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2030**



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POLICY BRIEF

Aligning public policy instruments to biodiversity conservation in Kenya's agriculture and horticulture sector

2026



Acknowledgment

This policy brief has been developed by a team of experts through a multi-stakeholder consultative process that brought together representatives from state and non-state actors. Their valuable insights, experiences, and perspectives were instrumental in shaping the recommendations presented here.



Executive summary

The agricultural sector, which includes small-scale agriculture and horticulture production, plays a pivotal role in Kenya's food security, rural livelihoods, and national economy. It contributes over 33% to the country's GDP while employing more than 40% of the country's population. However, intensification of smallholder farming and horticulture sub-sectors, through monoculture practices, irrigation expansion, excessive chemical input, and encroachment into key biodiversity areas pose a growing threat to biodiversity conservation. Despite the existence of various policy instruments regulating the sector, implementation challenges attributed to weak enforcement, fragmented governance, and insufficient environmental safeguards have led to increased biodiversity losses attributed to agricultural development. Aligning Kenya's agricultural policies with the Kunming-Montreal Global Biodiversity Framework (especially targets 10, 14, and 18) is essential for reversing biodiversity loss in agricultural landscapes and helping the country achieve broader biodiversity goals under targets 1–8 on reducing threats to biodiversity. This policy brief developed by the BIODIV2030 project in Kenya, evaluates key instruments governing the sub-sector, identifies gaps, and provides recommendations for reversing biodiversity decline associated with small scale agriculture and horticulture production. Operationalizing sustainable land use plans, strengthening pesticide regulation, integrating site-specific fertilizer support services in subsidy programmes, streamlining bio-input registration frameworks, biodiversity agricultural planning and incentivizing biodiversity-friendly practices are some of the key strategies recommended to enhance biodiversity conservation in the sub-sector. A strategic shift toward sustainable farming practices is essential to securing Kenya's biodiversity and long-term agricultural resilience.

Kenya's food security, rural livelihoods, and national economy contributes over

33%

to the country's GDP while employing more than 40% of the country's population.



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Background information

Smallholder agriculture and horticulture form the foundation of Kenya's agricultural sector significantly driving employment, trade and rural livelihoods. Agriculture accounts for around 33% of Kenya's Gross Domestic Product (GDP), with smallholder farmers typically cultivating plots between 0.2 and 3 hectares responsible for producing over 75% of the nation's food supply (de jong *et al.*, 2024) out of which 70% is commercially produced (World Bank & CIAT, 2015).

Within the sector, horticulture production, primarily fruits, vegetables and cut flower production has been the fastest growing sub-sector, representing approximately 30% of the agricultural GDP and over 35% of export revenues, the horticulture sub-sector is estimated to support over 4 million jobs annually (FAO, 2023; Nzomoi *et al.*, 2022). Smallholder driven agriculture and horticulture are key pillars of economic development in Kenya, sustaining food security, propelling exports and generating employment across rural communities.

Context and problem statement

While smallholder agriculture and horticulture sub-sectors are vital to Kenya's economic development, their growing environmental footprint particularly on biodiversity is a matter of increasing concern. As production intensifies, the sector's role in biodiversity loss has become more evident. Globally, industrial monoculture systems have displaced approximately 75% of plant genetic diversity over the past century (Alliance Biodiversity, 2025). In Kenya, this trend is reflected in the shift toward intensive monoculture-based commercial agriculture and horticulture production. Moreover, the rising dependence on chemical inputs, including fertilizers, herbicides and pesticides, has accelerated environmental degradation, with agriculture and horticulture production now contributing to over 30% land degradation and accounting for 7% of total greenhouse gas emissions globally (Alliance Biodiversity, 2025).

Addressing the dual challenge of sustaining agricultural productivity while preserving biodiversity calls for a holistic and multi-pronged approach. It involves promoting crop diversification, sustainable farming techniques, and nature-positive incentives (FAO, 2019; UNEP, 2021; Vergez, 2025). Strengthening institutional frameworks and improving smallholder access to resources and technologies is vital for this transition (OECD, 2020a).

Kunming-Montreal Global Biodiversity Framework

The Kunming-Montreal Global Biodiversity Framework (KMGBF), adopted in December 2022 during the 15th meeting of the Conference of the Parties to the UN Convention on Biological Diversity (COP15), outlines ambitious targets to halt and reverse biodiversity loss by 2030. This policy brief provides recommendations towards promoting the sustainability of small-scale agriculture and horticulture in Kenya. It emphasizes the need to harmonize relevant public policy instruments with targets 10, 14, and 18 of the KMGBF (CBD, 2022).



Relevant Kunming-Montreal Global Biodiversity Framework targets



Target 10

Promote sustainable management of agricultural lands.



Target 14

Integrate biodiversity into agricultural policies and planning.



Target 18

Reform incentive structures to support biodiversity-positive practices.

Supporting smallholder farmers and horticultural producers' transition towards ecologically responsible farming practices is essential not only for Kenya's long-term agricultural success but also for meeting international biodiversity and sustainability goals.

Through a multi-stakeholder consultative process including key informant interviews and extensive literature reviews, the BIODEV2030 project provides an analysis of key public policy instruments governing the small-scale agriculture and horticulture sub-sectors in Kenya, implementation challenges and recommendations to align them to targets 10, 14 and 18 of the KMGBF and the National Biodiversity Strategy and Action Plan.

“ Within the sector, horticulture production, primarily fruits, vegetables and cut flower production has been the fastest growing sub sector. ”

Key insights on aligning public policy instruments in small scale agriculture and horticulture to favor biodiversity conservation.



Intensification of agriculture and horticulture production:

Policy instruments governing the intensification of agricultural and horticulture production in Kenya, particularly through irrigation expansion and monoculture practices, are primarily driven by national food security goals, trade, economic growth strategies, and land use policies such as the Agricultural Sector Transformation and Growth Strategy (ASTGS) and the National Irrigation Policy (2017). While these frameworks aim to enhance productivity and resilience in the face of climate variability, they often prioritize high-yield commercial crop systems. This focus, however, poses significant challenges to biodiversity conservation by reducing habitat heterogeneity, increasing pressure on Key Biodiversity Areas (KBAs) and wildlife habitats thus contributing to the loss of indigenous species and ecosystem services.

There is a critical need to balance production objectives with integrated environmental safeguards and promote agroecological approaches that mitigate adverse biodiversity impacts of agricultural intensification.



Land subdivision and excessive water abstraction:

Policy instruments governing land subdivision and water abstraction in Kenya's agriculture and horticulture sub-sectors are influenced by legislations such as the Land Laws (Amendment) Act, 2016; the Water Act, 2016; national and county spatial plans; and various county and community level land use and irrigation regulations. These instruments aim to regulate resource use and ensure equitable access to all. Their effectiveness is however hampered by weak enforcement and fragmented implementation resulting in widespread habitat fragmentation and unregulated water abstraction,



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particularly in high-potential agricultural areas.

Uncontrolled land subdivision has resulted in unsustainable land use patterns, reduced agricultural viability, and increased pressure on surrounding natural ecosystems. Unplanned irrigation development has led to increased crop production close to wildlife habitats. This increases incidences of human wildlife conflict when wildlife raid crop lands sited close to their habitats. Simultaneously, unmonitored water extraction, especially for irrigation use, contributes to depletion of rivers, wetlands, and aquifers, threatening aquatic biodiversity and disrupts ecological balance.

These trends underscore the urgent need for integrated land and water governance systems that align agricultural development with biodiversity conservation objectives. In some counties such as Kajiado, there was evidence of multiple boreholes being closely sited to each other leading to drying up of others as the water table lowers. The situation has been exacerbated by land subdivision where each farmer is compelled to drill a borehole in their farm for their agriculture and domestic water requirements.

There is a need for integrating biodiversity safeguards in irrigation and other agricultural development planning for enhanced biodiversity conservation in the country. This can be achieved through the development and operationalization of national, county, and Ecosystem Management Plans that promote efficient and sustainable land use, reduce habitat fragmentation, and prevent encroachment into Key Biodiversity Areas.



Expansion of agriculture and horticulture into Key Biodiversity Areas:

Policy instruments governing the expansion of agriculture into Key Biodiversity Areas (KBAs) in Kenya include the Environmental Management and Coordination Act (EMCA, 2015); the Wildlife Conservation and Management (Amendment) Act, 2025; Forest Conservation and Management Act, 2016; the Water Act, 2016 and various land use policies/ regulations administered through the National Land Commission and county governments.

These policies are designed to protect ecologically sensitive areas by regulating land conversion and ensuring environmental impact assessments (EIAs) are undertaken for agricultural projects. However, weak enforcement, overlapping mandates, and socio-economic pressures have enabled continued encroachment into KBAs such as forests, wildlife areas and wetlands, leading to habitat degradation, loss of endemic species, and disruption of ecological functions such as water purification and pollination.

Strengthening inter-agency coordination, enhancing compliance mechanisms, and promoting sustainable land-use planning are critical to reconciling agricultural expansion with biodiversity conservation goals. There is need to develop and operationalize a framework to better coordinate all stakeholders relevant to biodiversity conservation in the agriculture and horticulture sub-sectors in the country for ensuring synergy in biodiversity conservation efforts.



Excessive use of pesticides, herbicides & other chemicals: The Pesticides Control Products Board (PCPB) is the agency mandated to regulate the use of pest control products in the country. Challenges associated with limited staffing and resourcing have, however, hampered the efficient monitoring of pesticides and chemical usage in agriculture, leading to abuse by actors as they seek to maximize profitability.

Strengthening capacity for law enforcement to monitor effective use of Pesticide, Herbicides & other Chemicals (PHoC) while gradually phasing out use of Highly Hazardous Pesticides (HHPs) in the subsector is critical. This can be achieved through enhanced staffing and capacity building of relevant national and county government agencies. Furthermore, adoption of digital tracking technologies can aid in monitoring effective PHoC use in the sector. Enhanced farmer education and awareness on proper handling, application, storage and disposal practices are critical for improved safe use of PHoC. This can be achieved through regular extension, training programmes and dissemination platforms including in local languages. Promotion of integrated pest management (IPM), use of protective gear and proper labelling of chemical containers will further enhance safe use of PHoC in the sub-sector.



National Fertilizer Subsidy Programme (NFSP): The Government of Kenya is currently implementing a NFSP as a measure of enhancing food security and mitigating against the high cost of food in the country. The programme is guided by agricultural policies such as the Agricultural Sector Transformation and Growth Strategy (ASTGS), and input subsidy frameworks implemented through various national and county government agencies. These instruments aim to boost agricultural productivity by making fertilizers more accessible and affordable to smallholder farmers. While the programme has contributed to increased crop yields and food security, its implementation has often emphasized quantity over sustainability, leading to excessive and sometimes inappropriate fertilizer use. This has resulted in soil nutrient imbalances, water pollution through runoff, and the degradation of adjacent ecosystems, thereby threatening biodiversity in farmlands, wetlands, and water bodies.



To mitigate these impacts, there is a need to integrate environmental safeguards into the subsidy programme, promote site-specific fertilizer recommendations, and support complementary agroecological practices that protect biodiversity while enhancing productivity (OECD, 2020b). There is also a need to integrate bio-inputs in the NFSP as well as streamline regulatory frameworks for bio-input registration and certification for improved uptake and commercialization.



Crop insurance schemes: Crop insurance schemes in Kenya are governed by policy instruments such as the Kenya Agricultural Insurance Programme (KAIP), developed under the Ministry of Agriculture in collaboration with the Insurance Regulatory Authority and supported by the Agricultural Sector Transformation and Growth Strategy (ASTGS). These schemes aim to cushion farmers against climate-induced crop losses and enhance resilience in the agricultural sector. While they play a critical role in stabilizing farmers' incomes and encouraging investment in agriculture, current designs often incentivize intensified monoculture systems and expanded cultivation into marginal or ecologically sensitive areas to maximize insured yields. This can inadvertently lead to habitat conversion, reduced agrobiodiversity, and increased use of agrochemicals, negatively affecting biodiversity.

To align crop insurance with conservation objectives, there is need to integrate sustainability criteria into insurance frameworks, such as rewarding climate-smart and biodiversity-friendly farming practices.



Gender, youth and social inclusion: Women, youth, and marginalized groups constitute a

substantial proportion of actors in the smallholder farming and horticulture subsectors, actively engaged in production activities. Despite their critical role, these groups remain highly vulnerable to climatic and economic shocks, largely due to limited access to land, natural resources, and financial services. They are also disproportionately affected by the negative effects of biodiversity loss and landscape degradation such as reduced agricultural productivity, food insecurity, and fuelwood shortage.

To address this, it is imperative to enhance gender and youth representation in biodiversity-related decision-making organs at both the national and county levels. Strengthening community-based natural resource management (CBNRM) frameworks and implementing affirmative action within conservation programs will enhance inclusive participation. Additionally, the integration of social inclusion targets into the National Biodiversity Strategy and Action Plans (NBSAPs) will help institutionalize the meaningful involvement of these groups in biodiversity conservation and sustainable agricultural development in the country.

Incentivizing private sector investment in biodiversity conservation: To incentivize private sector investment in biodiversity conservation within smallholder agriculture and horticulture subsectors, it is essential to create enabling policy and regulatory environments that recognize and reward biodiversity-friendly practices. This can include offering tax incentives, green financing options, and access to low-interest

credit for businesses that support sustainable farming practices (IPBES, 2019). Establishing certification schemes and eco-labels can enhance the competitiveness of sustainably produced goods in both local and international markets. Moreover, integrating biodiversity conservation into corporate social responsibility (CSR) frameworks and national

investment promotion strategies can further attract private capital and align business interests with environmental sustainability. There is need to mainstream incentives schemes for sustainable and biodiversity conscious agriculture certification, & Payment for Ecosystem Services (PES) schemes in the Green Fiscal Incentives Policy Framework.

About BIODEV2030

Building on the results achieved during the first phase of BIODEV2030 (2020-2022), the objective of BIODEV2030 Phase 2 (2024-2026) is to contribute to the implementation of the Kunming-Montreal Global Biodiversity Framework in 15 countries (including Kenya) by promoting changes in production practices that reconcile biodiversity and economic development. The approach includes supporting multi-stakeholder platforms at national and landscape levels, identifying key policy instruments to change or introduce, helping to design nature-positive projects at landscape level and supporting resource mobilisation. The BIODEV2030 project is funded by French Development Agency (AFD) coordinated by Expertise France and implemented by WWF in 7 countries and by IUCN in 8 countries. To learn more, please visit BIODEV2030 website: <https://www.biodev2030.org/en/>



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BIODEV2030 is an experimental approach to biodiversity mainstreaming implemented in 15 pilot countries with multiple socio-economic, environmental and geographical contexts.

Summary of key recommendations on aligning sectoral public policy instruments in agriculture and horticulture production with the National Biodiversity Strategy and Action Plan

- i. Develop and/or operationalize national, county and Ecosystem Management Plans that ensure efficient and sustainable land use, reduce land fragmentation and encroachment into key biodiversity areas.
- ii. Develop and operationalize a framework to better coordinate all stakeholders relevant to biodiversity conservation in the agriculture and horticulture sub-sectors.
- iii. Strengthening capacity for tracking & monitoring effective pesticide and herbicides use while gradually phasing out use of Highly Hazardous Pesticides (HHPs) in agriculture.
- iv. Integrate sustainable fertilizer use support services such as soil testing and bio-inputs in the fertilizer subsidy programme.
- v. Integrate sustainability criteria into insurance frameworks, such as rewarding climate-smart and biodiversity-friendly farming practices.
- vi. Enhance the effective participation and decision-making capacity of women, youth, and marginalized groups in biodiversity related decision making.
- vii. Mainstream incentives schemes for sustainable and biodiversity conscious agriculture (certification & PES schemes) in the Green Fiscal Incentives Policy Framework.

Conclusions

The transition to sustainable agriculture and horticultural production is not only a biodiversity imperative but also a socio-economic necessity. Through a strategic mix of policy instruments and enabling conditions, the government of Kenya can empower smallholders to become stewards of biodiversity while improving livelihoods and food systems.

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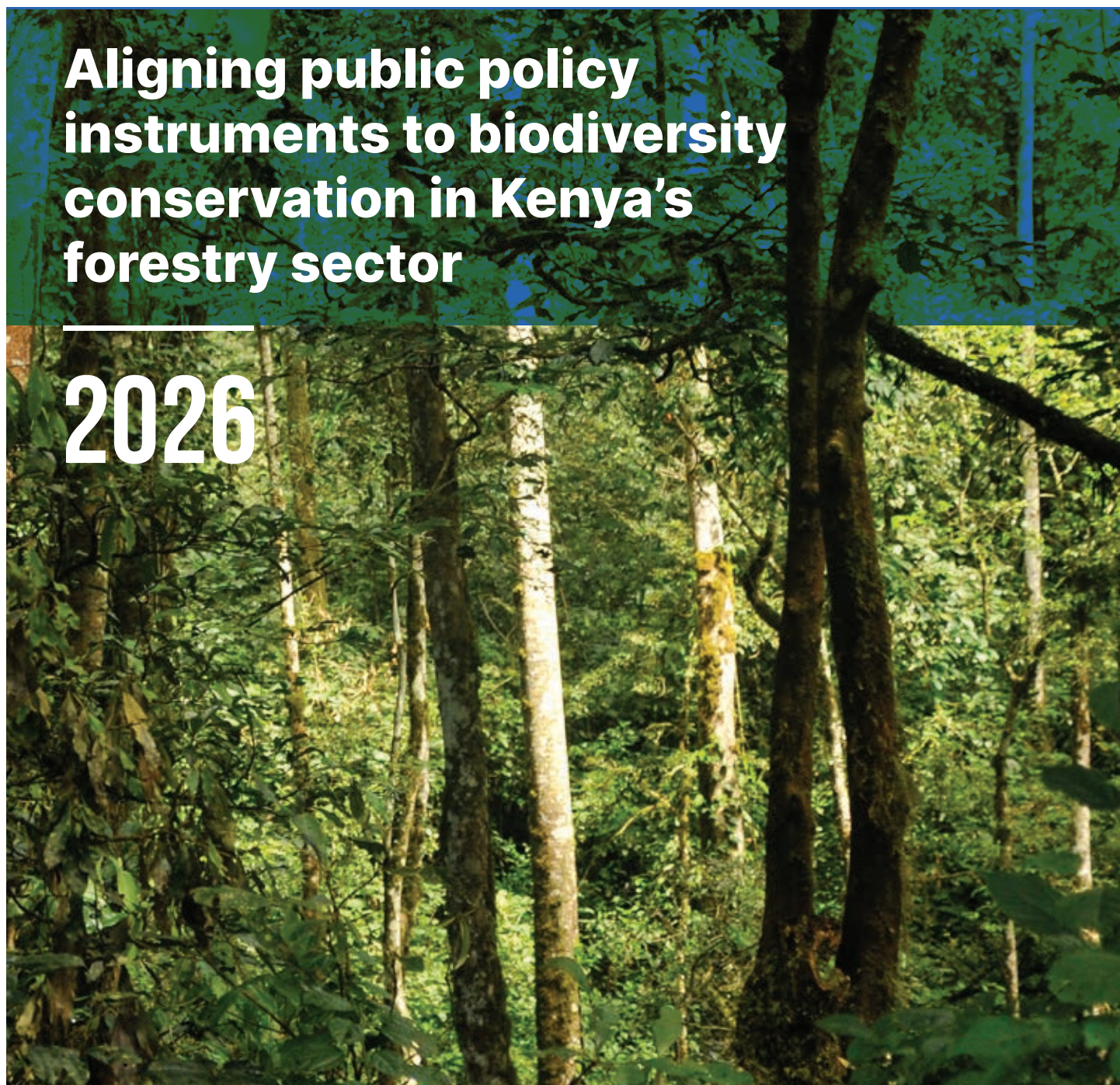


IMPLEMENTATION

POLICY BRIEF

**Aligning public policy
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Executive summary

Kenya's forestry sector is a cornerstone of the national economy and ecological sustainability, contributing 3.6% to GDP, supporting over 650,000 jobs, and providing vital ecosystem services that underpin agriculture, water security, energy, and tourism. However, the sector faces mounting threats from deforestation, unsustainable land use, and policy fragmentation, leading to biodiversity loss and ecosystem degradation and a decreasing flow of ecosystem services underpinning humans' well-being. In response, the government has launched bold initiatives such as the 15 billion Tree Growing Campaign and aligned national strategies like the National Biodiversity Strategy and Action Plan (NBSAP) with global frameworks including the Kunming-Montreal Global Biodiversity Framework (KM-GBF). This policy brief developed by BIODEV2030 underscores the urgent need to align forestry policies with biodiversity conservation objectives under the KM-GBF, particularly its Targets 10, 14, and 18. It identifies key policy misalignments and presents actionable reforms that promote sustainable forest management, equitable benefit-sharing, gender inclusion, and enhanced regulatory enforcement. By integrating biodiversity into forestry decision-making and governance, Kenya can secure its forest ecosystems, meet the National Landscape and Ecosystem Strategy target of 30% by 2032, enhance climate resilience, and unlock inclusive economic growth.



Background

Forestry in Kenya plays a vital role in the national economy, contributing about 3.6% of GDP and supporting the livelihoods of millions. The sector directly employs around 50,000 people and generates an estimated 600,000 indirect jobs through activities such as sawmilling, charcoal production, furniture making, and processing of non-timber forest products. Kenya's forests, including key biodiversity areas such as Kakamega Forest, Mau Forest Complex, Cherangani Hills, Shimba Hills, Arabuko-Sokoke, and Mount Kenya Forests, are critical for delivering essential ecosystem services such as water regulation, carbon sequestration, soil conservation, and biodiversity protection that underpin agriculture, energy generation, tourism, and climate resilience. These contributions are integral to achieving national development priorities under Vision 2030 and meeting global commitments like the Sustainable Development Goals (SDGs).

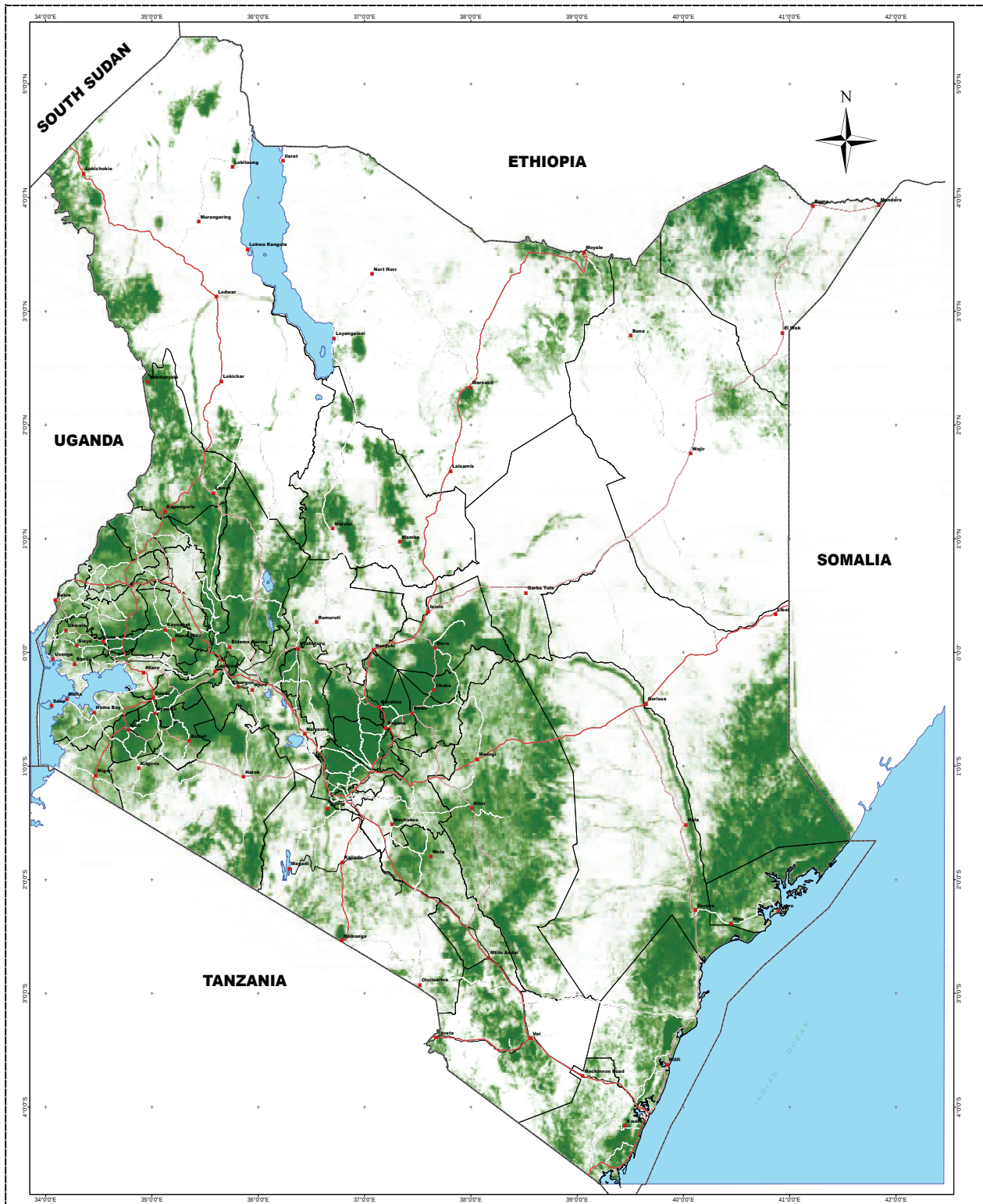
Kenya's forestry sector faces significant challenges from deforestation, illegal logging, agricultural expansion, and weak enforcement of conservation laws, leading to biodiversity loss and ecosystem degradation. Unsustainable practices and limited community involvement further undermine forest sustainability and national biodiversity goals. In response, the government launched the 15 billion Tree Growing Campaign to help achieve the constitutional target of 10% forest cover. This initiative brings together government, private sector, and communities to promote large-scale tree planting, landscape restoration, and sustainable forest management, supporting climate resilience, water security, and biodiversity conservation.



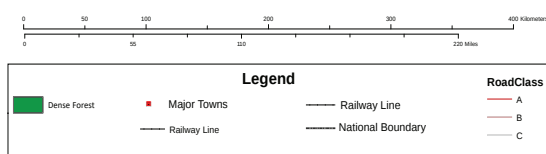
50,000

Directly employed by the sector

KENYA 2032 TREE COVER



DATA AND MAP INFORMATION SOURCES
 The land cover map is a projection of 2032.
 Roads, boundaries and towns were compiled from Survey of Kenya.
 Image data/ input parameters
 Projected Coordinate system: ARC 1960 UTM Zone 37s
 Projection: UTM
 false_easting: 500000.0
 false_northing: 10000000.0
 central_meridian: 33.0
 scale_factor: 0.9996
 latitude_of_origin: 0.0
 Linear Unit: Meter (1.0)



2032 tree cover projections for Kenya.

Status of Kenyan forests

Direct pressures

Deforestation



- Charcoal burning
- Logging legal/illegal
- Urban expansion
- Infrastructure

Forest degradation



- Forest conversion to farms
- Poor-harvesting practices
- Invasive species
- Mining and quarrying

Wild fires



Indirect pressures

Population growth



- Increased demand for agricultural land, timber, and energy
- Energy systems relying on wood
- Urbanization pressures

Policy & governance



- Weak-enforcement of forest laws
- Poor inter-agency coordination

Land tenure insecurity



Aligning forestry policy with biodiversity conservation

The intrinsic link between forests and biodiversity necessitates stronger alignment between forestry policy and biodiversity conservation objectives. Kenya's National Biodiversity Strategy and Action Plan (NBSAP), aligned with the Kunming-Montreal Global Biodiversity Framework (KM-GBF), provides a roadmap to safeguard biodiversity through integrated approaches.

Target 10



Calls for enhancing biodiversity and sustainability in forestry by promoting sustainable forest management and halting deforestation.

Target 14



Emphasizes the integration of biodiversity in all levels of policy and planning, including forestry sector decisions.

Target 18



Urges the elimination of harmful incentives and the scaling up of positive incentives to conserve biodiversity.

Aligning forestry policies with these KMGBF targets is essential to achieving Kenya's biodiversity commitments and ensuring long-term ecological and economic resilience.

The intrinsic link between forests and biodiversity necessitates stronger alignment between forestry policy and biodiversity conservation objectives

Why align the sectoral policies in forestry to KMGBF?

Kenya's forestry sector plays a pivotal role in sustaining the country's rich biodiversity, yet current forestry-related public policies operate in silos, undermining conservation efforts. There is an urgent need to realign forestry-related policies with national and global biodiversity conservation targets, including those set under the Kunming-Montreal Global Biodiversity Framework. This policy brief seeks to highlight critical policy gaps and misalignments and propose actionable reforms that integrate biodiversity considerations into forest governance, production systems, and restoration efforts. Aligning public policy to biodiversity conservation will not only safeguard ecosystems and species but also enhance resilience to climate change, support community livelihoods, and secure long-term economic and ecological sustainability.



Key insights on aligning policy instruments in forestry sector to biodiversity conservation.

Through a multi-stakeholder consultative process including key informant interviews and extensive literature reviews, the BIODEV2030 project provides an analysis of key public policy instruments governing the forestry sector in Kenya, implementation challenges and possible recommendations to align them to targets 10, 14 and 18 of the KMGBF and the National Biodiversity Strategy and Action Plan.



Encourage sustainable forest management through concessions:

While intended to protect forests, harvesting moratoriums have increased demand for forest products from other sources, often leading to premature harvesting on private lands. Enacting concessions in public forests will enhance accountability and sustainability in management of forests through public private partnerships, reduce overexploitation as well as protect critical ecosystems and biodiversity hotspots.



Participatory sustainable forest management (PSFM): Although communities are legally allowed to participate through Community Forest Associations (CFAs), weak benefit-sharing and limited capacity hinder success. Fast tracking the enacting of the developed PSFM regulations would strengthen collaboration and foster conservation of biodiversity by integrating traditional knowledge and equitable benefit-sharing.



Establish the Trees Establishment Livelihood Improvement Scheme (TELIS): Short-term intercropping in plantations offers mutual benefits where the farmers gain short-term food and income security, while forests benefit from reduced weeding costs, improved tree survival rates, and enhanced protection against illegal activities through the farmers' presence. However, conflicts between crop farming and tree growth require better governance and incentives for responsible participation and biodiversity conservation.



Finalize draft concession regulations (2025): Concessions have the potential to unlock sustainable investments in public forests by providing a clear legal framework that enables long-term, responsibly managed use of forest resources. Well-structured concessions can attract private sector financing for activities such as reforestation, eco-tourism, sustainable timber production, and non-timber forest enterprises, while ensuring biodiversity conservation and community benefits. Finalizing and publishing the regulations, with a transparent public database, is essential to encourage sustainable forest investments and ensure biodiversity-friendly forest management.



National restoration programmes: The previous programmes have been focusing heavily on planting numbers rather than survival. Shifting to a "tree growing" model like provided in the current 15B initiative with post-planting monitoring will improve outcomes in ecosystem recovery, supports habitat restoration, and increase long-term biodiversity benefits. This initiative is backed with species site matching guide to maximize biodiversity benefits.



Digitize charcoal permits: County-level permits are prone to misuse, masking illegal trade. Digitization of permits and fast-tracking of the Charcoal Regulations can enhance traceability and enforcement as well as conservation of biodiversity hotspots.



Private land tree felling: Minimal oversight has led to premature harvesting, which not only undermines timber value but also disrupts habitats, reducing biodiversity on private lands. Introducing species- and age-based harvesting guidelines, along with traceability measures, can help maintain ecological balance by allowing trees to reach maturity and support diverse species. Fast-tracking the enactment of the Regulations on Registration of Private Forests will enable farmers to access technical support from the government, promoting sustainable harvesting practices that safeguard biodiversity while enhancing livelihoods.



Ban raw log exports: Exporting unprocessed wood encourages early harvesting. A ban on raw log exports, coupled with investment in local processing, is recommended.

Kenya timber tracking system: This end-to-end tracking system can revolutionize timber traceability, but development lags due to capacity building gaps. Fast-tracking piloting in high-risk areas and mandating compliance from all timber dealers will support legal timber trade.

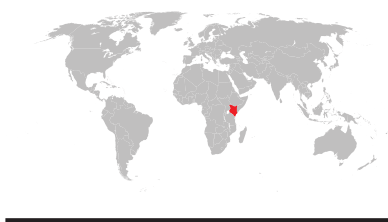
Energy act, 2019: Though supportive of clean energy, affordability and access challenges slow the transition from charcoal. Subsidizing clean energy technologies and promoting local production of alternatives will drive uptake.

Gender inclusion in forest management: Women rely heavily on forests for daily household needs such as firewood, wild foods, and medicinal plants, and their participation in conservation efforts has been shown to improve forest condition and rule compliance. However, their active role is hindered by underrepresentation in decision-making structures, lack of gender-disaggregated data for planning and monitoring, cultural norms that limit their participation in forestry, and inadequate implementation of gender-related policy provisions. To address these challenges, policies should be designed to integrate gender indicators into forest monitoring and evaluation systems, ensuring that gender issues are effectively tracked and addressed.

About BIODEV2030

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Priority recommendations for systemic reform in enhancing the role of forestry in biodiversity conservation and in alignment with targets 10, 14 and 18 of the KMGBF.

- i. Abolish PELIS to prevent forest conversion for agriculture.
- ii. Finalize and enact the Regulations on charcoal, registration of private forests, concessions and participation in sustainable forest management to conserve forest biodiversity.
- iii. Introduce subsidies to clean energy technologies and promoting local production of alternatives to reduce overreliance of fuelwood in cooking.
- iv. Prioritize indigenous species in forest restoration activities focusing on the tree grown/ survival rather than the numbers planted ensuring availability of indigenous tree seedlings through support in nursery establishment.
- v. Ban raw log exports and encourage investment in local wood processing to curb unsustainable harvesting, promote value addition, create jobs, and boost domestic revenue. Implementation should include infrastructure and skills development as well as market access strategies for locally processed timber products.
- vi. Fast track implementation of the strategy on management of Prosopis in Kenya and develop a general strategy on control and management of invasive plant species in the country.
- vii. Mobilize sustainable financing for biodiversity by aligning forestry investments with global funding mechanisms, leveraging private sector participation, and promoting carbon and biodiversity credit markets.
- viii. Incentivize biodiversity-friendly practices in forestry through payment for ecosystem services, tax breaks or subsidies for eco-friendly enterprises, and certification schemes for sustainably sourced forest products
- ix. Strengthen biodiversity monitoring and reporting by establishing a national forest biodiversity information system, and institutionalizing biodiversity monitoring within national and county forest inventories and international reporting frameworks.

Conclusion

Securing Kenya's forest biodiversity requires coordinated, coherent policies that balance conservation with socio-economic needs. Achieving the National Landscape and Ecosystem Strategy target of 30% by 2032 is central to these efforts. Finalizing and enforcing critical regulations, improving governance, and aligning cross-sectoral efforts can ensure a resilient and sustainable forestry sector that benefits both people and nature.

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POLICY BRIEF

Aligning public policy instruments to biodiversity conservation in the Kenyan livestock (pastoralism) sector

2026





Acknowledgment

This policy brief has been developed by a team of experts through a multi-stakeholder consultative process that brought together representatives from state and non-state actors. Their valuable insights, experiences, and perspectives were instrumental in shaping the recommendations presented here.



Executive summary

Pastoralism offers a critical livelihood option for communities in Kenya's arid and semi-arid lands (ASALs), which cover over 80% of the country. It contributes to approximately 13% of the national GDP and supports nearly half of the agricultural workforce. The sub-sector is estimated to directly employ 2.2 million people and another 9 million people indirectly in related sectors such as trade, leather, hotels etc. (approximately 20% of the country's labor force). In addition to its economic significance, traditional pastoralism supports biodiversity conservation, preserves cultural heritage, and manages rangelands that are vital for wildlife conservation.

However, the sustainability of pastoralism is increasingly threatened by unsustainable practices such as overstocking, overgrazing, and land fragmentation. The problem is further compounded by increased climate variability, and the spread of invasive species in the rangelands. These pressures have resulted in land degradation, loss of biodiversity, and rising human-wildlife conflict. While policies such as the Community Land Act (2016) and County Spatial Plans exist, weak implementation and poor coordination hinder their effectiveness.

Using data from secondary review of literature, key informant interviews and multi stakeholder engagements, we provide recommendations for policy improvements on aligning sectoral public policy instruments in pastoralism to biodiversity conservation and both global and national biodiversity targets.

This policy brief developed by BIODIV2030 in Kenya, recommends enhanced security of community land tenure, operationalizing national and county spatial plans and associated Ecosystem Management Plans, and enhanced enforcement of sustainable grazing practices. Additionally, we recommend invasive species management, adoption of participatory decision-making, capacity building of communities on rangeland planning and management, improved stakeholder coordination, and promotion of incentive-based conservation mechanisms.

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of the country.



Background information

Pastoralism plays a key role in Kenya's economic development, especially within the arid and semi-arid lands (ASALs), which make up over 80% of the country's land area (GoK, 2019). The sub-sector accounts for an estimated 13% of the national Gross Domestic Product (GDP), valued at approximately USD 1.13 billion (Life Africa Trust, 2020). Of this, livestock production (milk and meat) constitutes about 92% (USD 1.04 billion), with other value chains such as honey & firewood collection contributing the remaining 8% (USD 0.09 billion) (Nyariki & Amwata, 2019).

In terms of employment, pastoralism plays a significant role. The sector directly employs approximately 2.2 million people and another 9 million indirectly in related sectors such as ranching, trade, transport,

leather, slaughterhouses, butcheries and eateries. This represents 50% of Kenya's agricultural workforce and 20% of the country's labor force. Within the ASAL regions, livestock-based activities account for approximately 90% of employment and contribute to about 95% of household incomes (Taylor & Elizabeth, 2014; Nyariki & Amwata, 2019).

Pastoral communities are also critical to national food security, supplying over 20% of Kenya's milk and approximately 28% of the country's annual meat consumption equivalent to 154.97 tonnes of meat per year. This makes pastoralism indispensable to both food availability and nutritional outcomes (Emali, 2023; Nyariki & Amwatta, 2019).

Beyond its economic impact, pastoralism supports environmental sustainability and cultural preservation (Cormack, 2016; Sharifian et al., 2022). Pastoralists manage rangelands that are vital for biodiversity conservation and serve as important habitats for wildlife, thereby enhancing the country's tourism potential. Moreover, their cultural traditions and way of life contribute to Kenya's heritage and attract tourism (Ndung'u & Nyariki, 2023).

Context and problem statement

Pastoralism, while essential to economic development and livelihood improvement in the Kenyan ASALs, has also been criticized for contributing to biodiversity loss and landscape degradation in these fragile ecosystems. Overgrazing, particularly in areas where pastoral mobility is restricted due to land fragmentation leads to vegetation depletion, soil erosion, and reduced rangeland productivity. Climate variability, insecure land tenure systems, and spread of invasive species have further compounded these challenges.

These dynamics underscore the need for integrated land management strategies that balance pastoral practices with conservation efforts to restore and maintain the ecological integrity of Kenya's ASALs.

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Kunming-Montreal Global Biodiversity Framework

Through a multi-stakeholder consultative process including key informant interviews and extensive literature review, the BIODIV2030 project presents recommendations aimed at promoting the sustainability of pastoralism in Kenya. It emphasizes the need to align the relevant public policy instruments regulating the pastoralism sector in Kenya with targets 10, 14 and 18 of the KMGBF as well as the national biodiversity targets for enhanced resilience and productivity of the pastoralism sub-sector in the country.

Relevant Kunming-Montreal Global Biodiversity Framework targets



Target 10

Enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and forestry.



Target 14

Integrate biodiversity in decision-making at every level.



Target 18

Reduce harmful incentives by at least \$500 billion per year and scale up positive incentives for biodiversity.

Key insights on aligning public policy instruments in the livestock (pastoralism) sub-sector to biodiversity conservation

Some key insights regarding alignment of public policy instruments to biodiversity conservation in pastoralism sub-sector are highlighted below:



Pastoralism and biodiversity

conservation: Pastoralism has been proven to be a sustainable land use system in the Kenyan ASALs that enhances biodiversity conservation. By herders moving from one region to another, they allow overexploited regions to rest and regenerate thus preserving biodiversity.



Community landownership: The Community Land Act of 2016 aimed at strengthening communal land ownership and securing communal lands. Pastoralists, however, felt that registering their lands communally would alienate them from their lands and decision making. It in turn led to massive conversion of community lands to private ownership through subdivisions and registration as private property, group ranches or conservancies.

The policy environment in Kenya can be leveraged to improve communal land ownership in the pastoralism sub-sector by fully operationalizing and implementing the Community Land Act, 2016, which provides a legal framework for recognizing and registering community land

rights. This could be done through recognizing different land uses within the same title deed i.e. conservation, grazing, agriculture areas etc. One can then transfer the title but not the intended land use unless with express authority from community structures. Strengthening this framework requires developing clear guidelines for land adjudication, demarcation, and registration processes that are accessible, participatory, and sensitive to local customs and pastoral mobility patterns.

Policies should also promote awareness and capacity building initiatives among pastoralist communities to understand their land rights and governance responsibilities. Furthermore, integrating community land management plans into county spatial planning and natural resource governance structures will ensure that communal land is protected from fragmentation, encroachment, and unsustainable exploitation, thereby enhancing tenure security, resource stewardship, and resilience among pastoralist groups.





Grazing management: Unsustainable livestock stocking rates among pastoralist communities have led to overgrazing, rangeland degradation, and loss of ecosystem services. Furthermore, an increase in small ruminants (goats and sheep) vis a vis the large ones (cattle and camels) due to their resilience to drought and climatic shocks has not made things better. The small ruminants, which are mostly selective browsers, feed on young trees, bushes and grasses thus negatively affecting natural regeneration. The situation is further worsened by the increasing frequency and severity of droughts in ASALs, resulting in significant livestock losses, thus undermining the primary livelihoods of pastoral communities.

Communities in collaboration with county governments and Non-State Actors have come up with Grazing Management Plans (GMPs) and Ecosystem Management Plans (EMPs) for transboundary resources to enhance sustainability and biodiversity conservation within the rangelands. Enforcement of the GMPs and EMPs, however, remains a challenge due to vastness of the rangelands and inadequate resources to monitor effective implementation. The situation is further exacerbated

by frequent droughts that result in conflicts as herders compete for the limited pasture and water resources.

There is need for participatory development of a comprehensive legal framework at both national and county levels to guide the implementation of GMPs and EMPs. This should include bylaws and the integration of customary institutions, with specific strategies aimed at reducing human-wildlife conflicts.



County spatial and ecosystem management planning:

A majority of ASAL counties in the country have developed county spatial plans to guide land and natural resources exploitation within their jurisdictions. Implementation and enforcement of the plans, however, still lags due to weak coordination across the land use and natural resources sector. Uncontrolled urbanization, unsustainable expansion of agriculture and infrastructure have hampered effective implementation of spatial plans. Increased land subdivision and fencing of previously communal lands interferes with free wildlife and livestock movements along traditional corridors. Furthermore, changing cultural practices, from predominantly pastoralism to crop production and sedentary lifestyles has made coexistence with wildlife more challenging thus leading to increased incidences of human wildlife conflicts (HWC) and biodiversity losses.

There is need for customizing the county spatial plans through participatory development of integrated ecosystem plans leveraging on traditional and indigenous knowledge to enhance sustainability and biodiversity conservation in the livestock sub sector. In July 2023, the Kenyan Government issued a presidential directive to temporarily suspend land subdivision, change

of land use and issuance of licenses and permits to various projects in key wildlife conservation areas of Kajiado, Machakos, Narok, Laikipia, Taita-Taveta and Baringo counties. There is need to develop a comprehensive conservation policy and regulations to actualize the spirit of the decree and align it to the national laws.



Emergence and spread of invasive species:

Invasive species such as *Prosopis juliflora* (Mathenge), *Lantana camara*, *Opuntia* spp, *Ipomoea hildebrandtii* and Mexican poppy in the Kenyan ASALs have led to a decline in pasture areas and biodiversity losses thus posing a significant threat to pastoralists livelihoods in Kenya.

There is need for the development of joint strategies, guidelines and action plans cutting across different landscapes to manage and control the spread of invasive species in the Kenyan ASALs.

*Invasive plant species such as *Prosopis juliflora* (Mathenge) and *Ipomoea hildebrandtii* (Ipomoea) have aggressively spread across Kajiado's rangelands, displacing native vegetation and reducing pasture availability. This has severely impacted livestock productivity by limiting forage, causing injuries to both livestock and humans due to poisonous thorns, and contributing to land degradation, ultimately threatening pastoral livelihoods.*



Cultural beliefs and norms: Most pastoral communities believe that keeping a large herd size is a symbol of wealth, influence and status in society. The situation is further exacerbated by the communal nature of pastoralism where pasture and watering points are shared equally between members without considering the herd sizes for each individual. This (tragedy of the commons) has in turn led to unsustainable stocking rates and overgrazing, often accompanied by increasing HWC.

There is a need for enhanced capacity building on sustainable stocking rates and alternative livestock feed production technologies to improve productivity and profitability of pastoral systems. Strengthening research in rangeland management, including carrying capacity assessments, invasive species management, as well as alternative livestock production systems would help address the norms.



Gender and social inclusion: The negative effects of biodiversity losses on productivity of the rangelands affect men and women differently. Public policy instruments should be aligned to address the differentiated roles, needs and knowledge systems of men, women, youth and marginalized communities.

Integrating gender responsive and socially inclusive provisions into national biodiversity strategies, land/resource governance frameworks and climate adaptation policies that affect

There is a need for enhanced capacity building on sustainable stocking rates and alternative livestock feed production technologies to improve productivity and profitability of pastoral systems.

pastoral livelihoods is critical. Decision making on rangeland management and planning should be participatory and ensure equitable representation of all social groups. Furthermore, targeted investments in capacity building, access to credit, and extension services for the underrepresented groups can foster more inclusive, sustainable biodiversity conservation outcomes in pastoral areas.



Insufficient coordination of biodiversity conservation and rangeland restoration efforts in the Kenyan ASALs:

Biodiversity conservation and rangeland restoration efforts in the Kenyan ASALs are implemented by various stakeholders ranging from national and county governments, pastoralist communities, civil society organizations, Non-Governmental Organizations, research institutions, and private sector actors.

Integrating biodiversity conservation objectives into pastoralist-related legislation such as the Community Land Act (2016), Wildlife Conservation and Management (Amendment) Act (2025), and the Range Management and Pastoralism Strategy 2021 can promote inter-agency collaboration and reduce policy fragmentation. Moreover, the development and

maintenance of inclusive, multi-stakeholder platforms at both national and county levels, mandated by policy, can institutionalize dialogue and joint planning processes. Such platforms can facilitate information sharing, conflict resolution, and co-management of rangeland resources, while ensuring that pastoralist voices particularly those of women, youth, and minority groups are adequately represented. These policies should encourage data driven decision making through investment in indigenous knowledge systems, participatory mapping, and biodiversity monitoring tools relevant to pastoral areas. Finally, the policy environment should provide clear guidelines and incentives for stakeholder roles, accountability mechanisms, and coordinated funding streams to avoid duplication of efforts. This will not only streamline biodiversity conservation interventions but also foster resilience, sustainable land use, and equitable resource governance across Kenya's pastoral landscapes.



Incentivizing biodiversity conservation in the livestock (pastoralism) sub sector:

The policy environment in Kenya can be improved to incentivize biodiversity conservation in the pastoralism sub-sector by embedding clear, enforceable provisions that recognize and reward



sustainable rangeland management practices and ecosystem stewardship by pastoralist communities.

This can include the establishment of incentive-based mechanisms such as Payments for Ecosystem Services (PES), biodiversity friendly certification schemes, and tax relief for community conservancies. Policies should also facilitate secure land tenure through implementation

of the Community Land Act, which empowers communities to sustainably manage their resources. Additionally, integrating biodiversity objectives into national livestock, land, and climate policies while ensuring access to conservation funding, capacity building, and technical support can motivate pastoralists to adopt practices that preserve biodiversity and enhance ecosystem resilience.

About BIODEV2030

Building on the results achieved during the first phase of BIODEV2030 (2020-2022), the objective of BIODEV2030 Phase 2 (2024-2026) is to contribute to the implementation of the Kunming-Montreal Global Biodiversity Framework in 15 countries (including Kenya) by promoting changes in production practices that reconcile biodiversity and economic development. The approach includes supporting multi-stakeholder platforms at national and landscape levels, identifying key policy instruments to change or introduce, helping to design nature-positive projects at landscape level and supporting resource mobilisation. The BIODEV2030 project is funded by French Development Agency (AFD) coordinated by Expertise France and implemented by WWF in 7 countries and by IUCN in 8 countries. To learn more, please visit BIODEV2030 website: <https://www.biodev2030.org/en/>



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BIODEV2030 is an experimental approach to biodiversity mainstreaming implemented in 15 pilot countries with multiple socio-economic, environmental and geographical contexts.

Recommendations for enhancing the role of pastoralism in biodiversity conservation in alignment with targets 10, 14 and 18 of the KMGBF.

- i. Fully implement the 2016 Community Land Act to strengthen communal land use and secure pastoralist's land ownership. This could be done through developing regulations that guide multiple land uses within the same title deed. The ownership could be transferrable but not the intended land use unless with express authority from community structures.
- ii. Participatory development and operationalization of county spatial plans through development of customized ecosystem management plans for specific landscapes, identifying key wildlife and livestock corridors.
- iii. Develop a comprehensive legal framework at both national and county levels to guide the implementation of grazing management plans. This should include bylaws and the integration of customary institutions, with specific strategies aimed at reducing human-wildlife conflicts.
- iv. Decision making on rangeland management and planning should be participatory and ensure equitable representation of all social groups.
- v. Strengthen research on rangeland management, including carrying capacity assessments, invasive species management, as well as alternative livestock production systems.

- vi. Develop a framework to better coordinate all stakeholders relevant to biodiversity conservation in the livestock sub sector.
- vii. Promote incentive frameworks such as Payment for Ecosystem Services (PES) schemes that adhere to recommended carrying capacity and biodiversity conservation efforts.
- viii Enhance capacity on sustainable stocking rates and alternative livestock feed production technologies to improve productivity and profitability of pastoral systems.

Conclusion

Transitioning to sustainable pastoralism offers a powerful lever to achieve biodiversity conservation and resilient livelihoods. Aligning livestock policies with NBSAP the KMGBF targets 10, 14, and 18 ensures a rights-based, inclusive, and ecosystem-sensitive approach to rangeland management. Communities, government, civil society, and development partners must work together to implement enabling policies and unlock investment for a more sustainable and equitable pastoral future.

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