

Policy Briefing Paper: Integrating Biodiversity into the policies regulating Ethiopia's Livestock and Pastoral Systems

1. Sectoral Context for Livestock and Pastoralism

Pastoralism and livestock husbandry provide livelihoods for over 12 million Ethiopians, particularly in lowland and arid regions that make over 50% of the country's landmass. The sector contributes about 20% of Ethiopia's GDP where the four livestock sub-sectors namely, cattle; camels; goats and sheep contribute nearly 90% of livestock sector export revenue. Livestock also plays a cultural role, supporting identity, social status, and traditional exchanges. However, pressures are increasing on pasture and rangeland ecosystems that carry the entire pastoral and livestock system. Expansion of agriculture, fencing, and urbanisation restrict traditional grazing lands and corridors. Overgrazing, invasive species (e.g., *Prosopis*), and recurrent droughts undermine rangeland productivity and biodiversity. While Ethiopia's 2020 Pastoral Development Policy and Strategy aims to improve livelihoods and natural resource management, implementation gaps persist, particularly around securing communal grazing rights and participatory rangeland planning and management.

Securing communal grazing rights in pastoral ecosystems contributes significantly to reducing biodiversity pressure by legally protecting mobility and seasonal rotations, thereby maintaining spatial and temporal heterogeneity in grazing patterns. When tenure is insecure and mobility constrained, herds concentrate around water points and settlements, creating localized overgrazing, bare ground, woody encroachment and loss of species diversity. Secure communal rights also prevent fragmentation and conversion of rangelands into cropland or enclosures, keeping wildlife and livestock corridors intact. Legal recognition re-empowers customary governance institutions to enforce sustainable by-laws for access and use.

2. Economic, Ecological and Food Security Significance

Livestock is central to household income, nutrition, and resilience. Exports provide foreign currency, while pastoral mobility supports ecosystem health through seed dispersal, fertilisation, and grazing regulation. Yet, sedentarisation, weak recognition of customary land rights, and inadequate policy alignment create rangeland biodiversity risks and heighten vulnerability. Without reform, pastoral ecosystems face increasing degradation and conflict over resources.

3. Balancing Biodiversity and Livelihoods

Pastoral systems can contribute to biodiversity conservation if mobility is guaranteed, sustainable stocking rates are enforced, and rangeland governance is improved. Participatory land-use planning, rotational grazing, and community-led enclosures could restore ecosystems while improving breeds with protection also to local breeds. Economic incentives such as payments for ecosystem services, fodder production support, and certification of organic livestock products offer opportunities to balance conservation with income.



4. Key Considerations for Policy Development and Effective Implementation

1. Land Rights and Tenure Security

- Strengthen recognition of communal grazing rights under federal and regional land administration laws.
- Secure pastoral mobility corridors to sustain traditional transhumance systems by giving legal, mapped, and managed status to the seasonal routes that herds use to move between wet- and dry-season pastures, drought reserves, and water points.

2. Participatory and Climate-Smart Planning

- Institutionalise participatory land-use planning that integrates carrying capacity and rotational grazing by strengthening national policy and legal framework that formalizes communal grazing lands, integrates carrying-capacity and rotational grazing into regional plans.
- Support community–customary institution partnerships for governance, conflict resolution, and monitoring..

3. Rangeland Management and Livelihood Support

- Promote sustainable grazing plans, fodder production incentives, and zero-grazing feedlots through targeted incentives, research, and extension support that link pastoral livelihoods to market access while reducing pressure on natural rangelands.
- Update the Ethiopia Livestock Master Plan to harmonise restocking/destocking and carrying capacity strategies.



4. Risk Management and Incentive

- Scale up index-based livestock insurance (IBLI) to reduce vulnerability to droughts.
- Explore biodiversity-positive certification for livestock exports, creating market incentives for sustainable practices

5. Alignment of Policies and Programs

- Reconcile settlement policies with mobility needs, ensuring resilience measures (fodder, water storage) for already sedentarised communities.

More information is available:

- National Biodiversity Threat Assessment, ranking major threats impacting biodiversity: https://www.biodev2030.org/wp-content/uploads/2022/04/Ethiopia-National-Biodiversity-Threat-Assessment_Final-Report_Mekbebe-and-Addisu_10_02_2022.pdf
- In-depth Policy Analysis : Sectoral Policy Instruments and pressure on biodiversity (Altaï study): <https://www.biodev2030.org/wp-content/uploads/2025/07/fiche-ETHIOPIA.pdf>
- Situation Analysis of key sectors for mainstreaming biodiversity: <https://www.biodev2030.org/wp-content/uploads/2023/01/Ethiopia-In-depth-sectoral-analysis-and-commitments-identification-for-biodiversity-EN.pdf>.

Policy Briefing Paper: Reforming Sectoral Public Policy Instruments to accommodate Biodiversity-Friendly Biomass Energy Systems in Ethiopia

1. Sectoral Context for Biomass Energy

Biomass, primarily fuelwood and charcoal, remains Ethiopia's dominant household energy source that supplies over 90% of household energy needs, particularly for cooking. Despite the notable achievements of the Green Legacy Initiative (GLI), launched by H.E Prime Minister Abiy Ahmed in 2019 in expanding forest cover (from about 17.2% in 2019 to 23.6% in 2023), high forests or humid forests continue to decline due to agricultural expansion and unsustainable wood harvesting. Charcoal production, often informal and illegal, drives degradation of slow-growing indigenous species such as Acacia. Urban demand for charcoal remains strong, while rural households depend on firewood for daily energy and income. Ethiopia is one of Africa's largest charcoal producers. Although the 2018 Forest Proclamation recognised community ownership and provided a legal basis for utilization-based forest conservation, enforcement remains challenging. The sector faces institutional fragmentation, limited resources, and limited monitoring of fuelwood harvesting, charcoal bans, and reforestation programmes. Studies indicate a sharp rise in charcoal consumption across all regions, increasing from 48,581 tons per year in 2000 to 4,132,873 tons per year in 2013.

2. Economic and Social Significance

The forest sector accounted for around 12.86% of GDP in 2016 and is crucial to rural and urban household economies. Plantation woodlots (especially eucalyptus near towns) partially offset demand, but biodiversity trade-offs exist. With over half the population lacking electricity access, fuelwood will remain a critical transitional energy source. Charcoal trade also generates income for vulnerable groups, despite its illegality. Without improved governance and alternatives sources of energy, biomass harvesting will continue to pressure biodiversity.

3. Balancing Biodiversity and Energy Needs

Sustainable biomass energy can coexist with conservation goals if community rights are strengthened and efficient practices are promoted. Expanding participatory forest management (PFM), including planting trees, improving cookstove efficiency, and supporting alternative fuels such as natural gas, biogas and biofuels could reduce reliance on natural forests. Integrating carbon finance into reforestation and clean cooking programmes presents an opportunity to blend climate, biodiversity, and livelihood outcomes.

4. Key Considerations for Policy Development and Implementation

1. Strengthen Tenure and Community Engagement

- Align land laws with the 2018 Forest Proclamation to ensure community tenure security and incentivise sustainable forest management in various forms. Securing land tenure through alignment of land laws with the 2018 Forest Proclamation would incentivize sustainable forest management by giving local communities clear, long-term rights to use, manage, and benefit from forest resources. When communities are legally recognized as stewards of the land, they have stronger motivation to invest in restoration, prevent illegal harvesting, and adopt sustainable practices such as assisted natural regeneration and participatory forest management. This reduces open-access exploitation and enhances accountability for conservation outcomes. Policy instruments should evolve to legally recognize communal forest tenure, establish benefit-sharing mechanisms, decentralize forest governance, and integrate land-use and forestry planning to align economic incentives with sustainable forest management.

2. Reform harmful incentives and enforce positive incentives

- Develop a comprehensive regulatory framework for sustainable charcoal production, trade, and transport, including standards for sustainable harvesting and kilns. This framework for sustainable charcoal in Ethiopia would combine clear, enforceable rules on who can produce what, where and how with strong incentives for cleaner energy and diversified rural incomes.
- Enhance enforcement capacity for bans as per the 2018 Forest Proclamation and its regulation on illegal logging, fuelwood harvesting, and harvesting goods from endangered tree species.

3. Promote Sustainable Energy Transitions

- Expand distribution of improved cookstoves with better monitoring and leveraging carbon finance.
- Diversify energy mix by supporting transitional fuels (domestic natural gas and biofuels) alongside electrification. To accelerate availability of alternative energy in Ethiopia, measures should focus on scaling up access to affordable electricity and hybrid cooking technologies through public–private partnerships, subsidies, and carbon finance schemes, while ensuring rural households can afford appliances and connection costs.

4. Improve Incentives for Targeted Reforestation

- Increase planting of fast-growing, fuelwood-suitable species such as acacia and eucalyptus in appropriate zones under the GLI.
- Redirect fiscal resource, avail credit, and facilitate land-based incentives toward community owned and smallholder energy woodlots by securing land tenure, providing tax relief ,improve access to credit and technical support schemes to promote sustainable fuelwood production.

5. Trade and Market Governance

- Harmonise inter- national regional states trade regulations on wood products and strengthen documentation, including licenses and origin certificates.
- Address illegal charcoal exports through regional cooperation and domestic substitution strategies

More information is available:

- National Biodiversity Threat Assessment, ranking major threats impacting biodiversity: https://www.biodev2030.org/wp-content/uploads/2022/04/Ethiopia-National-Biodiversity-Threat-Assessment_Final-Report_Mekbeb-and-Addisu_10_02_2022.pdf
- Situation Analysis of key sectors for mainstreaming biodiversity: <https://www.biodev2030.org/wp-content/uploads/2023/01/Ethiopia-In-depth-sectoral-analysis-and-commitments-identification-for-biodiversity-EN.pdf>
- Mobilizing sectoral voluntary commitment for reducing pressure on biodiversity: <https://www.biodev2030.org/wp-content/uploads/2021/04/Resultats-du-processus-de-dialogue-et-des-engagements-en-ethiopie.pdf>
- In-depth Policy Analysis : Sectoral Policy Instruments and pressure on biodiversity (Altaï study): <https://www.biodev2030.org/wp-content/uploads/2025/07/fiche-ETHIOPIA.pdf>



Policy Briefing Paper: Exploring Pathways to Integrate Biodiversity into Ethiopia's Cereal Production Systems

1. Sectoral Context for the Cereal Sector

Cereal crop production is a cornerstone of Ethiopia's agricultural economy, contributing over 50% of total crop production. Staple crops such as teff, wheat, maize, sorghum, and barley are vital to the livelihoods of millions, with small-scale farming accounting for 90% of agricultural output. Despite the sector's significance, challenges persist, including low productivity, dependence on unpredictable rainfall, periodic droughts, and soil degradation. Recent increases in cereal production have been primarily driven by the expansion of cultivated land rather than significant productivity gains. The government's Ten-Year Development Plan (2021–2030) aims to enhance production, particularly for wheat and soybeans, through improved inputs, irrigation, mechanization, and agro-processing. However, current land-use practices may contribute to ecosystem degradation and biodiversity loss. Exploring alternative approaches that integrate biodiversity could offer pathways to enhance productivity and sustainability. Since increase of production and productivity has no option, the country has to enforce its ten-year prosperity plan in the context of agricultural intensification to detour expansion of farming activities to protected natural ecosystems. Introduction and effective implementation of land use planning is one of the key areas of focus to integrate biodiversity into development planning

2. Significance of the Cereal Sector for the Economy and Food Security

Cereals are integral not only to Ethiopia's food security but also to its economic development. The cereal sector represents a significant portion of agricultural GDP, supporting millions of livelihoods. As the government focuses on self-sufficiency in cereal production and reducing imports, boosting domestic production is crucial for stabilizing food prices, supporting rural livelihoods, and maintaining food security. However, the dominance of monoculture practices, particularly the expansion of cereal farming into previously forested or wetland areas, may pose risks to biodiversity and soil fertility.

Exploring diversified farming systems, such as agroecology and agroforestry, could offer opportunities to enhance resilience, improve soil health, and support biodiversity while meeting food security objectives, notably in key biodiversity areas.

3. Balancing Biodiversity Conservation with Socio-Economic Gains

Balancing biodiversity conservation with the economic and social needs of the cereal sector is essential for creating a sustainable agricultural future. According to a diagnostic assessment undertaken by BIODEV2030 phase 1 and 2 projects, the current trend toward large-scale land conversion for monoculture farming and the use of agrochemicals may have detrimental effects on biodiversity, soil health, and the broader environment. However, integrating biodiversity into cereal production offers multiple benefits.

For instance, agroforestry systems that incorporate trees and other vegetation into farming systems can increase soil fertility, promote water retention, and enhance biodiversity. These systems can also provide farmers with diversified income sources, such as fruit and timber, while reducing the vulnerability of the land to pests and extreme weather conditions.

Incorporating biodiversity into production systems may also enhance the climate resilience of farming communities. The use of climate-smart agriculture principles—such as better land-use planning, improved pest management, and the promotion of organic inputs—could mitigate the adverse effects of climate change while contributing to long-term environmental and economic sustainability. This is in conformity with the new biodiversity strategy-Ethiopia's NBSAP.

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4. Key Considerations for Policy Development and Effective Implementation

To explore pathways toward a climate-resilient and biodiversity-friendly future for Ethiopia's cereal sector, the following considerations may be beneficial:

1. Land Use Planning and Tenure Security:

- o Strengthening land tenure security, particularly by recognizing and formalizing customary land rights, could reduce unsustainable land conversion and incentivize sustainable land management practices in line with recently enacted land administration and payment for ecosystem services (PES) proclamations.
- o Developing and implementing integrated land-use planning that harmonizes agricultural, conservation, and forestry policies may help avoid the conversion of ecologically sensitive zones and promote sustainable farming practices.

2. Incentivizing Sustainable Agricultural Practices:

- o Introducing targeted financial incentives for smallholder farmers to adopt agroecological practices, such as agroforestry, crop rotation, and organic farming, might improve biodiversity and enhance soil health while increasing resilience to climate-related stresses, hence, it is imperative to reform laws related to VAT exemption for imports of agricultural technologies in a way it will accommodate players involved in bio-input production and marketing
- o Promoting training for extension workers on sustainable agriculture techniques and ensuring that climate-smart agriculture is integrated into national development policies could support the adoption of these practices.

3. Reforming Public Policy Instruments:

- o Repurposing agricultural subsidies to support environmentally friendly practices, such as accommodating organic fertilizers in fertilizer subsidies and integrating bio-pesticides into pest management programs, may reduce the harmful impact of chemical inputs on biodiversity.
- o Reforming the VAT exemption directives no.941/2023, under the investment incentives regulation no.517/2022 for agricultural inputs to accommodate eco-friendly inputs, such as bio-fertilizers and organic pesticides, could help reduce the harmful environmental impacts of conventional inputs.

4. Strengthening Monitoring and Enforcement:

- o Improving the enforcement of pesticide regulations to ensure the proper use of agrochemicals and minimize environmental harm may involve better monitoring of the importation of hazardous chemicals and smuggling, as well as providing clear guidelines and training on the safe use of agrochemicals.

5. Encouraging Multi-Stakeholder Dialogue, Learning, and Collaboration:

- o Fostering a multi-stakeholder dialogue between policymakers, farmers, private sector actors, and NGOs could ensure that biodiversity considerations are integrated into cereal production policies and practices.
- o Strengthening international cooperation through initiatives like BIODIV2030 to promote the exchange of best practices across regions and countries involved in biodiversity conservation and sustainable agricultural practices may enhance collaborative efforts.

More Information is available:

In-depth Policy Analysis : Sectoral Policy Instruments and pressure on biodiversity (study by Altaï consulting, commissioned by BIODIV2030 global initiative, funded by AFD and implemented by IUCN): <https://www.biodev2030.org/wp-content/uploads/2025/07/fiche-ETHIOPIA.pdf>



Policy Briefing Paper-Enhancing Integration of Biodiversity into Coffee Production in Ethiopia

1. Sectoral Context for Coffee Production

Ethiopia, the birthplace of Arabica coffee and the world's fifth-largest producer with an average annual output of more than a million tonnes, relies heavily on coffee as both an economic engine and a cultural emblem. The crop contributes about 45% of commodity export earnings and 40% of domestic consumption. The sector is dominated by smallholders owning less than one hectare, producing coffee through garden (50%), semi-forest (35%), and forest (5%) systems, while monoculture plantations account for around 10%. Between 2011 and 2022, the area under cultivation expanded by 60%, yet production increased by only 45%, reflecting an 8% decline in yield—mainly due to aging plantations, limited input use, changing climate conditions, and rising pest pressures. Coffee production in Ethiopia has significant implications for biodiversity, primarily due to the conversion of natural forests into coffee plantation farms, tree felling to increase sunlight exposure, under clearing of the shade trees and expansion into ecologically sensitive areas. The intensification of garden coffee systems and the shift from forest to semi-forest and then to garden plantations reduce habitat heterogeneity and threaten endemic flora and fauna. Although most smallholders traditionally use low-input systems, the rising trend of monoculture and in some cases use of agrochemicals poses growing risks to biodiversity. While the Ethiopian Coffee and Tea Authority (ECTA) continues to prioritize improved productivity and export earnings, there is growing interest in aligning sector development with ecological sustainability.

2. The role of Coffee in the Economy and Food Security

Coffee remains a pillar of rural livelihoods and economic stability, especially in regions where only a few other cash crops offer comparable returns. For nearly 80% of the rural population, agriculture—particularly coffee—is central to income and food security. Coffee farming contributes approximately 40% of household income for smallholders in coffee growing areas.

At the same time, increasing pressure to expand coffee production—in some cases is at the expense of natural ecosystems—poses challenges to biodiversity and long-term productivity. Thoughtful integration of biodiversity into coffee systems could help strengthen both environmental resilience and rural economies.

3. The Need for Biodiversity Integration

Coffee production can coexist with biodiversity goals, especially when based on agroforestry systems. However, land-use change, especially the clearing of native forest for coffee farming and the reduction of shade tree cover, is a primary driver of habitat degradation. These shifts affect ecosystem functions, reduce resilience to climate stress, and undermine the sustainability of the sector itself.

Encouraging shade-grown coffee, supported by enabling policies, could offer a pathway that enhances ecological health, climate resilience, and farmer livelihoods.



4. Opportunities for Strengthening Policy and Institutional Alignment

Several areas of Ethiopia's coffee policy and institutional landscape present opportunities for strengthening biodiversity integration:

- Land Use Zoning (suggestion: Introduce and enforce)

Current spatial planning mechanisms could be further developed to support more deliberate guidance on where coffee production should occur. As the national coffee farm database progresses, it may provide a useful foundation for identifying priority areas for sustainable intensification and safeguarding ecologically sensitive zones.

- Agroforestry Definitions (Suggestion: revise and strengthen)

The 2018 Forest Development, Conservation, and Utilization Proclamation could benefit from clarification regarding agroforestry in perennial systems like coffee. Establishing criteria such as recommended tree cover or thresholds for canopy retention could support improved biodiversity outcomes in coffee landscapes. Based on some literature, the following number of agroforestry trees has been recommended: In humid Afromontane zones (e.g., Jimma and Kaffa): retain ≥ 80 –120 shade trees ha⁻¹ and ≥ 12 native tree species; in sub-humid mid-highlands (e.g., Sidama/Yirgacheffe), ≥ 60 –80 trees ha⁻¹, ≥ 10 native spp.; in drier highlands/eastern belts (e.g., Hararghe), ≥ 40 –60 trees ha⁻¹, ≥ 8 native spp.



- Production Standards in Legislation (Introduce and enforce)

While the 2017 Coffee Marketing and Quality Control Proclamation emphasizes quality and post-harvest processes, consideration could be given to including good agricultural practices that promote soil health, climate adaptation, biodiversity and environmental sustainability.

- Certification and Traceability Systems (Suggestion: strengthen)

Strengthening access to voluntary sustainability certification and region-based traceability systems could improve market access while encouraging biodiversity-positive practices. Consideration could also be given to supporting group certification models and increasing farmer awareness of market-linked sustainability requirements such as those under the EU Deforestation Regulation (EUDR).

- Seedling Distribution and Plantation Renewal (suggestion: repurpose and strengthen)

Ensuring that replanting programs focus on aging or underperforming farms—rather than driving further land expansion—could help align productivity goals with environmental considerations. Guidelines could encourage seedling use in degraded lands while promoting restoration principles.

- Extension and Training Services (Suggestion: strengthen)

While investments in value addition (e.g., through the Coffee Training Centre) are valuable, strengthening farmer training on agroecological approaches—including soil fertility, shade management, and pest control—could complement quality-focused programs and promote sustainability.

- Climate-Resilient Research (Suggestion: Strengthen)

Institutions such as JARC and EIAR have played key roles in varietal development. Building on their expertise by expanding research into drought-tolerant, high-altitude-adapted, and biodiversity-supporting coffee varieties could help future-proof the sector. Continued partnerships with international organizations may support this ambition.

5. Key Policy Considerations

In light of current sector trends and opportunities, the following considerations may support Ethiopia's efforts to align coffee sector growth with biodiversity goals:

1. Land Use Zoning for Sustainable coffee Expansion

Finalize and operationalize the coffee farm mapping database to inform land use guidance that minimizes encroachment on forests and directs expansion toward degraded or underused lands as a deterrence mechanism for current expansion into natural forests.

2. Design and implement Agroforestry Standards and enforce its implementation

Consider integration of agroforestry standard in newly enacted rural land administration proclamation 1324/2024 and the 2018 forest proclamation to explicitly address agroforestry within perennial crop systems, including criteria for shade-grown coffee.

3. Incorporate Sustainable Farming Practices in Coffee Laws

Opportunities exist to enhance production standards within existing proclamations to support practices that protect biodiversity, manage soils, and reduce climate vulnerability.

4. Support Inclusive Certification and Traceability Systems

Enhance the accessibility of certification schemes and work toward a national traceability framework that aligns with international expectations and highlights Ethiopia's ecological heritage.



5. Align Seedling Distribution with Restoration Goals

Encourage the use of seedlings for replanting in existing farms and degraded areas, potentially linking distribution with biodiversity-friendly land management commitments.

6. Expand Biodiversity-Aware Extension and Research Programs

Support training and research focused on agroecological farming, wild varietals, and climate adaptation, with strong links between institutions and farming communities.

7. Engage with EUDR and Global Market Expectations

Collaborate with EU and other trading partners to support compliance with the EUDR, potentially by co-developing traceability systems and holding dialogue on deforestation-free sourcing models.

More information is available on :

- National Biodiversity Threat Assessment, ranking major threats impacting biodiversity: https://www.biodev2030.org/wp-content/uploads/2022/04/Ethiopia-National-Biodiversity-Threat-Assessment_Final-Report_Mekbeb-and-Addisu_10_02_2022.pdf
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- Mobilizing sectoral voluntary commitment for reducing pressure on biodiversity: <https://www.biodev2030.org/wp-content/uploads/2021/04/Resultats-du-processus-de-dialogue-et-des-engagements-en-ethiopie.pdf>
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