation No. 1065/2018	FDCU-II (FDRE, 2018a)	Revises the 2007 Forest Proclamation. Recognizes participatory management as a vehicle to enhance the role of communities in managing natural forests, according to participatory forest management plans. Puts severe penalties on those using forests unsustainably. Provides incentives for increasing the involvement of private investors and communities in forest development.

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Table 1. Continued

Title	Acronym (reference[s])	Main elements of relevance
National Forest Sector Development Program. Volumes I, II, III. 2017-2018	NFSDP (FDRE, 2017b; 2018b,c)	Initiated by the Ministry of Forest and Climate Change to guide the coordination of strategic policy interventions and investments. Emphasizes the central role forests play in maintaining Ethiopia's invaluable biodiversity. Underscores the contributions of forest ecosystems to the national economy. Recognizes the rural community's involvement in addressing heavily deforested agricultural landscapes and increasing forests' contribution to community livelihoods.
National Potential and Priority Maps for Tree-Based Landscape Restoration in Ethiopia. Version 0.0. Technical Report. 2018	NPPM (MEFCC, 2018)	Supports the planning of large-scale tree-based restoration efforts in Ethiopia. Supports spatial planning in restoration efforts, such as implementing buffer plantations around forest priority areas and developing home-garden woodlots.
Climate Resilient Green Economy National Adaptation Plan. 2019	NAP (FDRE, 2019)	Includes Ethiopia's climate change adaptation plans as part of the country's development policy framework. Lists improving ecosystem resilience through conserving biodiversity and enhancing sustainable forest management among 18 adaptation implementation options.

Note: Since this list was compiled, the Forest Development, Protection and Utilization Regulation No. 544/2024 was published in April 2024. This regulation, pursuant to Article 27 of the Forest Development, Conservation and Utilization Proclamation No. 1065/2018 (above), does not materially affect the conclusions of the current study but contains additional useful details on forest management requirements.

Table 2. List of topics, sub-topics and specific questions used to determine the relevance of compiled documents for forest biodiversity mainstreaming

Main Topic	Sub-topic	Specific questions
Forest biodiversity	Genetic Resources	Is genetic diversity of forest species' populations recognized as biodiversity? Are there plans for in situ and ex situ conservation activities or regulations?
	Mainstreaming and policy enforcement	Is the need to regulate access and use of forest biodiversity recognized? Do policies affecting forest biodiversity state by whom, and how, they should be enforced?
	Conservation	Does the document include conservation of forest biodiversity as a primary or indirect benefit or target? Are forests outside protected areas recognized as important landscapes for conserving biodiversity?
Forest management	Sustainable practices	Is sustainable forest management promoted as an alternative to over-exploitation schemes? Does the document value the importance of promoting sustainable harvesting schemes (e.g., calibrated according to the productivity of a forest)?
	Afforestation and reforestation	Are there afforestation and reforestation actions to increase forest cover? Does the document cover the national and international restoration targets set by the Ethiopian Government (e.g., CRGE, Bonn Challenge)?
	Wildlife	Is wildlife considered to be important in forest management plans? Are wildlife corridors and strategic afforestation measures for allocated forest wildlife species in the strategies?

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Table 2. Continued

Main Topic	Sub-topic	Specific questions
Local communities	Right of use and benefits	Are forest-dependent communities' rights to use forest landscapes acknowledged?
		Is there any benefit-sharing mechanism specified for when benefits arise from the use of forest resources?
	Knowledge	Is the importance of local communities' knowledge recognized by the government?
		Is there a strategy in place to conserve, protect and disseminate local communities' knowledge?
	Participation	Are local communities involved during the process of defining the use and management plan of a forest?
		Are there schemes to promote community woodlots and participatory forest management as sustainable forest management practices?

2.3 Stakeholder consultations

In parallel with the systematic literature review, we engaged in cross-sectoral stakeholder consultations on biodiversity mainstreaming with forestry-related institutions. This consultation was led by Wubalem Tadesse, one of the authors of the present report, who is based in Ethiopia and is familiar with the relevant institutions. To ensure cross-sectoral representation, the range of stakeholders approached was broad. The stakeholders included civil society representatives working closely with local communities, government, academic institutions, international organizations and the private sector. Appendix I lists the 22 stakeholders approached from 15 institutions.

We used a standardized questionnaire to collect stakeholders' views on mainstreaming biodiversity. This questionnaire was emailed to potential respondents, who submitted responses using the same method. Table 3 details the set of 11 primarily open-ended questions developed for the questionnaire and several sub-questions in question 2. Five of the 11 questions were based on suggestions from the coordinator of the FAO biodiversity mainstreaming study (Rhett Harrison, based at CIFOR-ICRAF). Additional questions – numbers 4, 7, 8, 9, 10 and 11, as listed in Table 3 – were included based on their relevance according to the working paper's authors.

In addition to this questionnaire sent to a broad range of forestry stakeholders, another set of questions was devised to explore issues related to Ethiopia's tree seed and seedling sector, as detailed in Table 4. These questions were addressed to colleagues involved in managing the PATSPO initiative. PATSPO aims to ensure tree growers have access to high-quality tree seeds and seedlings for forest landscape restoration and other tree planting activities in Ethiopia. This access is supported through measures such as tree seed source identification, tree seed orchard establishment, tree seed collector training, stakeholder networking and policy development. At the foundation of PATSPO is an assessment of the performance and features of present tree seed and seedling delivery systems in Ethiopia (Lillesø et al., 2024). An important feature of such an assessment is determining the policy and regulatory environment related to tree seed and seedling supply (both broadly and specifically), how this helps or hinders sectoral development, and how improvements can be made.

Funded by the Norwegian International Climate and Forest Initiative through the Royal Norwegian Embassy in Ethiopia, PATSPO began in 2017. The project is now in its second phase, scheduled to run until the end of 2025, with planning for a possible third phase presently underway. For further information on PATSPO, including outputs of the project, reference can be made to the project website (CIFOR-ICRAF, 2022).

Since PATSPO was initiated, and after initial data collection for the present study in 2021, CIFOR-ICRAF, with national and international partners, has begun the related Right Tree in the Right Place-Seed initiative (RTRP-Seed) in Ethiopia and elsewhere, which Germany's International Climate Initiative (IKI) funds (CIFOR-ICRAF, 2025). Further information about this initiative, which began in 2024, is given later in this working paper.

Table 3. List of standardized questions used for stakeholder consultations

Reference number	Question
1	Please indicate your area of expertise (include all that apply): Forest Policy; Biodiversity Policy; Forest management; Biodiversity conservation; Indigenous Peoples and Local Communities; Other (specify).
2	In your experience, do you think biodiversity conservation is effectively mainstreamed in forest management policy/strategy? Please consider different types of forest tenure that are relevant, such as concessions, community forests, private forest management, etc. Please give reasons for your answer.
2a	Are protected species effectively protected through policy/strategy within production forests?
2b	Are habitat protections effectively incorporated into forest management policy/strategy?
2c	Are cultural values effectively incorporated into forest management policy/strategy, including [those of] indigenous peoples and local communities?
2d	Are dispute resolution mechanisms in place if there is conflict among stakeholders, including indigenous people/local communities?
2e	Are ecosystem service values, such as water values or large-scale connectivity, effective[ly] incorporated into forest management policy/strategy?
3	What are the main policy/regulatory barriers to biodiversity conservation in forest management?
4	Can you identify conflicts between different regulations/policies on forest biodiversity management?
5	What policy/regulatory changes would you recommend to improve biodiversity management in forest management?
6	Any other comments/recommendations on relevant polices/regulations – gaps, etc.?
7	Do biodiversity and forest management sit in the same or different ministries? How are cross-sectoral/inter-departmental barriers bridged (if at all)?
8	Would you consider the extent of implementation and enforcement of existing policies/regulations to be adequate? If not, what are the most serious challenges related to implementation and enforcement?
9	Do you think the regulations and policies in place are actually supporting - and not reducing - biodiversity in forestry?
10	Does the provision of tree seedlings from nurseries for any kind of tree planting activity in Ethiopia have any impact on biodiversity in Ethiopia? If so, what impact?
11	What are the major problems related to the provision of quality tree seeds to nurseries in Ethiopia?

Table 4. List of questions for managers of the Provision of Adequate Tree Seed Portfolios project

Reference number	Question
1	From a 'regulatory' perspective, who 'controls' the breeding seedling orchards (BSOs) used for tree seed production by PATSPO? Under which authorities?
2	From a 'regulatory' perspective, who 'controls' the original seed sources used to establish the BSOs of PATSPO? Under which authorities?
3	What are the implications of whether the authorities who control the BSOs and the original seed sources of the BSOs are the same or different, and has it impacted/made more difficult PATSPO's work?
4	In terms of obtaining permissions to access, how easy was it getting the original seed to establish the BSOs? (Collection permissions, etc. – collection easily covered by existing policy or not?)
5	Were the original seed sources for BSOs managed in any way by local people? And, if so, was there any mechanism to recognize/reward that involvement?
6	More broadly, what were the main problems, if any, in establishing the BSOs, and were any of them caused by 'regulatory' problems/ambiguities? (Unclear who were the relevant authorities, what were the relevant policies, etc.)
7	Who will distribute the seed from BSOs, and under whose authority will the regulation of this distribution take place?
8	Can the BSO seed be sold and who then receives the income?
9	Does Ethiopia have in place national legislation that supports the involvement of the private sector in tree seed supply, and does this embrace small and medium enterprises, and informal supplier involvement?
10	What difference, if any, does it make from a regulatory perspective if the BSO seed is distributed for free or is sold?
11	Which ministries asked for PATSPO and was there a dialogue among relevant ministries about it?
12	How were species' priorities for PATSPO's BSOs set and how do these relate to national priorities for tree planting (restoration, etc.) as expressed in national strategies, etc.?
13	In forest restoration, using PATSPO or other seed, who is responsible for monitoring the success of planting, who determines what to monitor, and what are the chosen indicators?

3 Initial summary of findings

3.1 Systematic literature review

Tables 5 and 6 summarize the results of the systematic literature review. Table 5 provides findings for keyword references related to biodiversity mainstreaming for the full list of 16 documents assembled for analysis, as detailed in Table 1. Three documents (FDCU, GTP-II and NBSAP) had a summarized score of 1, meaning that all nine chosen subtopics detailed in Table 2 were referred to, indicating these documents were of broad relevance for the current analysis. Closely behind these three documents were a further two (FDCU-II and FDCU-PS) with a summarized score of 0.89. At the same time, seven documents had a summarized score of less than 0.5, indicating they were not of broad relevance.

Table 6 provides the cross-referencing findings between the 16 assembled documents. The most cross-referenced documents, with respective summarized scores of 0.56 and 0.47, were CRGE and GTP-II. Cross-referencing between documents was generally low, however, and four documents had a summarized score of zero, meaning no other document referred to them. Three of these documents were relatively recent, published from 2016 onward, so the lack of cross-referencing was not particularly unexpected based on a timeline progression. However, the fourth, FDCU-PS, dated back to 2007, so the absence of cross-referencing was less expected. Notably, one of the two most cross-referenced documents, GTP-II, was published relatively recently (in 2016), making its comparatively high cross-referencing particularly significant.

Considering the findings of Table 5 and Table 6 together, five documents initially stand out as being relevant for focus and further exploration:

1. GTP-II – the Second Growth and Transformation Plan of Ethiopia, of 2016 (FDRE, 2016b; see also FDRE, 2016c)
2. CRGE – the Climate Resilience Green Economy: Green Economy Strategy, of 2011 (FDRE, 2011)
3. FDCU – the Forest Development, Utilization and Conservation Proclamation No. 542/2007, of 2007 (FDRE, 2007b)
4. FDCU-II – the Forest Development, Utilization and Conservation Proclamation No. 1065/2018, of 2018, a revision of FDCU (FDRE, 2018a)
5. NBSAP – the National Biodiversity Strategy and Action Plan of 2016 (FDRE, 2016a)

These documents, diverse in scope, showed substantial importance through their relevance, based on content coverage or their resonance, as reflected in cross-citations, for forestry development and biodiversity conservation. The following paragraph provides a brief background to each of these documents.

The GTP-II (FDRE, 2016b,c) is a development-oriented, cross-sectoral plan built around the vision of making Ethiopia a middle-income country by 2025. One of its pillars is to build a climate resilient green economy. The CRGE (FDRE, 2011) is a multi-sectoral strategy with a vision of achieving middle-income status for Ethiopia by 2025 while limiting greenhouse gas emissions. Forestry and natural resource management are key to achieving the GTP-II and CRGE targets. The FDCU (FDRE, 2007b) and FDCU-II (FDRE, 2018a) proclamations provide the regulatory baseline behind the management and use of forested land in Ethiopia. Compared with FDCU, FDCU-II's revised proclamation contains key changes recognizing participatory forest management (PFM), defines tax exemption schemes and indicates an increase in penalties for parties causing forest degradation (Evans, 2018). As FDCU was superseded by FDCU-II, we consider only the latter in detail in the rest of the working paper. The NBSAP (FDRE, 2016a) is a strategy submitted by Ethiopia as a signatory of the CBD, outlining an action plan for improving the conservation status of the country's biodiversity.

Table 5. The findings of keyword searches for sixteen documents compiled for the working paper (see Table 1). The rows represent the documents, while the columns correspond with the biodiversity mainstreaming-related topics and sub-topics (see Table 2). A score of 1 indicates a document covers at least one specific question relevant to forest biodiversity mainstreaming for a given sub-topic. The final column provides a summarized score for each document. Documents are arranged in descending order of their summarized scores, and when scores are equal, they are ordered by date, with the earliest listed first

Document (reference; see Table 1)	Forest Biodiversity			Forest Management			Local Communities			Total document score
	Genetic resources	Main-streaming and policy enforcement	Conservation	Sustainable practices	Reforestation and afforestation	Wildlife	Rights of use and benefit	Knowledge	Participation	
FDCU (FDRE, 2007b)	1	1	1	1	1	1	1	1	1	1.00
NBSAP (FDRE, 2016a)	1	1	1	1	1	1	1	1	1	1.00
GTP-II (FDRE, 2016b,c)	1	1	1	1	1	1	1	1	1	1.00
FDCU-PS (FDRE, 2007c)	1	1	1	1	1	0	1	1	1	0.89
FDCU-II (FDRE, 2018a)	1	1	1	1	1	0	1	1	1	0.89
EPE (FDRE, 1997)	1	1	1	1	1	0	1	0	1	0.78
NFSDP (FDRE, 2017b; 2018b,c)	1	1	1	1	1	1	0	0	1	0.78
AGRCKR (FDRE, 2006)	1	1	1	0	0	0	1	1	1	0.67
FSR (FDRE, 2017a)	0	1	1	1	1	0	1	0	1	0.67
CRGE (FDRE, 2011)	0	1	1	1	1	0	0	0	0	0.44
INDC (FDRE, 2016d)	0	0	1	1	1	1	0	0	0	0.44
LDN (FDRE, 2016e)	0	0	1	1	1	0	0	0	1	0.44
NPPM (MEFCC, 2018)	0	0	1	1	1	1	0	0	0	0.44
NAP (FDRE, 2019)	0	0	1	1	1	0	0	0	1	0.44
CRS-AF (FDRE, 2015)	0	0	1	1	1	0	0	0	0	0.33
DCUW (FDRE, 2007a)	0	1	0	0	0	1	0	0	0	0.22
Sub-topic score	0.50	0.69	0.94	0.88	0.88	0.44	0.50	0.38	0.69	—

Table 6. The findings of cross-referencing between sixteen documents compiled for the working paper (see Table 1). Documents are listed in rows and columns. A score of 1 indicates that a document in a row is referenced by a document in a column. The summarized total citation score in the final column shows each document's overall frequency of cross-references. Documents in rows are arranged in descending order of their score, and when scores are equal, documents are ordered by date, with the earliest listed first. The documents in columns are ordered chronologically, starting with the earliest publication on the left

Document (reference; see Table 1)	**EPE** (FDRE, 1997)	**AGRCKR** (FDRE, 2006)	**DCUW** (FDRE, 2007a)	**FDCU** (FDRE, 2007b)	**FDCU-PS** (FDRE, 2007c)	**CRGE** (FDRE, 2011)	**CRS-AF** (FDRE, 2015)	**NBSAP** (FDRE, 2016a)	**GTP-II** (FDRE, 2016b,c)	**INDC** (FDRE, 2016d)	**LDN** (FDRE, 2016e)	**FSR** (FDRE, 2017a)	**FDCU-II** (FDRE 2018a)	**NFSDP** (FDRE, 2017b; 2018b,c)	**NPPM** (MEFCC, 2018)	**NAP** (FDRE, 2019)	**Total citation Score**
CRGE (FDRE, 2011)	0	0	0	0	0	0	1	1	1	1	1	1	0	1	1	1	0.56
GTP-II (FDRE, 2016b,c)	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1	0.47
FDCU (FDRE, 2007b)	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0.25
INDC (FDRE, 2016d)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.19
AGRCKR (FDRE, 2006)	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0.13
DCUW (FDRE, 2007a)	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0.13
NBSAP (FDRE, 2016a)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.06
FDCU-II (FDRE 2018a)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.06
EPE (FDRE, 1997)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.06
CRS-AF (FDRE, 2015)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.06
FSR (FDRE, 2017a)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.06
NFSDP (FDRE, 2017b; 2018b,c)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.06
FDCU-PS (FDRE, 2007c)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
LDN (FDRE, 2016e)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
NPPM (MEFCC, 2018)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
NAP (FDRE, 2019)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Reference score	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.38	0.06	0.13	0.13	0.19	0.00	0.50	0.38	0.25	—

The four documents thereby highlighted as of special interest above – GTP-II, CRGE, FDCU-II and NBSAP – provide the focus for Section 4's discussion of the findings from the literature review, where the working paper draws out points of interest and comparison. Where specifically relevant, Section 4 also refers to the additional documents in the broader literature list.

3.2 Stakeholder consultations

We received 12 responses to the questionnaire, outlined in Table 3, from 10 organizations, listed in Appendix I. Responses were received from a relatively balanced cross section of institution types: five responses were from governmental bodies, four were from local non-governmental organizations, two were from international organizations, and one was from a national research institute. The responsibilities of the respondents within the institutions varied and included chief executive officer, director, researcher, project manager, coordinator and president.

The average completion rate by sector-wide respondents to questions in the survey was 87 percent, suggesting a broad general understanding of the topics raised. However, the comprehensiveness of responses varied. Question 2, which asked whether forest biodiversity is effectively mainstreamed in Ethiopian policies, was left unanswered by five respondents. Similarly, sub-question 2d, regarding the presence of conflict resolution mechanisms, and question 6, which sought specific comments or recommendations on relevant policies and regulations, were not answered by three and four respondents, respectively. The survey's responses are examined further in Section 4, alongside the literature review findings.

We also received a response from PATSPO staff to the specific question set outlined in Table 4, which we devised for the initiative focused on Ethiopia's tree seed and seedling sector. This response is also discussed in detail in Section 4.

4 Detailed review of findings and discussion

This section details and discusses the specific findings of the literature review and stakeholder consultations, including the PATSPO consultation. For the literature review and the cross-sectoral stakeholder consultations, the working paper's analysis is divided into three parts:

1. Biodiversity policy and forest policy
2. Community rights regarding forest biodiversity
3. The current policy framework's strengths and weaknesses.

Regarding the stakeholder consultations, the working paper includes a final sub-section about the PATSPO initiative. Much of the information presented in the current section also appeared in the FAO case study report (Harrison et al., 2024), where findings for Ethiopia can be compared with those for other case study countries.

4.1 Systematic literature review

Here, the present report focuses on drawing out points of interest and comparison from the four documents identified as most relevant for mainstreaming biodiversity in forest management in Ethiopia (GTP-II [FDRE, 2016b,c], CRGE [FDRE, 2011], FDCU-II [FDRE, 2018a] and NBSAP [FDRE, 2016a]). Where appropriate, the study also refers to additional documents in the wider literature list (Table 1).

4.1.1 Biodiversity policy and forest policy

Forest biodiversity depends on genetic resource conservation. In this regard, GTP-II (FDRE, 2016b,c) mandates the upscaling of *ex situ* conservation for 2,000 plant species, more than 1,000 microbial species and eight animal species. It also mandates that *in situ* conservation be strengthened to ensure access to an increased range of genetic resources for sustainable use and research. The value of genetic resources is indicated in NBSAP (FDRE, 2016a). In addition to having targets for the increased application of *in situ* and *ex situ* conservation practices, it focuses on expanding the area of effectively managed protected areas and reducing the extent of land affected by invasive species. NBSAP also prioritizes eradication measures for alien species with high impacts on biodiversity and indicates a framework to monitor these species' spread. In FDCU-II (FDRE, 2018a), endangered economically important forest species are given priority for conservation planning. The need to establish a management system for native and exotic trees, with seed inputs adapted to different agro-ecologies, is emphasized, highlighting a need to develop the tree seed and seedling sector through projects such as PATSPO (discussed further below).

Access, use and benefit-sharing mechanisms for genetic resources are regulated by Ethiopia's Access to Genetic Resources and Community Knowledge, and Community Rights proclamation No. 482/2006 (AGRCKR) of 2006, where ownership is vested in the state and people (FDRE, 2006). The right of access is given to local communities and government institutions, while third parties seeking access must apply for a permit from the Ethiopian Biodiversity Institute (formerly the Institute of Biodiversity Conservation and Research). GTP-II (FDRE, 2016b,c) indicated plans to increase the number of access and benefit-sharing licences issued from 360 in 2014/15 to more than 800 by 2019/20. Access is denied if the intended use violates national laws or multilateral treaties to which Ethiopia is a signatory. Furthermore, access can be denied if it is considered that it would negatively affect endangered species or the health or cultural values of local communities. While this report's authors have not viewed a comprehensive list of tree species given protected status in Ethiopia, a shorter list was provided in the

earlier, now repealed, version of the FDCU from 1994 (FDRE, 1994). This earlier list prohibited using the native tree species *Cordia africana, Hagenia abyssinica, Juniperus procera* and *Podocarpus gracilior*.

Promoting the enforcement of existing policies is key to ensuring forests are used without compromising conservation. GTP-II (FDRE 2016b,c) indicates that "systems and measures will be undertaken for [the] proper implementation of environmental laws", while NBSAP (FDRE, 2016a) specifies the need to address the underlying causes of biodiversity loss by "mainstreaming biodiversity across government and society". FDCU-II (FDRE, 2018a) stipulates that no person within a state forest should cut trees, settle temporarily or permanently, graze domestic animals, undertake hunting activities or carry cutting saws or other tree-cutting tools. Trivial infringements are punishable with fines ranging from Birr 1,000 (around 8 USD at the present exchange rate) to Birr 40,000. More serious violations carry penalties of imprisonment from six months to 15 years. Forest guards have the right to investigate, apprehend, and report anyone responsible for violations.

Ethiopia's CRGE strategy (FDRE, 2011) recognizes a wide range of forest ecosystem services, including biodiversity conservation, considered essential for advancing the use of timber and NTFPs to achieve the green growth targets in GTP-II and CRGE. FDCU-II (FDRE, 2018a) recommends that all natural forests be designated as productive, preserved, or protected and managed accordingly to safeguard socio-ecological benefits. All these forest categories, regardless of tenures – private, participatory or state – are to be protected from invasive species, pests and diseases, with appropriate curative measures implemented when such issues arise. Private forest owners who fail to report the spread of forest vermin, weeds and diseases to the proper authorities can incur penalties. Additionally, converting forests for farming or any other activity is punishable by a minimum of two years of imprisonment.

Most of the documents consulted promote sustainable practices. The CRGE strategy (FDRE, 2011) suggests that the sustainable management of forests and woodlots will have an abatement potential of nearly 10 million tonnes of CO_2 equivalent by 2030. GTP-II (FDRE, 2016b,c) indicates several activities to support the scaling-up of best practices in forest management. These include establishing research facilities, distributing forestry development packages and training. GTP-II also seeks to identify and protect tree seed sources and to devise manuals and maps to guide purposeful tree planting, such as the National Potential and Priority Maps for Tree-Based Landscape Restoration in Ethiopia (MEFCC, 2018). These activities relate closely to the tree seed and seedling sector, which the present working paper explores further below.

The consulted documents state that best practices must be implemented where forests are used for NTFPs. FDCU-II (FDRE, 2018a) indicates that forests categorized as productive must be administered according to a management plan developed by the responsible body once an inventory has been conducted. The Forest Sector Review (FSR) (FDRE, 2017a) indicates that investments in sustainably managed plantations are critical to ensure Ethiopia closes its supply-demand gap in domestic wood production. It states that establishing 310,000 ha of professionally managed plantations would close the gap in future industrial roundwood demand. Reichhuber and Requate (2007) estimated that the sustainable use of the remaining montane rainforest in southwest Ethiopia for semi-forest coffee production would produce the highest benefits to local and global communities compared to other land use options. NBSAP (FDRE, 2016a) advises that the unsustainable use of biodiversity be reduced and that the loss of high-biodiversity habitats, including primary forests and wetlands, be prevented.

According to GTP-II (FDRE, 2016b,c), afforestation and reforestation programmes were expected to increase Ethiopia's forest cover markedly (and recent calculations suggest this has been the case in the past few years; Abayneh Derero, personal observations). The main benefits anticipated from afforestation and restoration efforts relate to livelihood provision and ecosystem services (Evans, 2018). Reforestation targets run alongside Ethiopia's Intended Nationally Determined Contribution (INDC) to cut greenhouse gas emissions, where increased forest cover is also listed as a medium- and long-term climate change adaptation strategy. The INDC document (FDRE, 2016d) does not specify, however, whether reforestation activities are to be carried out by establishing native species or exotic ones. This

suggests that, without action to the contrary, fast-growing, introduced tree species are more likely to be promoted. The government applies a bottom-up approach to mobilize resources for tree planting, including increasing smallholders' awareness of the importance of sustainably managing land.

The CRGE strategy (FDRE, 2011) identifies forestry as the sector with the largest greenhouse gas emission abatement potential, to be realized primarily by afforesting and reforesting degraded landscapes and reducing wood harvest for energy use by introducing fuel-efficient stoves. Action programmes that contribute to increased forest cover are described in detail by the National Forest Sector Development Program (NFSDP) (FDRE, 2017b; 2018b,c). The Land Degradation Neutrality (LDN) technical report indicates reforestation using native species as a corrective measure where productivity declines are evident, which has important implications for tree seed and seedling sectoral development (FDRE, 2016e).

Wildlife protection and use are regulated by the Development, Conservation and Utilization of Wildlife (DCUW) Proclamation No. 541/2007 (FDRE, 2007a), which declares that no person may hunt game unless they have a valid permit. Wildlife conservation is also considered by FDCU-II (FDRE, 2018a), where it is indicated that no person is allowed to hunt within a state forest. For private forests, the commercialization of wildlife must be accompanied by a permit issued by the Ministry of Agriculture and Rural Development. GTP-II (FDRE, 2016b,c) specifies that wildlife protection will be given high emphasis and that new wildlife zones will be demarcated and legalized. Biodiversity corridors to support wildlife and plant species migration between forest patches along altitudinal gradients are contemplated as an adaptation strategy in INDC to combat the loss of biodiversity due to climate change (FDRE, 2016d). Establishing wildlife corridors is also mentioned in NBSAP (FDRE, 2016a) to improve the status of biodiversity.

4.1.2 Local community rights and forest biodiversity

The right of local communities in Ethiopia to use and benefit from forest resources is a crucial issue. GTP-II (FDRE, 2016b,c) includes plans to establish legal licensing systems for biodiversity, which are expected to improve the use of forest genetic resources. The AGRCKR proclamation (FDRE, 2006) provides a further legal framework to manage these issues. Local community members are granted legal rights to use genetic resources and share in the benefits derived from their use. NBSAP (FDRE, 2016a) also states that local communities are granted access to genetic resources, and that the benefits from their use should be shared fairly and equitably. FDCU-II (FDRE, 2018a) indicates that local forest-dependent communities may use forest resources in productive or protected state forests when following a management plan. However, FDCU-II also indicates that when a local community's use of a state forest conflicts with this plan, the community "shall evacuate the forest area and settle in other areas suitable for living". FSR (FDRE, 2017a) suggests that communities engage in forest management and claim land use rights to improve the resilience of restored forest ecosystems and prevent management conflicts.

Local community knowledge is of great relevance for biodiversity mainstreaming in forest management. According to the AGRCKR proclamation (FDRE, 2006), local communities have the right to control access to their indigenous knowledge on genetic resources. According to the proclamation, where benefits are generated for other parties through access to this knowledge, they must be shared fairly. Benefit sharing can be achieved through license fees, upfront payments, royalties, employment opportunities, and training to enhance local skills in conserving, evaluating, developing, propagating and using genetic resources. Furthermore, FDCU-II (FDRE, 2018a) indicates that private forest owners should respect local culture and knowledge. The central role of local community knowledge in the sustainable use of forest biodiversity is also recognized by NBSAP (FDRE, 2016a), which indicates that this knowledge and associated practices should be documented and integrated into development strategies with local community engagement.

PFM as an approach was introduced to Ethiopia during the early 1990s and was shown to positively impact both forest conditions and the livelihoods of households participating in the southwestern part of the country despite weaknesses in government support (Gobeze et al., 2009). In 2018, FDCU-II (FDRE, 2018a)

introduced PFM into the legal framework for managing state, association and community forests, the last two categories of forest being new tenure schemes. In addition, tax exemption schemes were introduced to promote the development of local ownership of association and community forests, such as community forest developers being allowed tax-free income for the first two production years. Furthermore, FDCU-II indicates that the demarcation of productive, protected or preserved forest land must be conducted through engagement with local communities. Participatory and community-based approaches to natural resource conservation are considered effective and are promoted by GTP-II (FDRE, 2016b,c). GTP-II underlines that strategically integrated participatory actions will ensure the creation of a decentralized system where the participation of communities in environmental conservation is promoted.

4.1.3 Strengths and weaknesses of the current policy framework

To ensure the successful conservation of protected forests, FDCU-II (FDRE, 2018a) recommends establishing plantations of fast-growing trees along peripheries. These plantations are to serve as boundary markers and provide local communities with an alternative source of fuelwood and timber, reducing pressure on forests. However, this proposal is problematic. First, local community participation in species selection and planting is not specified, even though involving communities in deciding what to plant is likely crucial for successfully establishing and retaining trees. Second, the effectiveness of these measures for demarcating and controlling forest use is debatable, and it may be more beneficial to offer local communities broader, alternative forest product sources. Third, although not detailed, FDCU-II's reference to fast-growing species likely refers to planting exotic trees such as *Eucalyptus globulus* that are already popularly planted across Ethiopia's highlands. This would conflict with FDCU-PS's (FDRE, 2007c) listed strategies for expanding forest development technologies, which state that priority should be given to "indigenous [native] varieties that have high economic value and are under the threat of extinction". (Note also that, as already mentioned above, INDC [FDRE, 2016d] does not specify whether reforestation activities are to be carried out by the (re)establishment of native species or exotic species, with the implication that fast-growing exotic trees will end up being used).

The protection of endangered native species is understood to be a key issue globally for the preservation of forest biodiversity. This is recognized in Ethiopia, where NBSAP (FDRE, 2016a) emphasizes protecting endemic, endangered and economically important species with improved *ex situ* conservation standards. Furthermore, FDCU-II (FDRE, 2018a) has provisions to protect endangered native tree species in state or community forests. In addition, the AGRCKR proclamation (FDRE, 2006) specifies that access to genetic resources may be denied when it involves an endangered species. However, none of the above documents gives a list of species considered to be endangered. FDCU-II specifies that the list "shall be determined by directives issued by the Ministry". A table of 103 endemic tree and shrub species on the IUCN red list was included in a country report for Ethiopian forest genetic resources submitted to FAO in 2012 (IBC, 2012) as part of the preparation of The State of the World's Forest Genetic Resources report (FAO, 2014). The same country report also identified another 22 trees and other woody forest species considered to be threatened in Ethiopia. Again, a further list of priority woody species for conservation in the moist Afromontane forests of southwestern Ethiopia was provided in the country report, which took account of use values and threats. However, the list of protected tree species in Ethiopia published in a repealed version of the FDCU from 1994 (FDRE, 1994) only contained the four species *Cordia africana, Hagenia abyssinica, Juniperus procera* and *Podocarpus gracilior*, and the authors of this working paper have not seen any other list of protected trees in the country. It appears that policy measures are not adequately in place to protect specific threatened tree species.

The protection of genetic resources by promoting *in situ* conservation systems is stated in several Ethiopian documents reviewed in the current study. However, although the promotion of landscape structural and functional connectivity is known widely to be key in this regard (Klinga et al., 2019), with positive "spill-over" effects observed beyond directly targeted areas (Brudvig et al., 2009), specific plans for promoting landscape connectivity as a means to conserve threatened native forest species in Ethiopia are mostly absent. This applies to the four critical documents (FDRE, 2011; 2016a,b,c; 2018a)

identified in the systematic literature review, although NBSAP (FDRE, 2016a) proposes establishing wildlife corridors to improve biodiversity. Furthermore, biodiversity corridors to support wildlife and plant species migration are contemplated as an adaptation strategy by INDC (FDRE, 2016d). At the same time, similarly, the LDN plan (FDRE, 2016e) promotes the creation of biodiversity grids within large agricultural estates. Overall, the present review of relevant documents suggests that Ethiopia's policy makers give insufficient attention to landscape connectivity, despite the country's high potential to reconnect natural forest patches through large-scale tree-based restoration initiatives already underway. The lack of concerted attention is particularly a concern when it is considered that climate change is likely to have large impacts on Ethiopian forests' floral and faunal populations, but that negative impacts may be countered by encouraging connectivity along altitudinal gradients especially.

Policies and proclamations should define clear roles and responsibilities to ensure effective implementation. Across the body of documents we reviewed, however, the definition of institutional roles was limited. The FDCU-II proclamation (FDRE, 2018a) outlines a complex division of roles between regional and federal institutions in forest management. Experience from other countries suggests such complex arrangements will likely undermine management effectiveness (Harrison et al., 2022). On the one hand, ownership of state forest resources is assigned to regional authorities, who are responsible for providing institutional management arrangements and allocating budgets and staff for implementation. On the other hand, the Environment, the Forest and Climate Change Commission (EFCCC), which was subsequently merged with the Ethiopian Environment and Forest Research Institute in 2021 to create EFD, was tasked with coordinating the efforts of responsible regional actors.

Furthermore, the EFCCC was given authority to take over the administration of a forest if the regional authority did not properly develop it or if it became necessary for the federal government to administer it because of its national or international significance. With regard to organizational management, FSR (FDRE, 2017a) recognized the importance of strengthening the EFCCC's structure at the regional and district level "to support the implementation of forest laws". Institutional arrangements are further discussed in Box 1.

Overall, the review indicates that the direction of the discourse around environmental policy in Ethiopia is positive, especially concerning local community participation in natural resource management; however, some negative aspects are noted regarding forest biodiversity (see summary in Table 7).

Table 7. A summary of identified policy trends from a review of consulted documents. Features are discussed in the text

Topic	General trend	Highlights from reviewed policies
Forest biodiversity	 Negative	Lack of planning for landscape connectivity. Proclamation on wildlife outdated and inadequate. Poor demarcation of forest borders and forest types. Lack of extensive biodiversity data for planning and monitoring. Inadequate protected species list.
Forest management	 Positive	Introduction of management plans as a regulatory tool over all forest tenures to ensure sustainability. Positive implementation of restoration, reforestation and afforestation activities. Sustainable forest management included in strategies as a priority mitigation action.
Local communities	 Positive	Recognition of communities' granted access over used genetic resources and their traditional knowledge. Participatory schemes promoted in practice and regulated by law. Communities to be involved in the process of defining a forest as productive, protected or preserved.

Box 1. Institutional arrangements and forest biodiversity

Stakeholder consultations indicated that continual institutional restructuring is a feature of the forestry sector in Ethiopia. This is illustrated by the changes implemented over the last decade. In 2013, forestry management moved from the Natural Resource Directorate of the Ministry of Agriculture to the newly-created Ministry of Environment and Forest (MEF) (Mekonnen and Bluffstone, 2014). (Positively, this represented the first time that the word "forest" appeared in the name of an Ethiopian Government ministry.) Then, in 2015, MEF was renamed and restructured to become the Ministry of Environment, Forest and Climate Change (MEFCC). This was only for further restructuring in 2019 to create the EFCCC under the Prime Minister's Office. As noted, in 2021, an additional change occurred when the EFCCC was merged with the Ethiopian Environment and Forest Research Institute to create the EFD as an autonomous federal institution under the Ministry of Agriculture. Again, the Ethiopian Wildlife Development and Conservation Authority has been passed from one ministry to another over the years (Debella, 2019).

As described above, this frequent restructuring of institutions has been identified as a significant constraint on the effective use and conservation of forest resources (FDRE, 2017a). According to stakeholder consultations, this issue results from a lack of activity-based organization, inadequate attention to the forestry sector compared to agriculture, and the absence of a systematic analysis of organizational structures. The quality of data collected by institutions, the implementation of plans, and financial efficiency, have all ostensibly suffered. FSR (FDRE, 2017a) further highlighted how high staff turnover rates have weakened institutional memory.

As of 2025, the EFD is the federal authority responsible for formulating and enforcing strategies, policies, laws and standards regarding forest lands. The EFD works in collaboration with regional authorities but, like the EFCCC before, only has limited capacity at regional and sub-regional levels, where strengthening is needed. The EFD is also responsible for conducting research that embraces agroforestry and forest development. Another relevant federal agency for forest biodiversity management, the Ethiopian Biodiversity Institute, focuses on biodiversity conservation in situ and ex situ.

Regional governments have different organizations responsible for forest and biodiversity conservation, contributing to management fragmentation. Some regions with substantial forest cover, such as Benishangul-Gumuz, Gambella and the Southern Nations Nationalities and People Region, have no regional forest enterprise bodies, and the Bureau of Agriculture is responsible for forestry management (FDRE, 2017a, p. 76). Poor institutional arrangements at the regional level create conflicts of interest, including between business and conservation (Debella, 2019).

4.2 Stakeholder consultations

Here, we draw out points of interest for mainstreaming biodiversity in forest management in Ethiopia from the cross-sectoral and PATSO-specific stakeholder consultations. For the cross-sectoral consultations, we focus in the current section on responses to questions 2-6, and 8 and 9, of the questionnaire; the additional questions we asked informed discussion in other sections of this report (refer back to Table 3 for the list of questions). For privacy reasons, the responses we received from stakeholders are anonymized.

4.2.1 Biodiversity policy and forest policy

The 12 respondents to the cross-sectoral survey indicated that biodiversity conservation is poorly mainstreamed in Ethiopia's forest management. While many respondents felt that biodiversity is adequately covered in forest management policies, they highlighted poor implementation and lack

of policy enforcement as major challenges. Respondents indicated that inadequate enforcement may stem from a lack of government commitment, unclear directives for enforcing existing proclamations, frequent institutional rearrangements, conflicts between institutions over resource administration, varying levels of awareness among actors regarding policy content and biodiversity functions, poor monitoring and reporting of infractions, and a lack of alignment between regional strategies and federal policies. Some of these issues are explored further below.

Survey respondents suggested that the protection of threatened species is poor in practice. Some indicated limitations in policies regarding the categories of protection and the prohibitions linked to a category. Additionally, the absence of a directive specifying which species should be protected and under what categories of protection was noted, corresponding with comments earlier in this section regarding the lack of a comprehensive list of protected tree species. There was disagreement among some respondents on whether habitat protection is effectively incorporated into forest management policies and written strategies, with a number considering that it is – at least 'on paper' – and others not. In any case, respondents felt that the translation of existing policies on habitat protection into actual practice is poor. Several respondents indicated that current policies poorly address ecosystem services.

Respondents identified several key regulatory barriers to biodiversity conservation in forest management, including insufficient government recognition of forest landscapes as vital components of biodiversity, legal and institutional gaps, the absence of a national biodiversity database to strengthen monitoring, weak forestry institutions, and a lack of awareness and understanding of the concept of biodiversity. Respondents also noted inconsistencies between existing regulations and policies, describing the agriculture and forestry sectors as having conflicting legal frameworks and interests. One example is policies promoting the upscaling of coffee production in southwestern Ethiopia, which threatens the conservation of the Afromontane Biodiversity Hotspot. Poor coordination between research and extension institutions was identified as another source of conflict.

Survey respondents suggested various changes to improve biodiversity management in forest landscapes. There was general agreement that institutional capacity needs to be strengthened. One respondent suggested that existing forest policies and regulations should be scrutinized, harmonized, and integrated, with a common definition of biodiversity. In this regard, aligning regulations on conserving forest genetic resources between the Ethiopian Biodiversity Institute and the EFD is crucial. Equally critical is achieving alignment between Ethiopian institutions on legislation and policies governing the use and transfer of genetic resources, striking the right balance between supporting access and protecting rights. Another survey respondent suggested that updating the legal framework and linking it to an updated, open-access database on forest and biodiversity conservation areas would be a key improvement. Other stakeholders pointed out that more emphasis should be placed on subsidy schemes and benefit-sharing mechanisms. Respondents also emphasized several other priorities, including the need to: clearly define responsibility for managing wild animals outside protected and national forest priority areas; establish protocols specifying the frequency of forest law enforcement monitoring; enhance coordination between institutions; promote proven interventions based on lessons from ongoing tree planting; and prioritize native species in regulations for tree-based restoration.

4.2.2 Local community rights and forest biodiversity

Survey respondents had different views on whether cultural values are effectively incorporated into forest management policies and strategies. Most indicated that cultural values are not included or only to a minimal extent. Although PFM schemes are widely promoted, a view was that cultural values are not given sufficient emphasis. However, as pointed out by one respondent, the FDCU-II proclamation (FDRE, 2018a) includes new forest tenure types that have the clear objective of recognizing the rights of forest communities, while participatory approaches to forest management, forest land demarcation, and forest resource use, are all covered by the proclamation. However, this respondent also observed that "participation requirements are not sufficiently strong to ensure that community feedback is related in[to] management decisions from the early stages of planning".

Survey respondents varied in their position on whether dispute resolution mechanisms exist among local communities and other stakeholders. Most respondents indicated that such mechanisms are not in place or are limited. However, some highlighted that although conflict management frameworks are not directly provided for within policies and strategies, community by-laws and customary mechanisms are usually available to address disputes. One respondent indicated that "disputes will be resolved as per the law", while also suggesting details are missing from the existing regulatory framework.

4.2.3 Strengths and weaknesses of the current policy framework

Consulted stakeholders consider that the existing regulatory framework around the forestry sector is generally reasonably strong, with some advances in more recent policies. For example, in comparing the new forest proclamation (FDCU-II) (FDRE, 2018a) to its predecessor (FDRE, 2007b), advances are recognized in the promotion of public participation, forest tenure and the sustainable use of forest resources. As already noted, however, stakeholders are concerned with the weak implementation of policies and strategies, and they regard this as a major challenge in mainstreaming biodiversity in forest management.

Stakeholder respondents also indicated specific policy gaps. For example, the rights of local communities are not yet well incorporated within forest policy and regulations, with their participation during the first stages of planning and in designing management plans considered low. This is despite newer forest laws, including articles safeguarding community rights to the access and use of forests. Few survey respondents touched on the issue of biodiversity management under community forest tenure. Still, it was noted that respondents' views were that community members are primarily concerned with managing forests based on their economic interests rather than the environment. One survey participant mentioned linking the private sector and government with forest user associations to establish incentive payments to protect forest habitats as a possible way forward.

Surveyed stakeholders made other suggestions to improve the regulatory framework around biodiversity in forest management. One survey respondent identified the lack of a clear directive identifying "which species are protected under each [forest] category" as an issue to be addressed. Respondents highlighted that investing in establishing strong and effective forestry institutions at all levels would ameliorate gaps. The roles of institutions should be clarified in a way that avoids current conflicts and overlaps, and coordination and synergy between governmental agencies should be strengthened. Issues for improvement related to institutional arrangements and forest biodiversity are presented in Box 1.

4.2.4 A practical example of forest biodiversity management from the tree seed and seedling sector

As previously noted, support for developing the tree seed and seedling sector is crucial for Ethiopia to reach its ambitious forest landscape restoration targets. Given the connection the authors of this paper have with this subject, we consider it important to understand the enabling policy environment for tree seed and seedling delivery at the specific sectoral level and more broadly. Addressing this is vital to improving Ethiopia's suboptimal tree seed and seedling delivery.

Therefore, this sub-section examines the Ethiopian Government's framework and practice for conserving forest biodiversity with a focus on the example of PATSPO – an initiative that supports national forest landscape restoration and broader tree planting efforts through improved tree seed and seedling sourcing (CIFOR-ICRAF, 2022). The information supporting this example comes from the survey questionnaire completed by PATSPO staff, as outlined in Section 2, and from PATSPO documents and the close involvement of several of the working paper's authors in this initiative.

Overall, PATSPO fits well into the forest landscape restoration regime currently envisaged for Ethiopia. PATSPO is focused on promoting the supply of seeds and seedlings of a mix of native and exotic tree

species, with seed production activities roughly equally embracing both categories of tree (CIFOR-ICRAF, 2022). This coincides with Ethiopian Government priorities (in principle) to move away from a focus on exotics to the more balanced planting of both tree categories (of 25 tree species noted to be socioeconomic priorities for Ethiopia in its 2012 country report to The State of the World's Forest Genetic Resources, 21 are native – IBC, 2012). Strong relationships among stakeholders in the tree seed and seedling sector have been engendered by PATSPO, which is taking specific steps to align with Ethiopian Government policy relating to sectoral development. The attention by PATSPO partners to this alignment started at the project planning stage and has continued through project implementation.

Specifically, PATSPO aligns with Ethiopian Government targets set out in the FDCU-PS (FDRE, 2007c) to (i) provide the country with a sufficient amount of seed and seedlings of tree species that could have economic benefits, (ii) give technical support to those engaged in raising and supplying tree seedlings to society and (iii) support a system to supply seeds of indigenous (native) or exotic tree species that are suitable to the different ecosystems. Furthermore, PATSPO aligns with GTP-II (FDRE, 2016b,c), where the importance is indicated of (i) providing technical assistance to tree seedling sellers, (ii) identifying seed sources and conserving tree species, (iii) defining tree seed zones and matching species and provenance to the site, and (iv) improving tree seed delivery.

In addition, PATSPO activities align well with NFSDP (FDRE, 2017b; 2018b,c), which emphasizes the importance of establishing tree seed orchards to facilitate planting material distribution, and of maintaining and modernizing laboratory facilities to support research related to tree improvement. The work done by PATSPO also aligns with FSR (FDRE, 2017a), stressing the importance of providing quality tree seedlings to improve the productivity of small-scale plantations. This is a prerequisite for establishing successful public-private partnerships with smallholder farmers to address the wood supply gap.

These specific alignments of PATSPO to prevailing tree seed and seedling sectoral policy need to be coupled with the previously mentioned incentivized taxation scheme introduced in FDCU-II (FDRE, 2018a) for community forest developers involved in production. In addition, PATSPO and tree seed and seedling sector activities in general, should be specifically aligned to *in situ* conservation measures for native tree species. This will support a more cohesive and effective approach to conserving forest genetic resources, ultimately contributing to the sustainability and resilience of Ethiopia's forests.

In addition to aligning with the existing policy framework, PATSPO supports future sector-level policy development, enabling more effective tree seed and seedling delivery. In this regard, PATSPO supports the Ethiopian Government in developing the first national tree seed proclamation and tree seed policy, which are currently being taken through the legislative process. These aim to establish a firm foundation for the involvement of the private and informal sectors in tree seed supply – identified as essential components for sustainable tree-planting-material systems through sectoral assessments – and to provide a legal basis for improving the procurement of high-quality tree germplasm.

5 Synthesis and recommendations

Ethiopia harbours important forest biodiversity from the global perspective, but its forests continue to be lost, and the tree plantations that often replace natural forests generally consist of only a few exotic tree species. At the same time, Ethiopia has substantial forest landscape restoration targets, with significant potential to improve current restoration practices, yielding both livelihood and environmental impacts.

In the analysis reported in this working paper, the various proclamations, regulations, directives, policies, strategies and development frameworks that affect the conservation and sustainable use of forests and biodiversity in Ethiopia were reviewed, and key stakeholders were consulted from across the biodiversity and forestry sectors. The working paper's literature review involved the novel use of keyword searches to explore cross-relationships among documents, to identify key documents of relevance and resonance for more detailed review. The review of stakeholders paid specific attention to the tree seed and seedling sector, which is crucial for enabling Ethiopia to meet large forest landscape restoration targets.

The literature review approaches and the questions used to interrogate stakeholders, specifically in the tree seed and seedling sector, are relevant for further work on policy analysis, both broadly and with particular reference to tree planting. In the latter case, understanding not only the governance for the tree seed and seedling sector itself but the broader policy environment – embracing rural development, biodiversity and restoration, and climate change adaptation and mitigation – is crucial as part of a sectoral assessment (Lillesø et al., 2024).

The present analysis found that most of the policy framework for mainstreaming biodiversity in forest management in Ethiopia is in place and has, in some respects, moved in a positive direction in recent years. Nevertheless, further policy development is needed to address key areas such as integrating community knowledge and participation, determining when and where to emphasize planting native tree species over exotics, identifying priority plant, animal and other forest species for conservation, and implementing measures that promote landscape connectivity and ecological restoration (*sensu* the definitions of Target 2 of the Kumming-Montreal Global Biodiversity Framework – CBD, 2023). Likewise, policy development action is needed to further develop ecosystem service payments and clearly define national, regional and local institutional management responsibilities, ensuring overlaps and conflicts of interest are avoided.

The primary concern is not the policies but their poor implementation and enforcement. Consulted stakeholders see this as the greatest barrier to mainstreaming biodiversity in forest management. The FSR exemplifies the issue by stating that "building capacity to enforce laws should be prioritized for good forest governance".

This study has identified the following priority actions to support biodiversity mainstreaming in forest management in Ethiopia. There is a need to:

- Establish a formal national list of tree species prioritized for protection. This will allow for better targeted *in situ* and *ex situ* conservation actions.
- Clarify the type of tree species that should be used in tree planting, and if and when the focus should be on native species. So far, insufficient emphasis has been placed on the importance of reforestation by planting a diversity of locally adapted native tree species, with instead too much reliance on a few commercial exotic trees. For ecosystem restoration, greater emphasis is required on planting native tree species.

- Support tools for biodiversity and forest monitoring, and intervention design, including a forest biodiversity database. This could be part of a national monitoring system for forests and biodiversity. These tools can build on existing global tree conservation and use databases such as GlobalTreeSearch (BGCI, 2025) and the GlobalUsefulNativeTrees Database (Kindt et al., 2023b).
- Address institutional weaknesses, including the overlap and confusion in roles among institutes and different levels of government.

In terms of the tree seed and seedling sector specifically, since the compilation of findings presented in the current report was first undertaken, another significant initiative has been implemented to address tree seed and seedling supply in Ethiopia. Termed the Right Tree in the Right Place-Seed project (RTRP-Seed – CIFOR-ICRAF, 2025), activities began in 2024 and are due to run until the end of 2029. As well as covering Ethiopia, RTRP-Seed embraces the development of the tree seed and seedling sector, with a particular focus on native tree species, in Burkina Faso, Kenya, Rwanda and Uganda, and seeks to scale lessons from these countries to the whole of sub-Saharan Africa.

Although the RTRP-Seed initiative was not specifically considered during information collection for the current working paper due to its recent implementation, its objectives align with those of PATSPO. RTRP-Seed's negotiation of Ethiopia's policy environment should therefore follow a similar path. Furthermore, the initiative should seek to further develop relevant policies for the tree seed and seedling sector in Ethiopia using a similar engagement approach, with specific consideration to native tree species being given. In future, the specific question sets used in the current study to query the staff of the PATSPO initiative will be applied to institutions in the other countries participating in RTRP-Seed. This approach will more broadly contribute to developing enabling conditions for tree seed and seedling delivery across sub-Saharan Africa.

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Appendix

Appendix 1. Stakeholders approached and responses received in a consultation on forest biodiversity mainstreaming

Institution	Type	People contacted	Responses
Environment, Forest and Climate Change Commission*	Governmental	3	3
Ethiopian Environment and Forest Research Institute*	Research institute	3	1
Ministry of Agriculture, Natural Resources Directorate	Governmental	2	1
Ethiopian Biodiversity Institute	Governmental	2	1
CIFOR Ethiopia	International organization	1	1
The Nature and Biodiversity Conservation Union	Local non-governmental	1	1
Gesellschaft für Internationale Zusammenarbeit/Unique	International organization	1	1
Ethiopian Wildlife and Natural History Society	Local non-governmental	1	1
Ethiopian Forestry Society	Local non-governmental	1	1
Ethio-Wetlands and Natural Resources Association	Local non-governmental	1	-
Wondo Genet College of Forestry and Natural Resources	University	2	-
Tree Aid	Local non-governmental	1	1
Population, Health and Environment Ethiopia Consortium	Local non-governmental	1	-
Oromia Reducing Emissions from Deforestation and Forest Degradation program (REDD+ Oromia)	Project	1	-
Amhara Reducing Emissions from Deforestation and Forest Degradation program (REDD+ Amhara)	Project	1	-
Total	**-**	**22**	**12**

Note: *The Environment, Forest and Climate Change Commission and the Ethiopian Environment and Forest Research Institute have merged to create Ethiopian Forestry Development since the consultation.

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Ethiopia boasts rich forest biodiversity, encompassing trees, flora, fauna, and countless other organisms. The conservation and sustainable use of this biodiversity are guided by an array of proclamations, regulations, directives, policies, strategies, and development frameworks issued by the Ethiopian Government. To make present efforts truly effective, mainstreaming biodiversity considerations into forest management is essential, ensuring that conservation and sustainability are embedded at every level of decision-making and policy implementation. This working paper evaluates the effectiveness of the Ethiopian Government's measures, with a particular focus on the tree seed and seedling sector, which plays a critical role in supporting restoration efforts. Through systematic keyword searches, document cross-referencing, and stakeholder interviews, the analysis found that much of the policy framework necessary for mainstreaming biodiversity in forest management in Ethiopia is already in place. However, implementation remains weak, lacking compliance and alignment. This paper identifies gaps and weaknesses in current policies, offering actionable recommendations to enhance forest biodiversity mainstreaming. Central to the study is the authors' specific interest in Ethiopia's tree seed and seedling sector and its critical role in providing high-quality tree planting materials essential for successful landscape restoration.

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