TC FOR BE POLICY BRIEF 05
Transformative Change for Biodiversity and Equity

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Connections between biodiversity threats and commodity expansion in biodiversity-rich countries of the Global South

Executive summary

This brief analyses how EU consumer demand intensifies deforestation and habitat loss in biodiversity-rich nations like Cameroon, Colombia, and Kenya by driving the expansion of agricultural commodities. Between 2000 and 2020, high-value export crops production and landcover expanded substantially in all three countries, with harvested areas consistently overlapping regions of forest-cover loss, with crop-specific nuances. These spatial patterns show strong connections between commodity-driven land conversion and the erosion of critical habitats. A key takeaway is that trade-linked commodities are central drivers of land-use change, but their impacts vary depending on governance, landscape type, and production systems. Effective policy responses therefore require context-specific strategies, including sustainable value chain approaches, land-use planning, and stronger governance of frontier regions. This multi-criteria, multi-method analysis of land use changes, agricultural, trade and landuse patterns and processes is a novel contribution to understanding the drivers and implications of globally and particularly EU driven agricultural change on biodiversity for these three countries.

Policy recommendations

- **Align national agricultural goals with conservation policies:** Ensure policies to boost commodity production (e.g., increasing cocoa yields in Cameroon) are aligned with international conservation and trade mandates, such as the EU Deforestation Regulation (EUDR).
- **Establish explicit trade-offs in governance:** Governments need to make explicit political choices to balance commodity production, farmer livelihoods, and forest conservation while accounting for state sovereignty, customary land use, and international value chain governance.
- **Improve geo-mapping accuracy for traceability:** Strengthen the accuracy and reliability of land use maps to meet EUDR, especially distinguishing complex land cover like cocoa agroforestry systems from natural forests (as in Cameroon).
- **Implement targeted land use management:** Deploy targeted interventions to balance economic development with sustainable forest management, particularly in regions with rapidly expanding high-impact commodities e.g. timber, oil palm and banana.
- **Incentivize sustainable agroforestry and other forms of conservation:** Actively promote and incentivize sustainable farming systems and/or conservation practices, such as cocoa and coffee agroforestry, high-value conservation areas and live fences.
- **Policy responses** should be context-specific, working through value chains, land-use planning, and stronger governance of frontier regions.

Lessons learnt

- **Telecoupled agrifood systems redistribute and drive environmental pressures and biodiversity loss from the EU to distant landscapes**, as agricultural commodities consumed in the EU are key drivers of land use change and major biodiversity losses, with different national trajectories producing distinct, generally negative biodiversity outcomes. While Kenya's challenges lie in sustainable intensification, Cameroon and Colombia face more acute risks from commodity-driven deforestation.
- **Agriculture is a central economic pillar** accounting for roughly 80% of Cameroon's primary-sector GDP, over 20% of Kenya's total GDP, and more than 25% of Colombia's export volume (second only to oil and gas).
- **Export expansion fuels deforestation** as high-value, export-oriented commodities are associated with increased deforestation in the three countries.
- **Impacts are commodity-specific:** Agricultural growth follows different pathways. For some crops (e.g., coffee) exports have increased without expanding cultivated land, while staple crops like rice have expanded primarily to meet domestic consumption. Environmental effects differ by crop, with growing EU demand amplifying biodiversity loss, despite national policies.
- **Expansion particularly in vulnerable ecosystems:** Commodity growth of timber, cocoa, and oil palm in Cameroon and tea in Kenya disproportionately occurs in areas with high species richness and already with significant landscape, exacerbating pressure on highly vulnerable species.
- **Data reliability hinders monitoring:** Low-quality data at local scales reduces the precision of land-use and forest-cover maps, constraining effective monitoring and creating traceability challenges for regulations like the EUDR.

Context

This brief is based on an analysis of three biodiversity-rich countries, Cameroon, Colombia, and Kenya, linked to the EU through trade, aid, and policies. The report, a deliverable of the Transformative Change for Biodiversity and Equity (TCforBE) project, provides a descriptive analysis of land-use change and commodity expansion between 2000 and 2020 for the main crops traded, coupled with a spatially explicit typology of landscape patterns. Focusing on cocoa, timber, oil palm, coffee, tea and avocado, it assesses biodiversity risks associated with these telecoupled commodities by analysing the relationship between changes in crop area and specific biodiversity indicators, utilizing geospatial open-source datasets and long-term land use Earth Observation data.

Key findings

Agriculture is a central economic pillar in all three countries. In Cameroon, it engages approximately 70% of the economically active population and accounts for 80% of national GDP. In Colombia, agriculture represents 8% of GDP and is the second-largest contributor to exports, accounting for 25% of the total export volume, surpassed only by oil and gas. In Kenya, agriculture contributed to 21% of GDP in 2022. However, it is also a major driver of land use change, shown in Figure 1.

A strong link was found between the growth of high-value export crops and increasing tree cover loss in Cameroon and Colombia. In Cameroon, expanding timber production caused 3.74% tree cover decline for every 1% increase in timber area, followed by oil palm cultivation, while cocoa expansion had a much smaller effect, being grown mainly in agroforestry systems. In Colombia, banana and coffee production were strongly linked to deforestation, with average tree loss increases of 0.44% and 0.42% respectively, compared to oil palm expansion (0.22%). In Kenya, expanding avocado production was associated with tree cover gains, a 3.17% increase for every 1% rise in cultivation area, due to government policies that aim to boost food security and forest cover.

In Cameroon, maize, plantain, and cocoa increased by 31% in harvested area over the last decade. In Colombia, oil palm significantly increased in area (135%) between 2010 and 2020, although cattle ranching remains the dominant land use, growing by 26% to cover over 17 million hectares. Kenya's tea cultivation grew by 56.7% in a decade, while avocado production has surged due to high global profitability and government subsidies for seedlings.

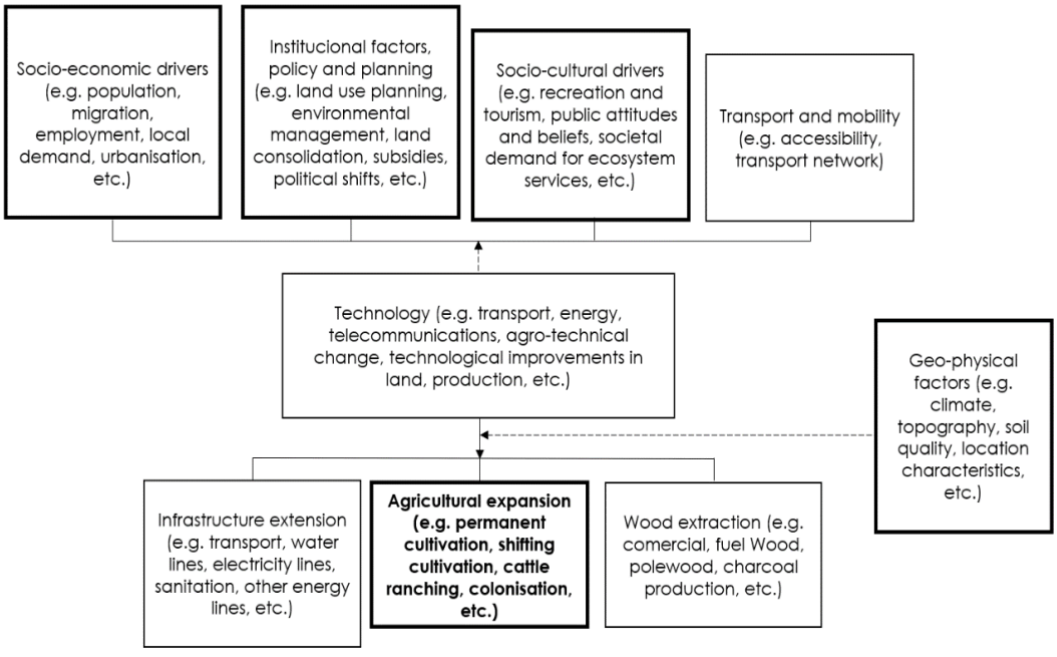


Figure 1: Drivers of land use change and underlying causes

Agricultural expansion has occurred in frontier and ecologically sensitive areas with high species vulnerability, where high species richness is combined with increasing landscape pressure. In Colombia, expansion (primarily for cattle) threatens the Amazon rainforest, the Orinoco Basin, and natural parks, and the Caribbean coast is losing its remaining tropical dry forests and mangroves. In Kenya, agriculture is transforming the southern rangelands and montane Highlands, vital habitats for endangered species. In Cameroon, non-industrial oil palm expansion directly threatens intact forest landscapes and wildlife biodiversity.

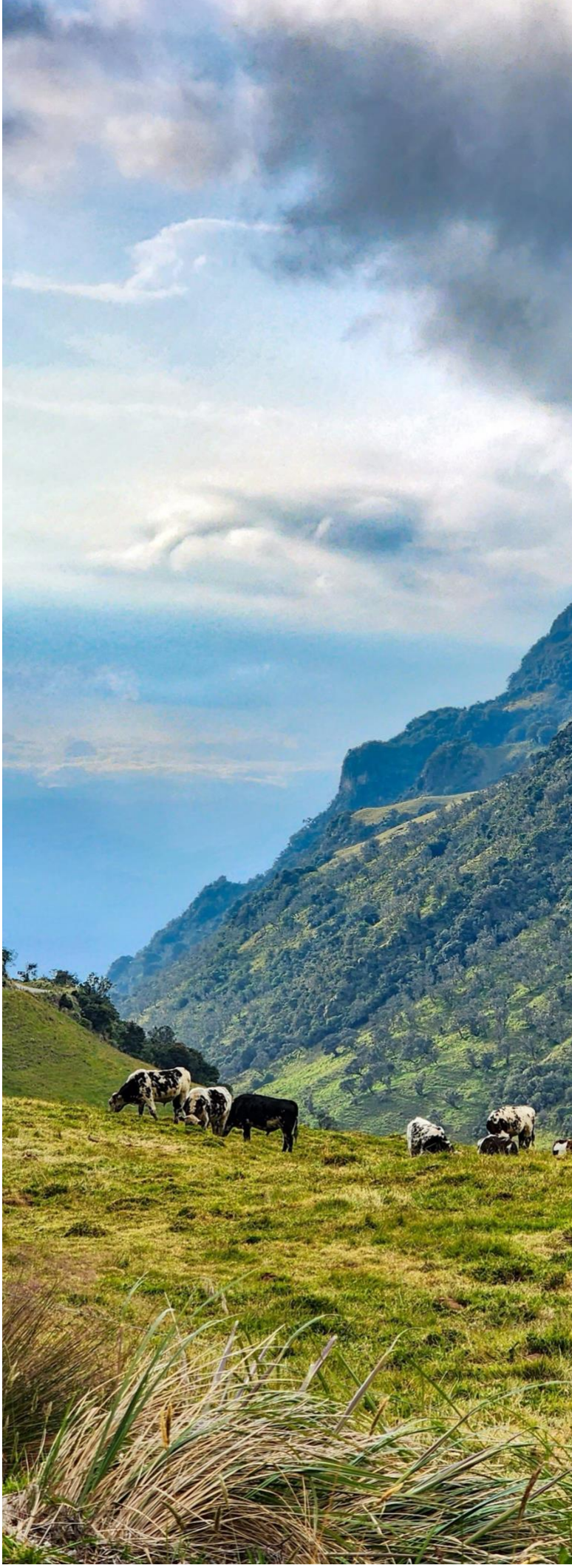
Major governance and data challenges hinder conservation and policy implementation. Inconsistent and missing data hamper land use change and biodiversity monitoring.

In Kenya, forest cover assessments lack consistent forest classes across different periods, and wildlife population trends differ depending on which organization conducts the census.

In Colombia, while livestock headcounts are available, specific data on the hectares designated for livestock were not available for several years of the study.

Furthermore, in Cameroon, the magnitude of cross-border trade is often undervalued in national accounts due to inadequate knowledge of informal determinants and consequences.

Another key problem is unreliable land use data. In Cameroon, for example, cocoa agroforestry systems are often misclassified as natural forests (64% of observed cocoa farms were wrongly classified as forest), leading to major mapping errors. These gaps undermine efforts to meet EUDR requirements for mapping, tracking supply chains, and setting accurate deforestation baselines.



Agricultural expansion – primarily for cattle ranching – is a leading driver of deforestation in Colombia, threatening biodiversity-rich ecosystems such as the Amazon rainforest, the Orinoco basin and natural parks.

Comparative Insights

	Kenya	Colombia	Cameroon
Land Use change patterns	Agricultural intensification and habitat fragmentation	Rapid frontier expansion with governance challenges, especially in post-conflict regions	Expansion into intact forests and agricultural frontiers
EU demand	High major export destination for >50% of exports	Moderate-high EU major banana & oil palm, USA, and regional exports and national	Very high Major destination for around 89% exports cocoa, coffee & bananas
Trade patterns	High EU demand High-value, export-oriented tea, coffee & horticulture	Diversified exports, longstanding coffee, with expanding frontiers palm oil & beef	Tree-based exports (timber, cocoa, palm oil, banana)
Commodity distribution	Segregated export vs. subsistence systems	Dynamic spatial shifts driven by new frontiers	Overlapping forest-based commodity zones
Biodiversity risks	Diffuse ecosystem degradations Pressure on water resources and pollinators, Habitat fragmentation Intensification (fertilizers, pesticides, irrigation)	Forest biodiversity loss in Amazon and frontier regions via expansion of multiple commodities	Large-scale, high-intensity biodiversity loss via deforestation from expansion of cash crop into intact forests, Conversion via logging and infrastructure

Policy Implications

Kenya	Colombia	Cameroon
Promote sustainable intensification rather than expansion due to landscape fragmentation and intensification, productivity improvements on existing farmland and agroecological could reduce pressure on remaining natural habitats and decouple production growth from land expansion, especially in highland ecosystems.	**Halt and manage forest frontier expansion** especially for cocoa and oil palm, combined with stronger forest protection and enforcement mechanisms, intensification and land-use zoning to prevent agricultural encroachment.	**Control agricultural frontier expansion** through stronger monitoring and enforcement and policies limiting expansion into the Amazon and other hotspots.
Strengthen landscape-level planning to avoid fragmented land-use mosaics, and use integrated landscape governance approaches with better coordination between agriculture, water, and conservation sectors.	**Promote sustainable cocoa and palm oil production** given the strong link between exports and forest loss, scale up deforestation-free chains, encourage agroforestry systems (e.g., shaded cocoa) and improve traceability.	**Address landuse governance gaps in post-conflict areas** by strengthening land tenure systems, improving state presence and regulation in newly accessible areas.
Reduce environmental impacts of export horticulture, for example improve water management and irrigation efficiency, reduce agrochemical use in intensive systems and align export standards with biodiversity outcomes.	**Improve governance of overlapping land uses** (logging, mining, agriculture), via integrated land-use governance, better coordination across sectors and ministries.	**Transition cattle ranching to sustainable silvopastoral systems** and increase productivity on existing pasture to reduce expansion.
Support the many smallholders in sustainable value chains, by strengthening inclusive voluntary certification and supporting farmer access to sustainable markets.	**Strengthen community and Indigenous land rights.** Recognize and support community-based forest management and enhance participation of local actors in decision-making.	**Plan expansion of commodities like palm oil**, rather than stopping entirely and direct expansion toward already degraded lands and away from high-biodiversity areas.
Address diffuse biodiversity loss, not just through existing protected areas, but also biodiversity-friendly farming systems and enhanced connectivity in fragmented landscapes,	**Regulate infrastructure-driven expansion** as roads and access drive deforestation so integrate safeguards into infrastructure development and monitor indirect, local land-use change effects.	**Enhance traceability and legality in value chains**, due to mixed formal and informal markets, improve commodity traceability systems and strengthen legal compliance mechanisms.

Targeted interventions are needed to balance economic development with sustainable forest management, particularly in regions where high-impact commodities e.g. cocoa (in picture), oil palm and coffee are rapidly expanding

Cross-cutting recommendations

1. Shift toward sustainable landscape approaches and build on multi-stakeholder landscape governance initiatives that balance production, conservation, and livelihoods

2. Transform global trade systems, as EU demand drives negative biodiversity impacts, options include deforestation-free and biodiversity-friendly supply chains and trade policies with specific biodiversity and sustainability goals

3. Target high-risk biodiversity hotspots and use spatial data for planning and monitoring

4. Strengthen governance and policy coherence, by improving coordination between agriculture, environment, and trade policies and address contradictions between growth and conservation goals

5. Support transformative change pathways by identifying policy intervention areas and supporting stakeholder-driven transformation toward sustainable land use and trade.

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